



Horizontal Collaboration between Logistics Service Providers (LSPs) in Australia: Examining the Structure, Opportunities and Impediments

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

Saeid Ahmadi Nasab

BME (SUT, Iran), MSc LOG MGMT (UCSI, Malaysia)

School of Business IT and Logistics

College of Business

RMIT University

July 2019

Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Saeid Ahmadi Nasab

30 July 2019

This thesis is a result of collaboration and dedicated to:

My loving wife,

Seiedeh Nasrin Danesh

Acknowledgements

I would like to express my sincere gratitude to my senior supervisor Assistant Professor Victor Gekara for his continuous support of my PhD study and for his valuable supervision and immense knowledge. His guidance helped me on all occasions during my research and the writing of my thesis.

I would also like to thank the rest of my supervision committee team: Dr Ahmad Abareshi for his insightful comments and encouragement, which motivated me to advance my research.

My sincere thank also go to Emeritus Professor Brian Corbitt, who joined my supervisory team, provided me the opportunity to be motivated and broaden my research from various perspectives and helped me to compile my thesis chapters. Without my supervisory team and their precious support, it would not have been possible to complete this thesis.

This thesis edited by Elite Editing, and editorial intervention was restricted to Standards D and E of the Australian Standards for Editing Practice.

Finally, I would like to acknowledge the support, patience and inspiration provided by my family: my beloved wife, Nasrin, who provided me with an extraordinary level of support, encouragement and understanding throughout my PhD journey; my beautiful daughter Helia, who was my solace; my precious son Alireza; my parents, my sister, family members and friends for supporting me spiritually and for their unconditional support.

Table of Contents

Declaration	ii
Acknowledgements.....	iv
Table of Contents	v
List of Tables.....	viii
List of Figures.....	ix
List of Abbreviations.....	xi
Abstract	xiii
Chapter 1: Introduction.....	1
1.1 Introduction	1
1.2 Background to the Research.....	2
1.3 Research Aims and Questions.....	4
1.4 Significance of the Study	6
1.5 Research Method and Methodology	7
1.6 Data Analysis and Findings.....	9
1.7 Outline of the Thesis	10
Chapter 2: Literature Review Part 1—Frameworks of Business Collaboration	14
2.1 Introduction	14
2.2 Conceptualising Business Collaboration.....	15
2.3 Theories Underpinning this Research	19
2.3.1 Transaction Cost Economics	20
2.3.2 Resource Dependency Theory	21
2.3.3 Game Theory.....	22
2.3.4 Collaboration Theory	23
2.4 The Rationale and Drivers of Business Collaboration	24
2.4.1 Reducing Costs and Improving Productivity	28
2.4.2 Market Positioning	29
2.4.3 Improving Customer Service	29
2.4.4 Sharing Resources	30
2.5 Different Forms of Collaboration.....	31
2.5.2 Horizontal Collaboration and Coopetition	35
2.6 Challenges and Impediments to Business Collaboration	37
2.6.1 Partner Selection	38
2.6.2 Determining and Dividing the Gains	39
2.6.3 Negotiation	40
2.6.4 Coordination and Information and Communication Technology	41
2.7 Collaboration Structure	41
2.8 Research Framework.....	45
2.9 Conclusion.....	52
Chapter 3: Literature Review Part 2—Organisational Collaboration in the Transport and Logistics Industry	54
3.1 Introduction	54
3.2 Logistics Service Providers	55
3.3 Common Challenges within the Logistics Industry	59

3.4 Collaboration in the Transport and Logistics Industry.....	61
3.5 Existing Models of Horizontal Collaboration	64
3.6 Proposed Model of Horizontal Collaboration	69
3.6.1 Phase 1: Setting the Stage	72
3.6.2 Phase 2: Building and Implementing the Collaboration	73
3.6.3 Phase 3: Managing and Sustaining the Collaboration.....	74
3.7 Conclusion.....	74
Chapter 4: Research Methodology	75
4.1 Introduction	75
4.2 Research Aims and Questions.....	76
4.3 Research Method and Methodology	77
4.4 Data Sources.....	80
4.5 Data Collection.....	87
4.5.1 Interviews	88
4.5.2 Process of Face-to-Face Interviews.....	90
4.6 Data Analysis	94
4.7 Ethical Considerations.....	98
4.8 Conclusion.....	99
Chapter 5: The Profile of Australian Logistics Industry Exemplar Companies.....	101
5.1 Introduction	101
5.2 Profile of the Logistics Industry in Australia	102
5.2.1 LSPs in Australia.....	103
5.2.2 Logistics Service Users	109
5.2.3 Logistics Industry Market Segments in Australia	112
5.3 Conclusion.....	115
Chapter 6: Collaboration in the Australian Logistics Industry.....	117
6.1 Introduction	117
6.2 Collaboration in the Australian Logistics Industry	117
6.3 How LSPs Understand and Practice Vertical Collaboration in Australia.....	119
6.4 How LSPs Understand the Potential for Horizontal Collaboration in Australia.....	122
6.5 Views of LSPs on the Existing Collaboration Structure in the Australian Logistics Industry.....	125
6.5.1 Contractual Scope	126
6.5.2 Organisational Scope.....	128
6.5.3 Service Scope	129
6.5.4 Resources Scope.....	131
6.5.5 Geographical Scope.....	133
6.6 Key Influences on Adoption of Collaboration between LSPs in Australia.....	136
6.7 Potential Drivers of Horizontal Collaboration in the Australian Logistics Industry....	139
6.7.1 Cost Reduction	142
6.7.2 Capability and Capacity Improvement.....	143
6.7.3 Market Position	144
6.7.4 Customer Service	144
6.7.5 Other Drivers.....	145
6.8 Conclusion.....	146
Chapter 7: Impediments to Adoption of Horizontal Collaboration Among LSPs in Australia.....	148
7.1 Introduction	148

7.2 Impediments to Horizontal Collaboration among LSPs in Australia.....	148
7.2.1 The Nature and Structure of the Logistics Industry and the Attitude of Large LSPs	150
7.2.2 Fear of Mergers and Acquisition.....	153
7.2.3 The Role of Government Authorities.....	156
7.2.4 Understanding and Appreciation of Horizontal Collaboration	159
7.3 Conclusion.....	162
Chapter 8: Discussion and Conclusions	165
8.1 Introduction	165
8.2 Collaboration among LSPs in the Australian Logistics Context.....	166
8.3 The Structure of LSP Collaboration in Australia	167
8.4 The Drivers of LSP Horizontal Collaboration in Australia.....	169
8.5 The Impediments to LSP Horizontal Collaboration in Australia	170
8.6 Proposed Model of Horizontal Collaboration among Logistics Companies in Australia.....	172
8.6.1 Phase 1: Setting the Stage	174
8.6.2 Phase 2: Building and Implementation of Collaboration	176
8.6.3 Phase 3: Managing and Sustaining Horizontal Collaboration	181
8.7 Implications for Theory.....	182
8.8 Limitations of the Study and Future Research	184
8.9 Conclusion.....	186
REFERENCES	190
APPENDICES	217
Appendix A: Interview Guide	217
Appendix B: Letter of Consent to Participate in the PhD Study.....	220
Appendix C: Letter of Invitation to PhD Study	223
Appendix D: PhD Information Letter	225
Appendix E: Ethics Approval Letter	226

List of Tables

Table 2.1: Drivers of collaboration in the researches.....	25
Table 2.2: Impediments and barriers to collaboration.....	38
Table 2.3: Structural dimensions of horizontal collaboration	43
Table 3.1: Different phases and corresponding factors in the proposed collaboration model .	72
Table 4.1: Participants and logistics firms in the study.....	83
Table 4.2: Recruitment table	91
Table 4.3: Themes and sub-themes identified in the study	98
Table 5.1: Some characteristics of different tiers (T) of logistics providers in Australia	104
Table 6.1: Potential drivers of collaboration in the Australian logistics industry	140
Table 7.1: Impediments to horizontal collaboration in Australia.....	162
Table 8.1: A summary of the comparable research findings in the literature review and data analysis	171
Table 8.2: Various stages of the horizontal collaboration (HC) model, corresponding factors, and relevant thematic questions in the semi-structured interview guide	174

List of Figures

Figure 1.1: Thesis process map	10
Figure 2.1: The collaboration and its shared variables (adapted from Bedwell et al. 2012, p. 136).....	17
Figure 2.2: The key transition from open-market negotiations to collaboration (adapted from Spekman, Kamauff & Myhr 1998, p. 634)	18
Figure 2.3: Drivers for collaboration.....	31
Figure 2.4: Types of relationship (adapted from Lambert, Emmelhainz & Gardner 1996, p. 2)	32
Figure 2.5: General scope of collaboration (adapted from Barratt 2004)	33
Figure 2.6: Impediments within collaborations.....	38
Figure 2.7: The SCP model for strategic alliances (Klint & Sjöberg 2003, p. 414)	42
Figure 2.8: Interactive collaboration process (Wood & Gray 1991).....	45
Figure 2.9: The antecedent–process–outcome framework (adapted from Thomson & Perry 2006, p. 21).....	47
Figure 2.10: TCE and the framework of the study	48
Figure 2.11: RDT and the framework of the study	49
Figure 2.12: GT and the framework of the study	50
Figure 2.13: Proposed research framework—The process of collaboration	51
Figure 3.1: Partnership model (adapted from Lambert, Emmelhainz & Gardner 1996, p. 4) .	65
Figure 3.2: Building and managing logistics collaboration (adapted from Audy et al. 2010, p. 634).....	66
Figure 3.3: The horizontal logistics cooperation model (adapted from Pomponi et al. 2013, p. 250).....	68
Figure 3.4: Proposed model for horizontal collaboration	71
Figure 4.1: The qualitative content analysis process used in this study.....	97
Figure 5.1: Research framework—The interactive process of collaboration in the Australian logistics context.....	102
Figure 5.2: Some major Australian logistics companies.....	110
Figure 5.3: A sample of major logistics users in Australia	112

Figure 5.4: Horizontal and vertical logistics industry segments in Australia (adapted and compiled from the IBISWorld industry report 2017 and interviews conducted with logistics executives).....	114
Figure 6.1: LSPs' vertical collaboration with their suppliers and customers.....	120
Figure 8.1: Proposed model for horizontal collaboration among LSPs in Australia	173
Figure 8.2: Key elements and the concept of a control mechanism in Phase 2	177
Figure 8.3: Research framework of the study and the effect of theory on the collaboration process	183
Figure 8.4: Model of horizontal collaboration development among LSPs in Australia	187

List of Abbreviations

1PL	First-party logistics
2PL	Second-party logistics
3PL	Third-party logistics
4PL	Fourth-party logistics
ACCC	Australian Competition and Consumer Commission
ASX	Australian Stock Exchange
BB	Business-to-business
BC	Business-to-customer
BITL	Business IT and logistics
BITRE	Bureau of Infrastructure, Transport and Regional Economics
CC	Customer-to-customer
CGT	Cooperative Game Theory
CPFR	Collaborative planning, forecasting, and replenishment
CSCMP	Council of Supply Chain Management Professionals
CT	Collaboration Theory
EU	European Union
FMCG	Fast-Moving Consumer Goods
GDP	Gross Domestic Product
GT	Game Theory
HREC	Human Research Ethics Committee

ICT	Information and Communication Technology
LLP	Lead Logistics Provider
LSP	Logistics Service Provider
M&A	Merger and Acquisition
NTC	National Transport Commission
R&D	Research and Development
RDT	Resource Dependence Theory
SCM	Supply Chain Management
SLA	Service Level Agreement
SME	Small and Medium Enterprise
TCE	Transaction Cost Economics
TNT	Thomas Nationwide Transport

Abstract

This research investigated horizontal collaboration among logistics service providers (LSPs) in Australia. The study examined the extent to which this exists and is being adopted, and the forms of any horizontal collaboration among LSPs in Australia.

Using a qualitative methodology from an interpretivist–constructivist perspective, the research process used semi-structured interviews to collect responses from a broad range of individuals from Australian logistics providers, logistics authorities and associations.

The study found that horizontal collaboration is not being adopted by LSPs as the primary type of relationship to interact with each other in Australia. Their focus is the use of both vertical and lateral collaboration models, with vertical collaboration as the dominant type. The data also show that the extent of direct involvement in developing horizontal collaboration activities in the Australian logistics context seems to be to remain largely at arm's length and enter operational relationships. The participants, however, anticipated that the level of horizontal collaboration would grow in the future. The data revealed that LSPs consider horizontal collaboration to be a promising concept. There is clear enthusiasm and interest in the thinking of the logistics industry about horizontal collaboration, its possibilities, potential structures and the areas where this type of collaboration could be implemented and employed.

Potential opportunities and drivers of horizontal collaboration among LSPs were identified in the research. These were for LSPs seeking to reduce costs; improve productivity and market positioning; provide better customer service; and create better capability and capacity. The research found that the adoption of horizontal collaboration is impeded in the Australian logistics industry by difficulties with partner selection; problems with the partnership process and how economic benefits are determined and divided ; and uncertainty about how to overcome difficulties with both business coordination and with information and communication technology. The research also identified that collaboration adoption is significantly negatively affected by the nature and structure of the Australian logistics industry, the attitude of large LSPs, fear of mergers and acquisitions in the industry and the role of government authorities and regulations in the Australian commercial context. The most significant effect of impediments to collaboration is that LSPs are reluctant or unable to build long-term successful horizontal collaborations with others in the Australian logistics industry.

This thesis uses the results of the data analysis and the existing research frameworks on collaboration in logistics to develop a theoretical model for understanding the development and effective application of horizontal collaboration. It proposes a comprehensive horizontal logistics collaboration model and evaluates its applicability in the Australian logistics context.

Keywords: horizontal collaboration, logistics service provider (LSP), collaboration structure, opportunities and impediments, Australia.

Chapter 1: Introduction

1.1 Introduction

This thesis investigates the existence and feasibility of horizontal collaboration among logistics service providers (LSPs) in Australia. Collaboration is a business strategy that has been widely used to achieve integration, through merger, acquisition, strategic alliance, and partnership. Scholars studied different goals of the collaboration such as increased responsiveness and improved service level, and to reduce costs (Lehoux et al. 2009; Leitner et al. 2011). In the past three decades, challenges such as intense competition in global markets, shrinking profit margins and increasingly demanding customer expectations have highlighted the role of logistics in supply chain excellence and its effect on competitive advantage. To overcome these challenges, companies may consider economies of scale and scope through merger and acquisition (M&A) and by outsourcing their activities to a service provider or via collaboration with others. The internationalisation of markets and the high level of competition in the logistics industry demands the expansion of LSPs through a high level of collaboration (Crujssen 2006) and is one of its most important future challenges. This is important as an increase in the effectiveness of LSPs has been recorded in the presence of horizontal collaboration (Pomponi et al. 2013).

The general idea of collaboration is that a single company cannot succeed in a globalised and highly competitive market characterised by scarce resources and increasing rates of change. To address this, business advantage can be gained through long-term relationships and collaboration with other supply chain partners (Naesens, Gelders & Pintelon 2009).

There are three types of potential collaboration among organisations in supply chains: vertical, horizontal and lateral collaboration. Vertical collaboration occurs when a firm collaborates with its suppliers, internally and with customers; while horizontal collaboration occurs when a company collaborates with its competitors, internally and with non-competitors or other organisations. Internal collaboration happens when different departments from one company collaborate across their functions together. Some examples of horizontal collaboration in logistics are Joint route planning, Manufacturer consolidation centres, freight sharing, road assistance and tender groups. Lateral collaboration is a combination of these two types of collaboration in which companies opt for gaining more flexibility and linking and combining

their capacities in both horizontal and vertical dimensions (Sandberg 2007). Lambert, Margaret & Gardner (1999, p. 166) presented one of the first definitions of logistics collaboration, as ‘a tailored business relationship based on mutual trust, openness, shared risk and shared reward that yields a competitive advantage resulting in business performance greater than would be achieved by the firms individually’.

Concurrently, the European Union (EU) (2001) defined horizontal cooperation as ‘concerted practices between companies operating at the same level(s) in the market’. These companies can be unrelated or from different supply chains, or they can be competing companies that share private information, equipment, facilities or resources to achieve cost reductions and/or service improvement. This definition is consistent with Cruijssen (2006, p. 12) who defined horizontal cooperation as ‘active cooperation between two or more firms that operate on the same level of the supply chain and perform a comparable logistics function’.

Horizontal collaboration occurs when two or more organisations cooperate to share information, resources such as distribution centres and risks in serving their customers. Examples of horizontal collaboration in logistics are manufacturer consolidation centres, joint route planning, freight sharing, road assistance and tender groups.

This study thus examines the extent to which horizontal collaboration exists, is being adopted and takes form among LSPs in Australia.

1.2 Background to the Research

The twenty-first century is characterised by increased levels of change in business markets. Companies face changes and challenges such as globalisation, increased competition, increased customer expectations, environmental management and rising costs of services. Companies have begun to apply strategies to optimise internal processes and reduce their cost of operations. They realise the significant role of logistics in their total cost of production or services and how logistics services can influence the degree of customer satisfaction in the company. Christopher (2011) argued that many companies struggle to manage logistics costs, but realise they are a significant part of their production costs.

To overcome these challenges and reverse their fortunes, companies have trialled a number of approaches including 1) economy of scale strategies through M&A, 2) increasing subcontracting aspects of their operations and outsourcing logistics activities to third-party

logistics service providers, and 3) collaboration with other supply chain partners to mitigate cost and enhance operations efficiency (Groothedde 2005; Razzaque & Sheng 1998).

Logistics companies are also confronted with these changes in a dynamic and complex environment. LSPs want to gain efficiencies through a faster response to these challenges to achieve higher sustainability and increase their profit margins. In practice, this means that LSPs should reduce empty haulage and improve vehicle utilisation, which in turn helps them to reduce carbon emissions, handling time and costs and increase their productivity of performance.

One of the main frequently cited problems for logistics companies is low capacity utilisation or empty haulage which decreases profit margins. Fierce competition in global markets, increasing customer expectations and mass production with shorter life cycles are among the reasons for empty haulage by logistics companies (Ballot & Fontane 2010). Collaboration with other logistics companies adds productivity to the capacity utilisation, reducing the empty millage and increase the competitive advantages of the logistics industry (De Kok, Van Dalen & van Hillegersberg 2015).

Collaboration among logistics companies and consolidation of the shipments and avoiding empty haulage reduces CO₂ emissions and environmental hazards. Statistics show that gas emissions from road transport account for 20% of total gas emissions in the EU. According to the report from European Commission(2012) gas emissions from road transport increased by 23% in the 20 years from 1990 to 2010.

Globalisation and consequent intense competition has prompted LSPs to seek economies of scale and to expand their capacity to carry large volumes. However, in many parts of the EU and Australia, LSPs are still mostly small or often family-owned companies (Magner 2017; Cruijssen 2006). Under these circumstances, collaboration in the logistics area is widely recognised as one of the fundamental challenges for the future (see, among others, Mason, Lalwani & Boughton 2007). This is important as an increase in the effectiveness of LSPs has been recorded in the presence of the horizontal collaboration process (Pomponi et al. 2013).

Synergies deriving from collaboration are thus the primary reason for logistics collaboration (Simatupang & Sridharan 2005). Horizontal collaboration has been argued to be a suitable approach to reduce costs, improve service levels and enable better market positioning

(Cruijssen 2010). Horizontal collaboration enables companies to address the competitive environment and customers' expectations (Cruijssen 2007; Schmoltzi & Wallenburg 2011).

Horizontal collaboration among LSPs has increased, is recognised as a feasible reaction to current challenges and has become a significant organisational form for LSPS over the last decade (Cruijssen 2007; Schmoltzi & Wallenburg 2011). Nonetheless, 'gains from collaborative initiatives are often disappointing' (Fawcett et al. 2012, p. 44), as it is difficult 'to grasp the dynamism and intricacies that delimit the processes within the collaboration box' (Fawcett et al. 2012, p. 45). In horizontal collaboration, the intricacies that establish the limit of the collaboration process become more significant, regardless of the nature of collaboration among LSPs or manufacturers (Cruijssen 2012).

Vertical collaboration among firms and their customers and suppliers, and lateral collaboration in supply networks, is well documented. However, the literature on horizontal collaboration remains limited and is quite recent (Leitner et al. 2011; Pomponi et al. 2013). As stated by Leitner et al. (2011) and Sossay and Hayland (2015), most previous studies focused on transportation management (Buijs & Wortmann 2014; Mason et al. 2007; Wen 2012) and the general type of collaboration, whether vertical or lateral (Deepen et al. 2008; Knemeyer et al. 2003; Lambert, Emmelhainz & Gardner 1996; 1999; Stefansson 2006).

Recent developments and emerging challenges facing the logistics sector, e.g. global competition, e-logistics and e-commerce, increase global complexity of businesses and growing competition for limited resources and common markets internationally (Audy et al. 2012; Soosay & Hyland 2015). Similarly, technological advances and e-commerce is reshaping the geography of logistics services and require a new look at the collaboration and concepts such as coopetition, logistics and supply chain integration

This study thus critically reviews the available literature to understand the nature and structure of collaboration among LSPs in Australia. More specifically, this study highlights the potential motivations, drivers and impediments that are significant for establishing and sustaining horizontal collaboration among LSPs in the Australian logistics context.

1.3 Research Aims and Questions

The importance, emergence and rapid growth of horizontal collaboration in recent decades, and paucity of studies in the transport and logistics area means that research in this area is required

(Leitner et al. 2011; Pomponi et al. 2013). Horizontal collaboration has been identified as a critical factor in the competitiveness of organisations (Naesens, Gelders & Pintelon 2009).

The location and widely dispersed low population of Australia, is a key concern to Australian businesses, particularly when they are looking to play in the global marketplaces. Australia is a long way from the US and Europe markets as well as Asia and China. As a result, imports and exports cargo must transport long distances. Australia is rich in commodities and minerals such as coal, Iron ore and Aluminium, and is a major horticultural producer, However, its trade relies on imported cargoes.

Australia is a vast continent with a low-density population with around 24 million people scattered in many geographic regions over an area of 7.692 million square km. The population density and vast area of the country present more challenges for logistics companies to distribute cargo over long distances. Moreover, the Australian logistics industry is characterised by a high level of competition and low volume, low-profit-margin cargo which makes logistics companies choose different strategies to cope with the difficulties that they inevitably inherit. Chapter five describes the complex context of the Australian logistics industry and shows different factors influencing stakeholders of the logistics market.

Consequently, the purpose of this study is to investigate the existence and feasibility of horizontal collaboration among LSPs in Australia. This study examines the extent to which horizontal collaboration exists and is being adopted and the form it takes among LSPs in Australia. It further asks, what is the structure of the current collaboration among LSPs in Australia. It is therefore important to develop a clear understanding of the nature and structure of horizontal collaboration between logistics service providers in order to determine its viability as an effective industry strategy for individual businesses to achieve greater productivity, cost savings, and service delivery efficiency.

In the Australian transport and logistics context, this study:

1. examines the nature and structure of current collaboration among industry operators
2. investigates the existence and feasibility of horizontal collaboration, and
3. investigates opportunities and impediments for this kind of collaboration.

The end product is a theoretical model for understanding the development and effective application of horizontal collaboration among LSPs in Australia.

The following research questions arise from the objectives of the study:

- In the Australian transport and logistics context, what is the dominant form of industry organisational collaboration?
- To what extent does horizontal collaboration exist and is being practised; and what form does horizontal collaboration take among LSPs in Australia?
- What are the major opportunities and impediments to horizontal collaboration and how might it take form (begin, develop and sustain) in the context of the Australian logistics sector?

1.4 Significance of the Study

The economic role of the logistics industry makes up a significant portion of a country's Gross Domestic Product (GDP). For instance, in the EU logistics make up 10% of the overall GDP, which represents 1 trillion EUR. In Australia, logistics contributes up to ~8.6% of GDP (The Department of Infrastructure, Regional Development and Cities 2018) and provides more than 1.2 million jobs across 165,000 companies (Australian Logistics Council 2014).

This research focuses on horizontal collaboration among LSPs in Australia. Improvements to the capability of logistics management are critical to many organisations in Australia. Horizontal collaboration has been seen as a strategy that increases the performance of the supply chain process and LSPs have increasingly been incorporating it (Pateman, Cahoon & Chen 2016). Free trade agreements with three of Australia's largest trading partners, China, Japan and South Korea, and other international trade partners offer significant business opportunities for Australian consumers. As a result, export and import and revenue for the road freight industry increased in 2017–18, which provided businesses with an opportunity to grow. However, freight activity is also likely to grow (Magner 2017). This highlights the need for and importance of horizontal collaboration among LSPs (Kittel & Haugstetter 2011).

Logistics collaboration, efficiency improvement, resource saving and decreasing waste are the most significant economic roles for LSPs (Cruijssen 2007). Collaboration in logistics is one possibility for increasing efficiency among partners in supply chains (Leitner et al. 2011). Therefore, the findings from a study of horizontal collaboration in the Australian logistics industry may have a significant influence on lowering transportation costs and may enable practitioners to better understand the effect on industry economies of scales and efficiency.

Notwithstanding obvious opportunities for collaboration in the supply chain (Ballou 2007), recent researches highlight weak levels of collaboration in the Australian logistics industry (Storer and Hyland 2011, Torugsa 2011). This is in contrast with previous research that shows collaborations between logistics companies are increasing (Schmoltzi & Wallenburg 2012), providing the reason for this study in the Australian logistics context.

Despite the above backdrop, this study examines collaboration in the Australian logistics industry. This study investigates the practice of collaboration as a strategy in the highly competitive and low-profit margin environment. All examined factors in this study shape the way that LSPs choose to cooperate.

The result of this study would be helpful for practitioners and managers to be aware of the key success factors, drivers and impediments for collaboration that will assist collaboration emerge in practice in the Australian logistics context.

The extant literature in collaboration among LSPs is concentrated on justifying the potential and importance of horizontal collaboration among logistics service providers (Amer & Eltawil 2014). In this context, Cruijsen (2006) presented a conclusive literature review and studied the relevant components, i.e. opportunities, impediments and facilitators.

This thesis updates the literature review and goes beyond a literature review and integrates a holistic perspective of the relevant components of horizontal collaboration. This study combines opportunities and impediments with structural elements to develop a model for understanding the evolution and effective application of horizontal collaboration. Furthermore, this model is validated in the Australian logistics context.

The uniqueness of this study exists in the fact that this thesis goes beyond the findings of the previous studies on the potential and importance of horizontal logistics collaboration among logistics companies. This study demonstrates the model of approach for collaboration and the way of application in logistics context.

1.5 Research Method and Methodology

The research design describes the overall strategy that a researcher chooses to integrate different parts of the study into a logical and coherent whole, with effective data collection, analysis and presentation of findings (Saunders, Lewis & Thornhill 2009). An effective research design

ensures ultimate reliability, validity and integrity of research. Therefore, the research design constitutes a blueprint for collection, measurement and analysis of data.

This study employs an interpretivist–constructivist perspective, which is the theoretical framework for most qualitative research. According to Cooper and Schindler (2011), interpretivism is selected in research to examine one’s point of view about the whole phenomenon and the ‘mystical’ nature of the world (Saunders, Lewis & Thornhill 2007). In this study, qualitative semi-structured interviews were explicitly administered to representatives of a wide range of LSP companies, logistics authorities and associations across Australia. The research followed a systematic process, beginning with a comprehensive review of the literature to determine the research aims, objectives and questions; followed by the design and field application of the research tools to collect data. Finally, the data were coded, analysed and presented in key findings. The specific method used to collect data was qualitative semi-structured interviews with key informants within the transport and logistics sector. Interviews are a natural and efficient tool for social communication and are therefore seen as the best means for social researchers to collect qualitative data (Arskey & Knight 1999; Holstein & Gubrium 2003).

This study relies on primary qualitative data collected through semi-structured interviews with participants in the Australian transport and logistics industry. A total of 33 participants from 29 logistics companies (warehouse, freight forwarding, transport and logistics) and logistics authorities and associations participated in this study. The study covers all types of logistics activities and practices including transportation and warehousing activities such as packaging, inspection, sorting, labelling, freight forwarding, port operation and stevedoring.

Three possible participant groups were identified and targeted as the most appropriate sources of information on cooperation among LSPs:

1. logistics managers and practitioners
2. logistics association representatives, and
3. logistics authority representatives.

In their study conducting inter-organisational research using key informants, Kumar, Anderson & Stern (1993) argued that managers at the executive level are the most knowledgeable concerning firm-specific cooperation activities. This is mostly because inter-organisation relationships should originate from senior executives of a company. They will discuss the

details and make decisions on how and to what extent their company will enter a collaboration. Therefore, they are aware of the different aspects of the relationship and how this relationship may influence the company's objectives in the market. Thus, this study included senior management and governance officials of logistics companies, logistics associations and authorities, including chairpersons, CEOs and other executive managers from different relevant departments. This targeting was based on the reasoning that these officials possess great experience and knowledge of the industry as well as their own individual organisations. These are also the officials that are directly involved in setting the policy directions for their companies. They are therefore the best people to describe and explain cooperation structures and how they might be changing. In cases where horizontal collaboration is being implemented, they are best placed to explain the structures, motivations and benefits.

In the case of government authorities, policy makers in departments, directly connected to transport and logistics companies in the landside and with a connection to collaboration among companies, were targeted. This was to provide the researcher with information on how government officials and policy makers think about horizontal collaboration in the logistics and transport industry in Australia.

1.6 Data Analysis and Findings

The research process is a continuous interaction with the data from the point of collection. Therefore, in this study, data analysis took place in two stages: preliminary and main. In the first stage and before the main data analysis stage, I have started to be familiar and intimate with what interviewees explain. In this regard, data analysis should begin from the early stages and even after the first interview. The intimacy with data is part of data analysis. So, data analysis began after the first interview to identify patterns and themes and to facilitate the data collection process. Data were collected from interviews, observations and field notes. During this stage, interviews were recorded and transcribed to word documents, then reviewed and read to build a general sense of the data or, as stated by Esterberg (2002), to achieve a level of intimacy with data. Then, through a coding process, data were assigned to different categories and labelled with participants. General codes were then compared to identify relationships among them and to efficiently discover evolved patterns and themes. NVIVO software helped to manage, explore and discover patterns in the data.

This study was performed to identify patterns of horizontal collaboration in the context of the transport and logistics industry in Australia. Findings from the data analysis are presented to understand data relevance and importance and to address the research questions of the study.

1.7 Outline of the Thesis

A conjoining “process map” Figure 1.1 displays the navigation of this thesis.

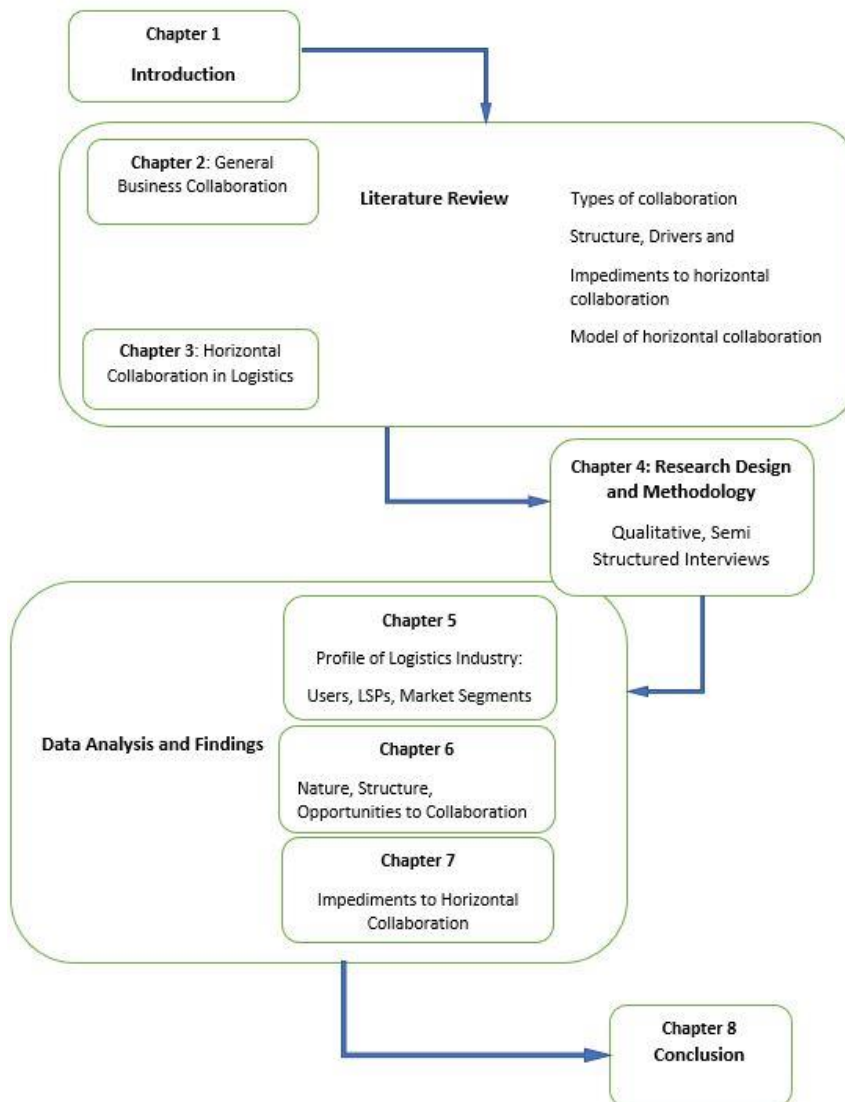


Figure 1.1: Thesis process map

Chapter 1 introduces the study. The literature review is organised into two chapters. Chapter 2 considers the framework of business collaboration, its evolution and dominant theories, and reviews the factors that influence business collaboration. The chapter is organised into nine sections beginning with an introduction. Section 2.2 defines and discusses collaboration.

Section 2.3 introduces and analyses dominant collaboration theories. Section 2.4 reviews the rationale for business collaboration—the key reasons, drivers and important factors. Section 2.5 concentrates on different types of collaboration—vertical, horizontal and lateral—and reviews the phenomenon of coopetition, which is defined as simultaneous collaboration and competition (Bengtsson & Kock 2000; Gnyawali & park 2011). Section 2.6 reviews the challenges and impediments to collaboration. Section 2.7 discusses collaboration structures. Section 2.8 introduces the framework of this study and finally, Section 2.9 concludes the chapter.

Chapter 3 describes collaboration in the transport and logistics industry. Section 3.1 introduces the Chapter followed by introducing Logistics Service Providers in Section 2. Section 3 focuses on common challenges that logistics companies face to establish and maintain collaborations. A review of different types of collaboration in logistics and transport is then presented in Section 3.4. This section presents the main approaches to logistics collaboration, both vertical and horizontal. Section 3.5 reviews the existing literature on horizontal collaboration models. Section 3.6 introduces the proposed model of horizontal collaboration; and finally, Section 3.6 concludes the chapter.

Chapter 4 describes the study methods, presents the justification for the methodological choice and explains the details of their employment. It is divided into eight sections. The first section is the introduction. In Section 4.2, the research objectives and questions are reviewed. Section 4.3 elaborates on the research design, methods and methodology and justifies the researcher's choice of qualitative methods. The data collection and analysis within this study adopts a qualitative methodology involving, predominantly, semi-structured interviews with logistics managers within Australian LSPs, government authorities and representatives of industry professional associations. The interviews focused on organisational experiences of horizontal collaboration through the individual experiences, observations and viewpoints of key managers within the supply chain sector. After a brief presentation of the theory of knowledge acquisition—which is a core characteristic of social research—a detailed discussion and justification are provided for how qualitative methods assist the researcher and why the researcher preferred this method to collect the data. Section 4.4 describes and justifies the sources of data and their appropriateness for the data collected. Section 4.5 presents the tools and process of data collection while Section 4.6 describes the methods of data analysis. Section 4.7 highlights ethical considerations and then Section 4.8 presents a brief conclusion.

Chapter 5 is the first of three data analysis and findings chapters. The main objective of the study described in this chapter was to elicit practitioners' perspectives on the Australian logistics industry and examine it from the perspective of stakeholders in the Australian logistics industry, including LSPs and users. This chapter is organised into three sections. Section 5.1 provides an introduction. Section 5.2 presents data on the profile of the logistics industry; examining what is happening in the transport and logistics industry, who are different players (i.e., LSPs and logistics users) and what are the interactions among the stakeholders in various segments of the logistics industry. Section 5.3 provides the conclusion.

Chapter 6 attempts to identify different types of relationship among LSPs in Australian logistics to clarify the nature, structure and extent of horizontal collaboration among logistics companies in Australia. Moreover, the chapter considers factors that influence those relationships among LSPs, including structural factors, spatial factors and drivers and opportunities of the collaboration. The chapter is organised into eight sections. Section 6.1 is the introduction. Section 6.2 reviews different types of collaboration and describes the most prevalent kind occurring among logistics companies in Australia; that is, vertical collaboration. Section 6.3 describes how LSPs understand vertical collaboration in Australia. Section 6.4 describes how LSPs understand the potential for horizontal collaboration in Australia. Section 6.5 outlines current collaboration structures among LSPs in Australia. Section 6.6 highlights the key influences on adoption of collaboration, followed by section 6.7 which presents potential drivers for collaboration among LSPs, and finally, Section 6.8 concludes the chapter.

Chapter 7 introduces impediments and explains their effect on preventing emerging and developing horizontal collaborations among logistics companies in Australia. Section 7.1 is the introduction. Section 7.2 introduces the impediments to horizontal collaboration in Australian logistics context; and finally, Section 7.3 concludes the chapter.

After reviewing the literature, planning data collection and finding and analysing the data Chapter 8 summarises the extent of what horizontal collaboration exists between LSPs in the Australian logistics context. Chapter Eight outlines on all four elements in the process map - the literature review, research aims and questions, a semi-structured face to face interview, three data analysis and findings chapters - to determine a set of findings and conclusions. This chapter organized into nine sections. Section 8.1 is the introduction. Section 8.2 describes the key findings derived from the analysis of the data collected on horizontal collaboration between logistics service providers in Australia. Section 8.3 analyses and examines structural

characteristics that describe LSP collaborations in the Australian logistics context. Section 8.4 describes the potential drivers followed by section 8.5 which reviews the impediments of horizontal collaboration in the Australian logistics industry. Section 8.6 proposes a theoretical model for understanding the development and practical application of horizontal collaboration between LSPs in Australia. This section describes the evaluation of the model's applicability in the Australian logistics context. Different phases and features of the collaboration model will be validated in this study, primarily using the relevant literature as a data source and including relevant key thematic questions and statements in the semi-structured interview guide to support the definition of broad areas of the collaboration model. Section 8.7 is dedicated to implications for theory. The chapter continues with a discussion about the limitation of the research and future research in section 8.8, and finally, the last section is the conclusion .

Chapter 2: Literature Review Part 1—Frameworks of Business Collaboration

2.1 Introduction

This chapter presents the first of a two-part literature review. The main objective of this chapter is to review dominant debates about business collaboration and establish an understanding of what constitutes business collaboration. The chapter describes the evolution of the concept and practice of business collaboration in a supply chain context and investigates the various frameworks developed to help define and apply collaboration as a business practice. This chapter forms an important background to a further, more detailed study of the types, structures and processes of business collaboration in the transport and logistics industry, the core focus of this thesis.

The literature review is important because although business collaboration is widely theorised and debated, and has grown to be considered the backbone of business success (Cruijsen 2006), it is viewed differently by different commentators, including academics and industry practitioners (Bedwell et al. 2012). In this chapter the key definitions and theories about business collaboration are analysed to adopt a guiding definition for the study. The second part of the literature review (Chapter 3) applies the findings from this part to examine the nature and structure of collaboration in the specific context of the transport and logistics industry. Chapter 3 focuses on the different forms of collaboration in the industry, how LSPs collaborate and the dominant explanations for these existing forms and kinds of collaboration.

This chapter is organised into nine sections beginning with the introduction. Section 2.2 defines and discusses collaboration. Section 2.3 introduces and analyses dominant collaboration theories. Section 2.4 reviews the rationale for business collaboration—key reasons, drivers and important factors. Section 2.5 concentrates on different types of collaboration—vertical, horizontal and lateral—and reviews the phenomenon of coopetition, which is defined as collaboration and competition occurring at the same time (Bengtsson & Kock 2000). Section 2.6 reviews challenges and impediments to collaboration. Section 2.7 discusses collaboration structure. Section 2.8 introduces the framework for this study and finally, Section 2.9 concludes the chapter.

2.2 Conceptualising Business Collaboration

Collaboration is an increasingly important concept in business, particularly with the increasing global complexity of businesses and growing competition for limited resources and common markets internationally (Audy et al. 2012; Soosay & Hyland 2015). Because of the multiplicity of facets of business relationships, there are equally multiple definitions or perspectives on the concept. In its basic form, however, collaboration is a concept that is debated and applied widely in different fields including sociology (Powell et al. 2005; Stern & Hicks 2000), psychology (Konczak 2001; Power et al. 2005; Stern & Hicks 2000), management (Cross, , Borgatti & Parker 2002; Sawhney 2002; Singh & Mitchell 2005), marketing (Gadde, Huemer & Haˆkansson 2003; Jap 1999; 2001; Perks 2000) and supply chain management (SCM) (Kenis & Knoke 2002; Sundaramurthy & Lewis 2003).

Collaboration is often presented as the bridge between communication and the culmination of a deliberate progression from businesses operating as separate entities to working closely together to reach common goals in a more effective and efficient manner (Min et al. 2005). The common rationale in business is that a company operating alone cannot succeed and prosper in today's globalised and highly competitive business environment, which is characterised by scarce resources and faster rates of change; therefore, much can be gained through long-term relationships and collaboration with other supply chain partners (Horvath 2001).

Meriam Webster Dictionary (2018) defines 'Collaboration as a word comes from the Latin *collaborare*, which consists of the prefix 'com' meaning 'together, with, or jointly with', and 'laborare', which means 'to labour'. The prefix 'com' changes depending on the word next to it; so when 'com' is teamed up with 'laborare' it changes to 'col'. These two parts form *collaborare*, meaning 'to labour together'.

As the Latin root of the word suggests, the simplest definition of collaboration is therefore the act of working together. A search for a comprehensive definition of collaboration in academic sources leads to endless possibilities, with each definition having something to offer and none being entirely satisfactory on its own. Several key definitions are selected here for illustration. Emmens (2016) defined collaboration as the idea that everyone can work together and produce something better than they could on their own, with less work. This definition involves the idea of working together and gaining better results. One of the most widely cited definitions comes from Gray (1989, p. 11), who defined collaboration as 'a process through which parties who

see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible'. Unlike Emmens, Gray saw collaboration as a process for partners who constructively come together to search for a solution. Bedwell et al. (2012, p. 130) defined collaboration slightly differently, as 'an evolving process whereby two or more social entities actively and reciprocally engage in joint activities aimed at achieving at least one shared goal'.

Like Gray, Bedwell and colleagues saw collaboration as a process but one that is also evolving, thus introducing the idea of a dynamic relationship. Such a definition also introduces the idea of reciprocity, which is at the heart of collaboration; that is, willingness to share and exchange support in different forms. Wildavsky (1986, p. 237) introduced an important aspect of shared resources in his definition of collaboration as an arrangement where 'the participants make use of each other's talents to do what they either could not have done at all or as well alone'. These emerging collaboration attributes are important for understanding the most critical underlying assumptions about collaboration as viewed by different commentators. Thus, some authors have highlighted the dynamic notion of 'a process' (e.g. Bedwell et al. 2012; Keyton, Ford & Smith 2008; Wood & Gray 1991), while others have emphasised the idea of working together (e.g. Marttiin, Lehto & Nyman 2002; Wood & Gray 1991) or examined it as a strategy to achieve a shared goal (e.g. Gallant, Beaulieu & Carnevale 2002; Graham & Barter 1999; Wood & Gray 1991).

The existence of various definitions and understandings of collaboration confirms the complexity of the phenomenon. Each definition has something to offer, but none is entirely comprehensive in its view. For the purpose of this study, these varying definitions are brought together and collaboration, therefore, is defined as *an evolving interactive process of working together to enhance capacity and capability of service providers to produce an efficient compelling solution for customers' requirements*.

Although the concept of collaboration, in general terms, is as old as human history, its academic conceptualisation dates back only to the 1970s. Since then, collaboration, especially in a business sense, has rapidly evolved to become a leading point of debate with various theories emerging on business collaboration. Scholars have traced the evolution of the concept and practice, its applications, its different aspects and its effect on business (Pena & Fernandez de Arroyabe 2002). Nevertheless, it still remains a difficult concept to define, largely because of the different forms it takes across industries and business forms. Numerous types of

relationship, the various terminology used and the different theoretical approaches have been discussed (Pena, & Fernandez de Arroyabe 2002). Many different terminologies have been used to describe various aspects of business interaction, of which collaboration is one. Some of these phrases, as identified in various studies including that of Cruijssen. (2006), include ‘co-opetition’, cooperation, collaboration, alliances, partnerships, joint ventures, associations, pacts, inter-competitor cooperation, consortia, coalitions, service agreements, cooperative agreements, (non) equity agreements, licensing, industry standard groups, action sets, mutually adaptive, collaborative supply chain, bilateral governance and supply networks. Most often, however, terms such as collaboration and cooperation have been used interchangeably, or the features and boundary between them are indistinct (Cravens, Shipp & Cravens 1993; Cruijssen 2006; Lambert, Emmelhainz & Gardner 1996; Rinehart et al. 2002). Therefore, collaboration and cooperation are used interchangeably throughout the thesis.

In such a situation of definitional complexity, a useful starting point may therefore be to examine features of the key terminologies and attempt to distinguish them to determine what collaboration really is and how it differs from, for example, cooperation and partnership. A few scholars have attempted to classify the different terminologies (e.g. Bedwell et al. 2012; Mentzer, Foggin & Golicic 2000; Spekman, Kamauff & Myhr 1998; Wildavsky 1986).

Bedwell et al. (2012) defined collaboration as a superordinate construct that incorporates and contains different but related variables. Nonetheless, collaboration is more than the sum of its parts, which are teamwork, coordination and cooperation. Figure 2.1 provides a collaboration Venn diagram and its shared variables. Bedwell et al. (2012) highlighted overlaps and distinctions between different variables of collaboration in detail.

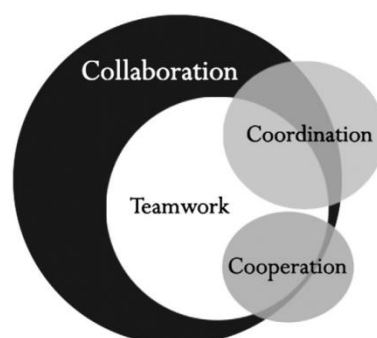


Figure 2.1: The collaboration and its shared variables (adapted from Bedwell et al. 2012, p. 136)

Mentzer et al.'s (2000) focus group study involving supply chain company managers sought to distinguish between collaboration and cooperation, and concluded that the former needs more information sharing, risks, knowledge and profit. In another study by Golicic, Foggin & Mentzer (2003), the idea of 'magnitude and closeness' of a relationship in a supply chain was examined with the conclusion that there is a higher level of closeness in collaboration than in cooperation. That study shows that there is more willingness to share information and play an active role in making decisions in a collaborative business relationship than in a cooperative one, which is viewed as more transactional and more restricted in the extent of willingness to share resources, risks and benefits.

In another study, Spekman, Kamauff and Myhr (1998) summarised and described the progression from being an important supplier to become a supply chain partner as a movement from open-market negotiations to collaboration (Figure 2.2). They defined cooperation as the starting point in this progression in which organisations exchange bits of essential information and are involved in long-term, but isolated deals. Coordination is the next level, they argued, in which firms engage in exchange of particular information to make seamless linkages in their operations to enhance efficiency and effectiveness. Up to this level, firms cooperate and coordinate in certain strategic activities, but do not act as partners. In their study, Spekman, Kamauff and Myhr identified high levels of trust, information sharing, long-term commitment and a shared vision for the future as the requirements for a transition from coordination to collaboration.



Figure 2.2: The key transition from open-market negotiations to collaboration (adapted from Spekman, Kamauff & Myhr 1998, p. 634)

Gulati, Wohlgezogen and Zhelyazkov (2012) focused on the critical role of coordination and efficient orientation of alignment of interest and partners' actions and highlighted cooperation and coordination between partners as two facets of collaboration. Gulati et. al. also highlighted partner commitment, alignment of interest and cooperation as the key determinants of success in collaborative relationships.

The differences between ‘cooperation’ and ‘coordination’ have also been described as collaboration within organisations (e.g. Gulati 2007; 2010) and between organisations (e.g. Rogers & Whetten 1982). Gulati, Wohlgezogen and Zhelyazkov (2012) applied and extended these ideas to introduce an analytic model and to explain the dynamics of collaboration between organisations. Their paper explained cooperation and coordination as two distinct but complementary facets of collaboration in strategic alliances. These two perspectives, they argue, may help partners to determine the risks and challenges in their partnerships and identify possible sets of solutions that could help partners in the course of the partnership process to select suitable partners and design an effective alliance to ensure collaboration success. The paper highlighted that neither perspective is comprehensive on its own and may be misleading in terms of explaining the outcomes and behaviour of the alliance. Nonetheless, the integration of cooperation and coordination ensures a stronger model of strategic alliances.

The current research focuses on the more advanced form of business relationships—that is, collaboration—and aims to examine its different manifestations and applications between LSPs in the specific business context of the supply chain. As explained in the previous section, collaboration definitions and characteristics are important to understand the most critical underlying assumptions about collaboration. The next section provides an overview of the theoretical concepts relevant within this thesis. This part is important because it facilitates the efficient development of the field, provides an analysis framework and is required for application to practical problems.

2.3 Theories Underpinning this Research

There is a range of theoretical approaches to the study of collaboration among companies. Business collaboration theories are typically considered from three perspectives: economic, strategic and organisational, each concentrating on specific sets of significant factors.

First, the economic point of view focuses on collaboration as an approach to the market for a company to reduce different costs such as production and transaction costs (Cruijssen et al. 2006; Min et al. 2005; Parkhe 1993). Second, the strategic point of view focuses on strategic opportunities for managing competition and constructing business development; considering environmental forces and challenges; and searching for resources and capacities (Abbasi & Nilsson 2016; Mahoney & Pandian 1992; Porter 1990). Finally, other researchers have conceptualised the relationship between organisations. The organisational view of collaboration

contributes significantly to understanding the method of construction of the organisation (collaboration structure) enabling it to function properly (Bounken & Fredrick 2012; McWilliams & Smart 1995). The organisation is a frequently used term in business cooperation that refers to a small or large company, a university, association, group of experts and so on (Barnard 1938).

As a way of attempting to develop a better understanding of the concept of business collaboration, a number of theories have emerged to explain and expound upon certain aspects of collaboration. Different theories focus on different questions, such as why collaborate, how to collaborate and the outcomes of collaboration. The dominant theories used are Transaction Cost Economics (TCE), Resource Dependency Theory (RDT), Game Theory (GT) and Collaboration Theory (CT). These are explained in more detail below.

2.3.1 Transaction Cost Economics

TCE is one of the most influential theories on inter-firm collaboration (Barringer & Harrison 2000; Williamson 1975). According to TCE, one or more firms develop and coordinate various activities in collaboration to minimise both production and transaction costs. The use of inter-organisational systems enables the firm to reduce transaction costs such as monitoring costs. It was argued by Lui, Wong & Liu (2008) that jointly investing in specific assets reduces opportunistic behaviour.

Transaction costs are the costs incurred in relation to making an economic exchange (Klein, Crawford & Alchian 1978; Williamson 1985). Consequently, a firm's total incurred costs consist of two broad items: production costs and transaction costs. Production costs consist of all expenses incurred in the process of creating and distributing goods or services. Transaction costs are those incurred by the company to find the best suppliers/partners or customers, and associated administration costs. Administrative costs normally include those incurred in determining the goods in the market, costs to find and conclude a 'tamper-proof' contract and the costs of monitoring and enforcing the execution of the contract (Klein, Crawford & Alchian 1978; Williamson 1985).

Some researchers have studied governance mechanisms and suggested that the implementation of adequate mechanisms in line with TCE theory may ease conflict among partners and prohibit opportunism (Cruijssen 2006; Halldorsson et al. 2007; Schmoltzi & Wallenburg 2012; Wallenburg & Raue 2011). Pomponi, Fracocchi and Tafuri (2015) studied trust development

and introduced a theory-based framework regarding horizontal collaboration in logistics in which TCE has been chosen along with complementary theories to understand better the relationships and limitation of the challenges and complexities of horizontal collaboration.

TCE is a useful theory to explain some aspects of collaboration; however, many scholars have identified weaknesses and limitations. For example, the theory is silent on certain important ingredients of collaboration such as knowledge creation, trust; and organisational contexts such as power, dependence and culture (Barringer & Harrison 2000; Duffy & Fearne 2004). Consequently, other theories such as Social Exchange Theory are often introduced to mitigate the limitations of TCE (Halldorsson et al. 2007). Factors that influence the emergence and management of relationships and resources, which are the source of the power, shape the thinking of companies about relationships. These resources are introduced in RDT and form the subject of the next section.

2.3.2 Resource Dependency Theory

RDT theorises on the formation and management of power in inter-organisational relationships (Ireland & Webb 2007). RDT theorises about external resources and their effect on organisational behaviour. The fundamental argument in this theory is that resources are the basis of power and firms survive and thrive based solely on external resources, which must be acquired from the environment (Scott 1987). According to RDT, firms must gain control over vital external resources to diminish their reliance on other organisations (Barringer & Harrison 2000; Pfeffer & Nowak 1976; Thorelli 1986).

RDT was the first organisational theory to identify social elements as a crucial factor when making decisions under conditions of uncertainty (Ireland & Webb 2007). RDT proposes that the survival of a company and its success is to a large extent determined by the acquisition of valuable and scarce resources that maximise the firm's power (Pfeffer & Salancik 1978). In the context of the logistics and supply chain, RDT concentrates on coordination and cooperation among supply chain players to generate shared benefits (Dyer 2000; Dyer & Singh 1998; Kanter 1994). According to Paulraj and Chen (2007), this theory explains the relationship between strategic supply management and environmental uncertainty. RDT can help supply chain scholars to understand to what extent and how horizontal collaboration initiatives rely on industry structure and where supply chain members could use their bargaining power more effectively (Pomponi, Fratocchi & Tafuri 2015).

Despite the merits of RDT for explaining resources and their relevance to power, it has a limitation in its ability to explain some collaboration features. For example, learning opportunities, transaction costs and concept development are not taken into consideration in RDT (Barringer & Harrison 2000). Moreover, recent studies have argued that power diminishes trust and weakens collaboration between companies (Kähkönen 2014). RDT does not take into account strategic situations and decisions that ensure optimum choices for a company. The next section discusses other options to examine optimisation, namely GT and strategic decision making.

2.3.3 Game Theory

GT is a mathematical view of behaviour in strategic situations or games (Nash 1950) where decision makers influence each other (Lucchetti 2017). GT focuses on strategic decision making where one party's success in making choices depends on the choices of others. GT uses a mathematical analysis of cooperation and conflict between rational decision makers in a specific strategic context (Dufwenberg 2011). GT can help business partners to clarify the cooperation context, understand and influence each other's choices and know their outcomes and rewards. Axelord (2000, p. 5) stated that 'to specify a game, one needs to specify the players, the choices, the outcomes as determined jointly by the choices, and the payoffs to the players associated with the outcomes'.

Nash equilibrium is a well-known solution concept introduced by John Nash in which each player, based on information on the possible behaviour of other players, selects a strategy (Nash 1950; 1950a; 1953). The choice of equilibrium corresponds to the other players' choices and is one that makes other players' choices optimal (Dufwenberg 2011; Cesari, Lucchetti & Moretti 2017).

GT is about win-win or positive-sum outcomes and means that everyone is a winner in a collaborative and mutual problem-solving situation (Neumann & Morgenstern 1944). The argument is that when organisations work together to shape effective decisions on how to achieve their joint objectives, the outcomes will invariably lead to greater benefit for both than if they were working alone and in competition. Therefore, GT emphasises strategic decisions made in an environment where different players of the 'game' strategically cooperate. That is, GT studies the optimum strategic choice of a party, which is dependent on the choices of other

individuals when the costs and paybacks of each option are not fixed (Neumann & Morgenstern 1944), an essential element of collaboration in business.

Cooperative Game Theory (CGT) helps researchers to present a framework to study problems of cost allocation among collaborating parties. CGT has been employed in previous studies in collaborative supply chain and logistics contexts. For instance, Krajewska et al. (2007) used the Shapley value to allocate cost savings resulting from cooperation between carriers to reduce the number of empty vehicle movements and gain considerable cost reductions. Liu, Wu & Xu (2010) studied freight carrier alliances and proposed a new cost-saving model based on cooperative game solutions to increase the profits of collaborative parties. The next section considers CT in which the motivation, conditions and collaboration process are central to the analysis.

2.3.4 Collaboration Theory

According to CT, collaboration occurs when legally independent business entities enter into a stable long-term relationship in which they share knowledge and resources and jointly develop and coordinate their productive activities to more effectively identify, penetrate and exploit markets as part of the process of advancing common objectives. Wood and Gray (1991, p. 146) argued that ‘Collaboration occurs when a group of autonomous stakeholders of a problem domain engages in an interactive process, to use shared rules, norms, and structures, and to act or decide on issues related to that domain’.

Wood and Gray (1991) identified three factors that result in successful collaboration: the motivation and conditions for collaboration; the collaboration process; and collaboration outcomes. Their study identified vital issues that contribute to presenting a comprehensive theory of collaboration through (a) a definition of collaboration, (b) the support conditions under which a collaboration was organised, and the role of the convener, (c) implications of the collaboration for environmental complexity and participants’ control over the environment, and (d) through relationships between individual members, self-interest and the collective interests of all contributing in the collaborative network.

The extent of the contributions of stakeholders has consequences for the viable outcomes of the collaboration, although there is no requirement that all stakeholders must participate in the process of problem solving. To shape a collaboration, a convener must find and bring together stakeholders in a problem domain that show interest in working together to solve the problem;

identify the power and influence of the stakeholders who seek solutions; and identify the best network structure for problem solving (Gray 1989; Wood & Gray 1991).

This section discussed different theories of collaboration. These theories help in understanding various phenomena, provide a context for predictions and shape the researcher's understanding and observations. Consequently, theories help to better understand the rationale and drivers of collaboration in the supply chain, which is the subject of the next section.

2.4 The Rationale and Drivers of Business Collaboration

The abovementioned theories together suggest a fundamental rationale for the idea of business collaboration in today's globalised world, which is characterised by intense competition and demanding customers. A single company working alone cannot achieve the same level of performance and competitiveness as it would if it collaborated with others (Emmens 2016; Horvath 2001; Kotler 1997).

There are several reasons for businesses to establish a collaboration. These vary from industry to industry and between resource contexts (Bedwell et al. 2012; Glaister & Buckley 1996; Tsang 1998). Motives and opportunities for a long-term relationship and strategic choice of collaboration among companies are determined by perceived future benefits (Todeva & Knoke 2005). Nonetheless, opportunities and drivers in establishing and sustaining collaboration are not clear. As the collaboration lifecycle creates more benefits, opportunities and drivers it may become difficult to differentiate and separate these benefits, opportunities and drivers from each other (Pateman, Cahoon & Chen 2016).

With the multifaceted and multidisciplinary nature of collaboration, scholars have employed different strategies and assumptions in their studies (Bedwell et al. 2012; Pomponi, Fraticchi & Tafuri 2015). Although the disciplines and assumptions differ, they suggest that inter-organisational cooperation and competition behaviours are embedded in the context or social condition of each study (Hammersly 2013; Hennink, Hutter & Baile 2011; Park & Ungson 2001). These conditions influence how these behaviours are defined and implemented. Consequently, the risk of confusion among terms such as benefit and drivers is intensified (Park & Ungson 2001). As a result, gains, outcomes, effects, opportunities and benefits of the collaboration process may be considered drivers (Pateman, Cahoon & Chen 2016). Thus, the concepts of drivers and opportunities are used interchangeably in this thesis.

There is an abundant literature on drivers and opportunities of collaboration among businesses. An overview of these drivers and opportunities may improve understanding the of the collaboration phenomenon. Parkhe (1993) studied the reasons for the formation of business alliances and found that the driving force was the expectation of a positive net present value from the anticipated alliance outcomes. Dyer and Singh (1998) argued that partners can generate a super normal profit that cannot be achieved by either firm on its own. According to Dyer and Singh, this synergy comes through knowledge-sharing routines, relation-specific assets, effective governance and complementary resource endowments. Lambert, Emmelhainz and Gardner (1999, p. 169) argued that ‘drivers are compelling reasons to partner’. They described drivers as strategic benefits that come from establishing and intensifying the relationships among collaborative parties. They also argued that sufficient drivers are required for parties to gain success in their collaboration. Sandberg (2005) argued that according to the SCM literature, positive effects are the outcome of collaboration between supply chain players. He related these positive effects to cost reduction, improved services and shorter lead times, and defined drivers as both tangible and intangible effects such as the wish to reinforce market position and increase competitiveness between supply chain actors. A comprehensive review of the literature was undertaken to understand collaboration and its driver and barriers. Searches were performed on the keywords, titles and abstracts of studies in significant academic databases (e.g. ABI Inform Global via ProQuest; APA-full text Australian Public Affairs via Informit Search; EBSCO Business Source Premier; and Emerald Fulltext). The results of these searches suggest that drivers of collaboration fall into four major categories: reducing costs and improving productivity; gaining better market position; customer service improvement; and sharing resources (Figure 2.3). Table 2.1 provides a summary of research that has identified the various drivers and opportunities for business collaboration. A discussion of the implications of this information follows.

Table 2.1: Drivers of collaboration in the researches

Factor	Author	Observation
Cost reduction	Cruijssen et al. 2006; Erdmann 1999; Esper & Williams 2005; Frankel & Whipple 1996; Hennart 1991; Lambert, Margaret & Gardner 1999; McLaren, Head & Yuan 2002; Mentzer et al. 2000; Min et al. 2006;	Cost management and cost reduction occur as a result of collaboration

Factor	Author	Observation
	Nooteboom 2004; Simatupang & Sridharan 2002a; Simchi- Levi, Kaminsky & Simchi- Levi 2000; Todeva & Knoke 2005; Zineldin 2004	
Market position	Contractor & Lorange 1988; Erdmann 1999; Feame 1994; Hagedoom 1993; Hennart 1991; Lambert, Margaret & Gardner 1999; Nooteboom 2004; Ohmae 1989; Simchi- Levi et al. 2000; Todeva & Knoke 2005; Zineldin 2004	Penetrating new markets
Market position	Bowersox 1990; Cruijssen et al. 2006; Erdmann 1999; Frankel & Whipple 1996; Lambert, Margaret & Gardner 1999	Protecting market share
Market position	Lambert, Margaret & Gardner 1999; Mentzer et al. 2000; Nooteboom 2004	Faster speed to market
Market position	Contractor & Lorange 1988; Feame 1994; Hagedoom 1993; Lambert, Margaret & Gardner 1999; Ohmae 1989; Zineldin 2004	Service/product development, enhance research & development
Customer services	Barratt 2004; Contractor & Lorange 1988; Nooteboom 2004; Todeva & Knoke 2005	Ability to prepare complementary goods & services for customers
Customer services	Bowersox 1990; Cruijssen et al. 2006; Esper & Williams 2005; Frankel & Whipple 1996; Lambert, Margaret & Gardner 1999; McLaren et al. 2002; Mentzer et al. 2000; Ohmae 1989; Simatupang & Sridharan 2002a; Zineidin 2004	Ability to fulfil stringent customer requirements & expectations Ability to submit improved service
Resource sharing	Bowersox et al. 2000; Lee & Whang 2000; Lejeune & Yakova 2005; Manthou, Vlachopoulou & Folinas 2004; Mason-Jones & Towill 1997; Min et al.	Information sharing Operations information Marketing information systems

Factor	Author	Observation
	2005; Myers et al. 2000; Sabath et al. 2001; Sheu et al. 2006; Simatupang & Sridharan 2002b; Spekman, Kamauff & Myhr 1998; Wang et al. 2006	
Resource sharing	Cao and Zhang 2011; Crook et al. 2008; Fawcett, Magnan & McCarter 2008; Simatupang & Sridharan 2002a; Zacharia et al. 2009	Knowledge sharing, joint knowledge creation, collective learning Knowledge sharing and creation enables partners to develop better understanding of their markets and competitive environments
Resource sharing	Cao & Zhang 2011; Simatupang, Wright & Sridharan 2002; Simatupang & Sridharan 2002b	Incentive alignment: refers to the process of sharing uncertainty; e.g. risks, costs and gains from collaboration among supply chain partners
Resource sharing	Cao & Zhang, 2011; Fawcett, Magnan & McCarter 2008; Kwon & Suh 2004; Nyaga, Whipple & Lynch 2010	Resource sharing, asset specificity, dedicated investments. These factors are referred to as investing tangible and intangible resources, leveraging capabilities and assets of the supply chain partners to their shared projects
Resource sharing	Mentzer et al. 2000; Nooteboom 2004; Simchi-Levi et al. 2000; Zineldin 2004	More skilled labour force or efficient use of labour

In this thesis, drivers and opportunities are considered related to the expectation of collaborating parties that they will gain positive outcomes from their relationships with other parties. Therefore, driving forces and opportunities for collaboration can be related back to one of the four major categories of drivers: reducing costs and improving productivity; gaining better market position; customer service improvement; and sharing resources.

2.4.1 Reducing Costs and Improving Productivity

In today's global world characterised by a faster rate of change and more challenges, cost reduction is a major concern of any organisation. Customers are more demanding and expect lower prices, while the cost of services rises (Crujssen 2006). Against this background, and to remain competitive and survive, companies are required to manage their cost of services, not through optimisation of their internal process, but rather from collaboration with other players in the supply chain (Pomponi, Fratocchi & Tafuri 2015).

Many studies have highlighted that synergies stemming from cooperation are the primary reason for collaboration (Fawcett et al. 2008; Horvath 2001; Simatupang & Sridharan 2005). Reflecting Transaction Cost Economic Theory, cost reduction is one of the most cited benefits of such collaboration (see, among others, Crujssen 2006; Leitner et al. 2011; Mason et al. 2007; Simatupang & Sridharan 2005; Simatupang & Sridharan 2004). Some preliminary work was carried out in the early 1990s, for example by Hennart (1993), who focused on cost reduction. Parkhe (1993) studied the reasons for the establishment of business alliances and determined that the driving force behind the formation was the promise of improved business outcomes, especially greater efficiency and effectiveness leading to cost reduction and profit maximisation.

Other researchers have concentrated on the combined efforts of cost reduction and improved productivity by sharing knowledge, skills and know-how obtained by partners, or obtaining benefits from skilled labour during the collaboration (Mentzer et al. 2000; Zineldin 2004). More recent studies, such as that of Hudnurkar, Jakhar and Rathod (2014) have confirmed that one of the main identified benefits of collaboration in supply chains is cost saving.

Some authors have studied factors affecting collaboration in supply chains and suggested that information sharing significantly affects the reduction in supply chain costs, and achieves both competitive advantage (Jain, Wadhwa & Deshmukh 2009) and service-level improvement/reduction of distribution costs.

Pomponi, Fratocchi and Tafuri (2015) reviewed other research (Bahinipati, Kanda & Deshmukh 2009; Bititci et al. 2004; Crujssen 2006; Crujssen, Cools & Dullaert 2007; Lehoux et al. 2009; Leitner et al. 2011; Mason et al. 2007) and showed that cost reduction was one of the aims of horizontal collaboration among logistics partners. In summary, cost reduction is the most cited benefit of collaboration among organisations, and has been addressed in numerous

supply chain and logistics collaboration studies (see, e.g., literature reviews such as Defryn 2017; Marasco 2008; Selviaridis & Spring 2007; Soosay & Hyland 2015).

2.4.2 Market Positioning

One of the significant aspects of a business is how to enter new markets and rise to a strong market position (Porter 2004). Various studies have argued that collaboration can ensure that a company gains more comfortable access to desired markets as well as increasing market strength much more quickly. Through the established markets of their collaborators, companies enter already-organised regions that would otherwise be difficult to penetrate (Bleeke & Ernst 1995; Hennart 1993; Zineldin 2004).

Collaboration, reflecting Collaboration Theory, enables companies such as LSPs to improve their competitiveness and more comfortably support market penetration to enforce their market penetration capacity, not only by gaining market information and ease of access to new markets, but also by extending the scale and scope of service portfolios and improving quality of services (Carbone & Stone 2005; Cruijssen, Cools& Dullaert 2007).

While there are many reasons and drivers for supply chain collaboration, some scholars have concentrated on the development of new competencies that stem from the better positioning of firms in new and related markets (Nooteboom 2004). For example, Dietrich (2012) argued that although cost reduction is a significant driver of collaboration among businesses, market position and joint resource capabilities can influence the level of collaboration more than internal costs and benefit.

Pateman, Cahoon and Chen (2016) reviewed the key drivers of collaboration in the business domain and argued that a wide diversity of internal and external drivers are debated in the literature. Nonetheless, all drivers are associated with better positioning of organisations in the marketplace.

2.4.3 Improving Customer Service

In today's globalised era, organisations realise that to gain and sustain competitive advantage and compete in the market they must deliver the best customer value at the lowest possible cost (Hudnurkar, Jakhar & Rathod 2014). Customers are more demanding and companies struggle to retain customers; therefore, improving customer service becomes essential. Collaboration with other business entities enhances a firm's competitiveness and productivity because it

provides access to new ties with customers, which in turn increases opportunities to keep customers satisfied (Mattsson 2002).

Improving customer service and enhancing customer satisfaction through business collaboration are not new concerns for service providers. In the late 1980s, some researchers, including Contractor and Lorange (1988) studied the benefit of horizontal collaboration from a complementary goods and services point of view. Other researchers (Cruijsen et al. 2006; Zineldin 2004; Zineldin & Bredenl w 2003) continued studies in this area and examined how collaboration enables partners to respond to their customers' requirements and specialise their services to comply with customer needs. Studies have shown that collaboration encourages organisations to utilise resources and competencies of partners and as result, companies are able to create customer value and services (Barney 1991; Eisenhardt & Martin 2000). Customers have become more and more the centre of attention and organisations realise that their profitability and the success of their planning processes depend on the acceptance of other supply chain members towards meeting customers' requirements (Simatupang & Sridharan 2004).

Empirical research has also confirmed that collaboration drivers increase positive strategic outcomes, including managing and reducing costs and improving customer service, and improving productivity and customer satisfaction (Fawcett, Magnan & Fawcett 2010; Hansen & Nohria 2004; Helfat & Peteraf 2003).

2.4.4 Sharing Resources

Collaboration is an effective way to leverage existing resources from collaborating parties (Cao & Zhang 2011; Fawcett et al. 2008). In today's competitive market much can be gained from sharing talent and equipment; investing in tangible and intangible resources; and leveraging capabilities and assets of partners in shared projects (Nyaga, Whipple & Lynch 2010), reflecting the concepts within Resource Dependency Theory. With collaboration, various stakeholders become willing to take an active role in making decisions and sharing more valuable complementary resources. In this regard, information sharing and knowledge exchange is one of the most mentioned factors with regard to collaboration. Researchers have noted that one of the primary objectives of collaboration is knowledge creation (Cheng 2013; Hardy et al. 2003; Jain, Wadhwa & Deshmukh 2009; Simonin 1997; Wang et al. 2006). One of the challenges regarding information sharing is that a company requires information to alter the process of

decision making and to involve people in day-to-day decision-making activities that exploit opportunities (Wang et al. 2006).

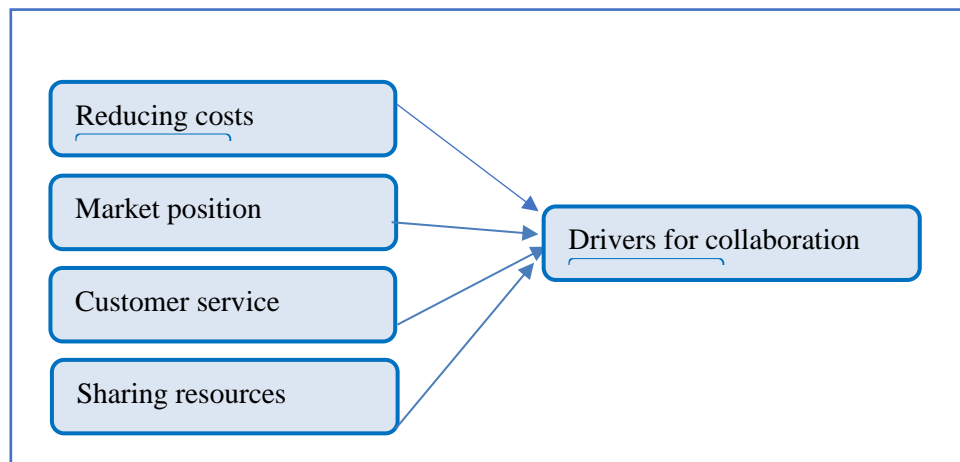


Figure 2.3: Drivers for collaboration

2.5 Different Forms of Collaboration

There is strong consensus among researchers about the starting point and the highest stage of business relationships; that is, the arm's length and integration stages (Crujssen 2007). These stages are considered the minimum and maximum levels for a relationship between businesses. In between these, there are numerous overlapping stages of engagement and a whole range of perceived relationships that tend to be fuzzy and not well defined. According to Lambert, Emmelhainz and Gardner (1996), the arm's length stage is where organisations begin to exchange either one-off or multiple transactions across an extended period (Figure 2.4). However, there is no joint operation or shared commitment between the organisations, and the relationship is punctuated by the beginning and end of the different transactions. An example of this type of relationship is the seller–buyer or customer–vendor relationship. A seller offers products or services to a wide range of customers and when they pay for the product or service, the relationship ends. Lambert, Emmelhainz & Gardner (1996) identified three types of relationships between the two extreme levels, as follows.

Type I: Organisations enter into a relationship on a limited basis in a single functional or operational area. The time frame of this partnership is short term.

Type II: Organisations undertake coordinated activities to advance their mutual business interests. Although there is no expectation of a 'forever' partnership, the relationship time frame is long term during which the parties plan and coordinate multiple divisions and functions.

Type III: Partners see the other as an extension of themselves and share a significant level of integration in their planning and duties. There is no predetermined end date for this type of partnership; there is greater sharing of resources and risks, as well as benefits and greater trust.

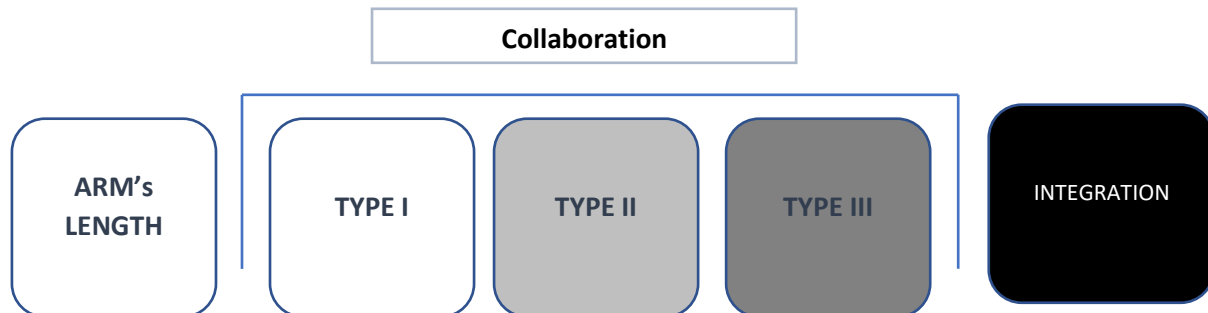


Figure 2.4: Types of relationship (adapted from Lambert, Emmelhainz & Gardner 1996, p. 2)

Independent organisations can, Crook et al. (2008) argued, collaborate and share knowledge to achieve advantages beyond what could be achieved through an arm's length relationship.

Businesses of all sizes and in all industries may consider relationships with other businesses in the industry. The business relationship can be simply formed in one of two directions: vertical or horizontal. Barratt (2004) explained the different types of collaboration in terms of the core company (Figure 2.5). Barratt stated that vertical collaboration occurs when a firm collaborates with its suppliers internally and with customers, while horizontal collaboration occurs when a firm collaborates with its competitors, internally and with non-competitors or other organisations. Simatupang and Sridharan (2002a) also identified different types of collaboration in supply chains. They stated that a collaborative supply chain is commonly differentiated in terms of its structure: vertical, horizontal or lateral. Vertical collaboration occurs when organisations share information, resources and risks with their suppliers or customers. Examples of this collaboration type include vendor managed inventory; efficient customer response; and collaborative, planning, forecasting and replenishment. Horizontal collaboration occurs when two or more competing or unrelated organisations cooperate to share information and resources such as their distribution centres and risks in serving their customers. Examples of horizontal collaboration in logistics include manufacturer consolidation centres (Verdonck et al. 2013), joint route planning

(Cruijssen, Cools& Dullaert 2007), freight sharing, road assistance and tender groups (Cruijssen 2006; Cruijssen, Cools& Dullaert 2007; De Kok, Van Dalen & van Hillegersberg 2015).

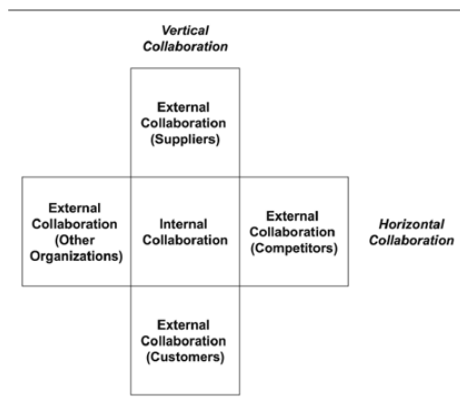


Figure 2.5: General scope of collaboration (adapted from Barratt 2004)

It has also been argued that organisations usually consider and pursue external collaboration but often oversight their efforts related to internal collaboration (Barratt & Green 2001; Fawcett & Magnan 2002). Nonetheless within each firm, which consists of individuals, there are still networks of relationships among people, departments and business units that regulate how firms can and do behave (Ritter, Wilkinson & Johnston 2004).

Collaboration has usually been seen as an opportunity or as mentioned by Barratt, a ‘fresh battlefield’ for managers to participate and avoid long-term internal arguments. Internal collaboration has the potential to enable internal integration and overcome functional myopia (Khan & Mentzer 1996; Stank, Keller & Daugherty 2001; Stevens 1990).

There is a possibility to combine the main two types of collaboration—vertical and horizontal—to access a different form of collaboration, called lateral collaboration. Simatupang and Sridharan (2002a) defined lateral collaboration as a form of collaboration aimed at gaining more flexibility by actively combining and sharing capabilities in both vertical and horizontal directions. An example of lateral collaborations involves organisations that attempt to synchronise shippers and carriers of multi-enterprises in an effective transportation or logistics network (Cruijssen 2006). Most collaborations that seek active involvement of customers and aim for customer satisfaction are in fact lateral collaborations.

Bengsston and Kock (1999) studied both the 'rack and pinion' and the 'lining' industries and argued that a firm could be involved in four horizontal relationships at the same time. A firm may be engaged in a symbiosis by coexisting with other types of relationships or may take part in a relationship that contains the two elements of cooperation and competition. Based on their classification, these relationships, which are a trade-off between cooperation and competition, were identified as coexistence, cooperation, competition and coopetition (Bengsston & Kock 1999).

2.5.1.1 Coexistence

This type of relationship does not entail any economic exchange between companies; they undertake only information and social exchanges. The companies are separate from each other and act independently. However, there is a high level of trust between the companies, which have their own rules of play and specific goals to follow.

2.5.1.2 Cooperation

This type of relationship involves frequent exchanges such as information, business and social exchanges. There is competition between competitors, which changes the level of trust between them. Relationships are formal and informal. They might achieve a partnership and make formal agreements or build informal relationships based on their social interactions and trust. Conflicts between companies are rare, as they have built different types of formal and informal business relationships. They introduce common goals, which are the basis for close interactions and functional operations.

2.5.1.3 Competition

This is an action–reaction form of relationship in which competitors act similarly in their functions and services. For instance, if one party introduces a special line of services, the other party will follow it immediately. Each partner sets its goals independently; however, there are similarities in the structure of companies' goals. Power is divided between competitors based on their position and share in the market.

2.5.1.4 Coopetition

In this form, exchanges are frequent and cover all types including both economic and non-economic interactions. When companies cooperate, their relationship is based on a mutual

agreement to create value, and in competition their connection is based on their power and position in the market. Conflicts are occasional in coopetition as their cooperation is harmonised through social norms and both formal and informal agreements. However, conflicts frequently occur in the course of competition. The goals are jointly established in cooperation, but goals are different based on the area of competition.

This section outlined different forms of collaboration among business partners in supply chains. The thesis focuses on horizontal collaboration, which has gained momentum and become the centre of attention of scholars. Horizontal collaboration is recognised as a feasible way of reacting to current challenges in the global world. Coopetition is another collaboration term that has received increasing interest among scholars and is in some ways similar to horizontal collaboration. However, they differ in ways discussed in the next section.

2.5.2 Horizontal Collaboration and Coopetition

Since the 1990s there has been increasing interest among management scholars in studying the phenomenon of coopetition—simultaneous collaboration and competition (Bengtsson & Kock 1999; 2000; Bonel & Rocco 2007; Brandenburger & Nalebuff 1996; Dorn, Schweiger & Albers 2016; Eriksson 2008; Ghobadi & D'Ambra 2012; Gnyawali, He & Madhavan 2006; Lado, Boyd & Hanlon 1997). Researchers have sought answers to questions such as how similar companies or competing companies cooperate together in different contexts to increase their market share and improve their performance. The term coopetition first appeared in the literature in the 1990s when Raymond Noorda, founder of the Novel Company, introduced it to describe one form of business strategy of the firm. However, use of the term can be traced back to 1913 when Kirk Picket described his relationship with an oyster dealer as, ‘You are in co-opetition, not in competition’ (Cherington 1976). While the term was re-used by Hunt in the *Los Angeles Times* in 1937, there was no public consideration of what the essence of coopetition is and how it can/could play a role in management (Hunt 1937; Yami & Le Roy 2010). The concept of coopetition was introduced to the management literature by a ground-breaking book by Brandenburger and Nalebuff in 1996. They argued that the term is not only a linguistic mixture of cooperation and competition but is a cutting-edge business strategy that managers can consider and adopt to overcome traditional thinking about competition and create new markets by cooperation. Kenneth Arrow, an economics Nobel Prize winner, considered that Brandenburger and Nalebuff had formed an exciting new approach to management business strategy (Armstrong & Clark 1997).

Like horizontal collaboration, coopetition has attracted more attention in recent years (Bengtsson & Kock 2000; Chen 2008; Gnyawali & Park 2011; Gnyawali, He & Madhavan 2006; 2008; Ketchen, Snow & Hoover 2004; Luo 2007; Yami et al. 2010). While the literature presents valuable information and facets of coopetition, it describes only the conceptual, terminological and explanatory aspects of the phenomenon that hinders research progress (Dorn, Schweiger & Albers 2016). Some scholars have called for a comprehensive conceptualisation of this multidimensional phenomenon (e.g. Bengtsson, Eriksson & Wincent 2010; Gnyawali, He & Madhavan 2006; Zeng 2003). Nonetheless, few attempts have been made to study coopetition comprehensively (Bengtsson & Kock 2014; Chin, Chan & Lam 2008; Stein 2010; Walley 2007). This suggests considerable opportunities exist for future studies to understand and extend knowledge about coopetition. Acknowledgement of this concept is therefore relatively weak in management literature and thus requires more attention to clarify coopetition and its research potential. Future studies might explain this business strategy from different perspectives and lead to creative management approaches (Dorn, Schweiger & Albers 2016).

Coopetition then is recognised as a strategic approach to increase market share (Gnyawali & Madhavan 2001; Meade, Hyman & Blank 2009; Tsai 2002), improve performance (Le Roy, Marques & Robert 2009; Oliver & Ebers 1998; Ritala, Hallikas & Sissonen 2008) and help a firm to develop new technologies, services or products (Gulati 1998; Quintara-Garcia & Benavides-Velasco 1996; Ritala 2011).

Although horizontal collaboration and coopetition both refer to the cooperation and competition between firms, each has specific characteristics that differentiate them. First, coopetition encompasses both vertical and horizontal collaboration. Studies in the last two decades have shown that competitive relationships develop in both vertical and horizontal collaboration (Bengtsson & Kock 2000; 2014; Elg & Johansson 1996; Ross & Robertson 2007; Zerbini & Castaldo 2007). In a recent systematic literature review on coopetition, Czakon, Mucha-kuś and Rogalski (2014) stated that 74% of studies have focused on horizontal relationships while vertical relationships accounted for only 14% of studies. In other recent reviews of the literature, researchers have argued that the sparse literature on coopetition shows that vertical relationships are mostly viewed as coopetition among firms and their suppliers and buyers (Eriksson 2008; Liu et al. 2014; Wilhelm & Kohlbacher 2011) and that customers have an active role in bringing together competing companies.

Second, coopetition refers to cooperation and competition between competitors at the same level of the supply chain at the same time (Luo 2007). Coopetition indicates simultaneity of cooperation and competition between competitors; not cooperation with one competitor and competition with another (Luo 2007). Third, coopetition implies coexistence of cooperation and competition during the same period, not cooperation in one period and coopetition at a different time. Temporal concurrence differentiates coopetition from horizontal collaboration, which sometimes occurs between complementors or competitors in isolation (Luo 2007).

Collaboration and its drivers were reviewed above. Various studies have suggested the benefits of collaboration between businesses. One profound question that remains is: what causes collaboration failure between supply chain players and what are the obstacles that impede collaboration among organisations? The answer lies with impediments to collaboration, the subject of the next section.

2.6 Challenges and Impediments to Business Collaboration

Businesses have long strived to exercise collaboration and despite growing numbers of collaborations and alliances, successful collaborations for many companies remain elusive. In the 1990s, researchers studied alliance failures between companies and reported a failure rate of 50–60% (Andersen Consulting 1999; Dacin , Hitt & Levitas 1997; Duysters et al.1999; Frerichs 1999; Kok & Wildeman 1998; Spekman et al. 1996; Stafford 1994).

In the last decade, researchers have not focused on problems created in a collaboration; rather, they have focused on success stories and advantages of collaboration (Cruijssen 2007). Much has been written regarding opportunities compared with impediments. Zineldin and Bredenl w (2003), for example, stated that 70% of all strategic alliances that have begun, fail for one reason or another. Despite this, these scholars argue that identifying barriers and the reasons for failing partnerships can guide us to a better understanding of how to avoid this in similar circumstances. Barriers to collaboration can be categorised into four groups based on the literature (Figure 2.6 and Table 2.2). These are related to partner selection; negotiations; determining and dividing the gains; and coordination and information and communication technology (ICT).

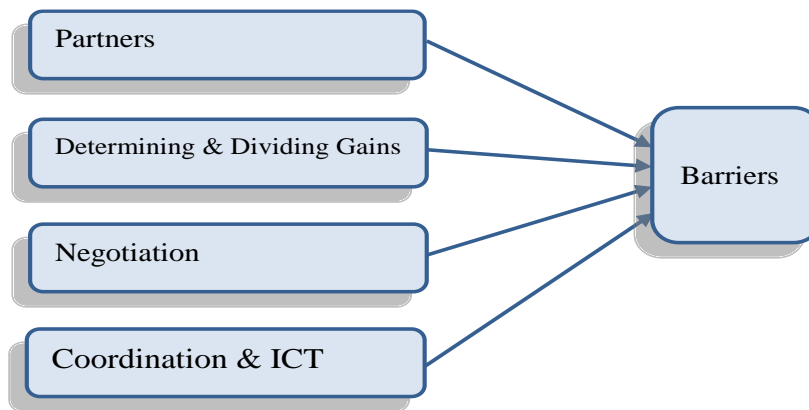


Figure 2.6: Impediments within collaborations

Table 2.2: Impediments and barriers to collaboration

Factor	Author	Observation
Partner selection	Bleeke & Ernst 1993; Bowersox 1992; Cruijssen et al. 2006; Hennart 1993; Mentzer et al. 2000; North 1990; Sabath & Fonlanella 2002; Williamson 1985	Difficulty in finding partners/trusted partners to collaborate
Determining & dividing gains	Bartlett & Ghoshal 2000; Cruijssen et al. 2006; Gibson et al. 2002; Lambert, Margaret & Gardner 1999; Mentzer et al. 2000; Razzaque & Sheng 1998; Zineldin & Bredenlow 2003	Difficulty to determining & dividing a mutually acceptable allocation of gains between partners
Negotiation	Barratt 2004; Bleeke & Ernst 1993; Contractor & Lorange 1988; Cruijssen et al. 2006; Hakkinen et al. 2004; Stem & Heskett 1969; Zineidin & Bredenl�w 2003	Difference in bargaining power of the partners
Coordination & ICT problems	Contractor & Lorange 1988; Cruijssen et al. 2006; Elmuti & Kathawala 2001; Gunasekaran & Ngai 2004; Lambert, Margaret & Gardner 1999; McLaren et al. 2002; Mentzer et al. 2000; Razzaque & Sheng 1998; Stefansson 2002; Zineldin & Bredenl�w 2003	Problems related to mapping the ICT system, high costs of ICT systems & implementing problems such as coordinating & controlling problems

2.6.1 Partner Selection

Partner selection, scalability, complementarities and synergies between partners have dominated the scientific debate (Todeva & Knoke 2005). Partner selection explains who

cooperate with whom, what is the extent of collaboration, how long does it take, and what governance forms have been chosen between partners. In thinking about collaboration and finding a partner many authors have noted the need for 'scalability' (Accenture 2002; Sabath & Fontanella 2002; Sherman 1998). The nature of collaboration in supply chains is an essential resourcing incentive, so the management of organisations must pay attention to this restriction and seek out a small number of potential relationship partners rather than wasting their efforts and resources on a large number of entities in the supply chain. A company needs to define and clarify a small number of strategically significant suppliers, customers, competitors or non-competitors to achieve their collaboration goal, in essence they operate as Nash suggests in Game Theory. The segmentation approach is gaining much momentum and attention among supply chain players and partners seek segmentation as an strategic approach for a fruitful collaboration in a supply chain (Tang & Gattorna 2003).

Some authors have also suggested establishing a business relationship to gain value, thereby achieving mutual benefit (Anderson & Narus 1991; Brandenburger & Nalebuff 1997). Therefore, companies should develop a specific strategy for every relationship and conceptualise potential relationship partners based on the firm's net value (Brandenburger & Nalebuff 1997).

When one plays a business game and decides to make a change in the game, knowing the players enables systematic change in one or more elements of the game. Players are listed as suppliers, customers and competitors. The government also plays behind the scenes and establishes the rules and policy of the 'more' game. Complementors are players that are sometimes overlooked. Brandenburger and Nalebuff (1997) the attention to the role of players and defined them as competitors or complementors. A player is a complementor if customers value your product 'more' when they have that player's product than when they have your product alone. Competitors were differentiated in this description by replacing the word more with 'less'.

2.6.2 Determining and Dividing the Gains

The narrow scope of most collaborations may prevent realisation of the nature, extent, risk and rewards during creation and evolution of the collaboration (Bartlett & Ghoshal 2000). Some authors have researched the fairness of unexpected and expected costs of partnerships. For example, Gibson et al. (2002) suggested that shippers are satisfied with the role of partnerships

in their activities concerning strategic fit and shared risk and reward, and are comfortable developing relationships with their carriers.

Shared risks and rewards and the concept of trust in the fair distribution of a collaboration's benefits may cause companies to either marginalise or disintegrate their collaboration (Cruijssen 2007). For instance, in some collaboration cases concerning LSP joint route planning, an excess of allocation has been observed (Cruijssen 2006). The simple rule of thumb is that partners distribute risks and rewards proportionally based on size or their contribution to the accrued synergy (Cruijssen 2007). Some examples of this in transport and logistics include where the partners can use indicators and divide the gains in a way that is proportional to the total load shipped, the number of customers served, transportation costs before the collaboration and distance travelled for each shipper's order.

2.6.3 Negotiation

Negotiation between parties is also one of the factors that prevents a collaboration from becoming a successful partnership (Barratt 2004; Contractor & Lorange 1988; Stem & Heskett 1969). Partners display creativity in leveraging relationship management to support relational power to append their bargaining power and market position in the collaboration's negotiations (Bleeke & Ernst 1993; Cruijssen et al. 2006; Hakkinen et al. 2004; Zineidin & Bredenlöv 2003).

Some researchers consider that there is little information about the reasons for imminent failure in implementing and setting up a formal agreement. Todeva and Knoke (2005) argued that the conditions under which a negotiation leads to sudden breakdown and discourages partners from relaunching a collaboration remain unclear. Bleeke and Ernst (1995) demonstrated conditions in which alliance negotiation and bargaining power most likely led to an acquisition. Relative bargaining authority and negotiation success depend on elements such as primary strengths and weaknesses of the parties, how these strengths and weaknesses change during the partnership and the possibility for competitive conflict. Partners look for a win-win result in their negotiation process. Therefore, tough negotiations with strong partners and unclear or minimal collaboration value cannot support a successful process and a long-time partnership. Some examples of the fears held by logistics companies regarding the negotiation process are that commensurable LSPs find it difficult to distinguish themselves; smaller enterprises in the collaboration might lose their customer or be forced out of the market (Verstrepen et al. 2006);

and negotiations may not support a fair allocation of benefits—the larger party will always benefit the most (Cruijssen 2007).

2.6.4 Coordination and Information and Communication Technology

Collaboration may encourage companies to share more information to support their management decisions (Bowersox et al. 2000; Lee & Whang 2000; Manthou et al. 2004; Mason-Jones & Towill 1997; Min et al. 2005). Small and medium enterprises (SMEs) make up the vast majority of companies involved in a variety of industries. They have problems implementing ICT systems (Gunasekaran & Ngai 2004). These problems affect collaboration activities that require information sharing and intensive communication and data interchange. For example, sourcing, implementing and achieving ICT systems updates are challenges for most logistics companies (Gunasekaran & Ngai 2004). Studies have identified problems such as costs of acquiring and high indispensable costs of ICT systems (Gunasekaran & Ngai 2003; McLaren et al. 2002; Stefansson 2002); high additional coordinating and controlling costs of information sharing (Contractor & Lorange 1988; McLaren et al. 2002; Mentzer et al. 2000; Zineldin & Bredenl w 2003); and loss of control over ICT systems (Elmuti & Kathawala 2001; Lambert, Margaret & Gardner 1999; Razzaque & Sheng 1998; Zineldin & Bredenl w 2003). These problems hinder the kinds of collaboration that require a large volume of data transactions.

2.7 Collaboration Structure

In addition to opportunities and impediments, researchers have performed many studies on the structural design of networks and alliances, and reviewed how this cooperation structure influences the evolution of collaboration (Schmoltzi & Wallenburg 2011). Since the early 1990s researchers have endeavoured to develop systematic classifications and categorise different types of cooperation structure. For example, Parkhe (1991) outlined different dimensions of inter-firm diversity and integrated them into his proposed framework. The study focused on similarity of resource endowments and introduced a multilevel typology for inter-firm diversity. Parkhe argued that organisational learning and adaptation has a significant influence on moderating the influence of diversity on the duration and effectiveness of alliance. Dussauge and Garrette (1997) built on previous studies in 1991 and 1995 of 197 alliances, and introduced three typologies of alliance based on a statistical analysis of partner attributes. Different partner attributes included legal structures, functions, the relative composition positions of partners, the

similar or different nature of the contributions of partners, the organisation of tasks and the geographic scope of the collaboration. Todeva and Knoke (2005) prepared a prominent typology based on cooperative governance structure.

Klint and Sjöberg (2003) introduced a comprehensive model based on the structure–conduct–performance (SCP) paradigm (Figure 2.7), in which eight additional relevant factors in the structural design at three levels of the individual, company and network, were introduced. However, this model also focuses on general cooperation and is not related to a specific type of cooperation.

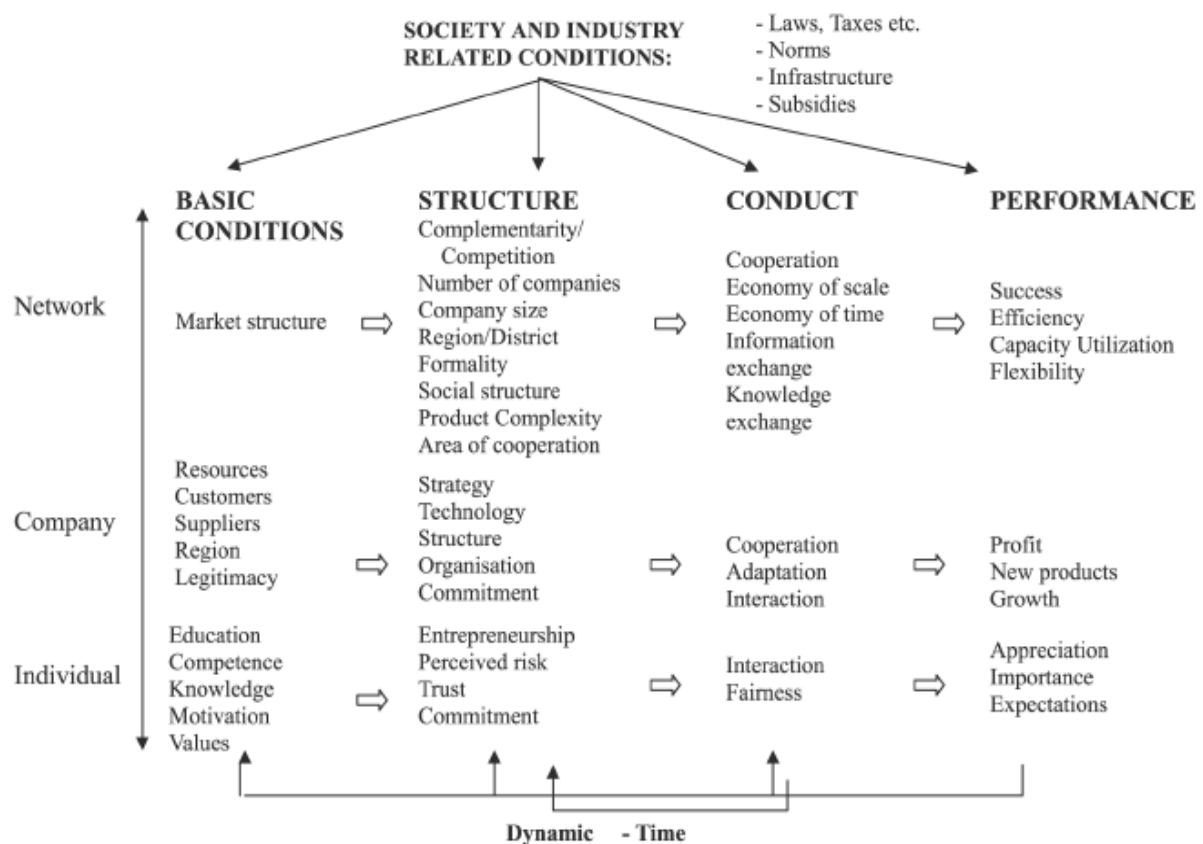


Figure 2.7: The SCP model for strategic alliances (Klint & Sjöberg 2003, p. 414)

To determine the structure of horizontal LSP collaborations in this study, the general cooperation structure of the Klint and Sjöberg (2003) model was adapted. The eight factors were combined and addressed as five distinct dimensions (Table 2.3). These are the contractual, organisational, geographical, service and resource scope, as described below.

Table 2.3: Structural dimensions of horizontal collaboration

Structural Dimension	Factors in the Collaboration
Contractual Scope	Formality of the collaboration; type of agreement on which the collaboration is based
Organisational Scope	Number of companies in the collaboration
Geographical Scope	Spatial influence of the collaboration; market coverage; importance on the collaboration of the area and region
Service Scope	Type of logistics services provided; complexity of services
Resource Scope	Degree of resource overlap; size of the company and capacity of its resources; similarity and complementarity of resources such as competence of the partners

The contractual scope denotes formality and the legal structure established to manage the cooperation (Klint & Sjöberg 2003). Agreements provide the formal grounds for establishing a legal entity that defines governance control, resource allocation and dividing of gains among partners. Different kinds of agreements and contracts link cooperation partners together and make long-term relationships between clients easier (Teng & Das 2008).

Most researchers have studied only equity-based and non-equity-based arrangements in inter-firm cooperation (Dussauge & Garrette 1997; Garcí'a-Canal, Valde's-Llaneza & Arin'ño 2003; Lunnan & Haugland 2008). There is consensus that cooperation in practice begins by simple agreements ranging from arm's length agreements to complex joint venture contracts (Gulati & Singh 1998; Todeva & Knoke 2005). It is also obvious that different types of agreements and contracts link cooperation partners together: verbal arrangements, minority equity agreements, written contracts without equity involvement and joint venture contracts (Frankel, Whipple & Frayer 1996; Teng & Das 2008).

The number of companies in the cooperation denotes the organisational scope. In bilateral and multilateral cooperation, two or more parties are joined in the cooperation (Rubin de Celis & Lipinski 2007). Many researchers have argued that the increased number of partners in a cooperation increase efficiency of the cooperation (Griffith et al. 1998; Park & Russo 1996). It is obvious that each partner can bring resources and benefit from more resource complementarity; however, an increased number of partners require more communication and coordination (Gulati & Singh 1998; Parkhe 1993).

It is evident that an increasing number of partners makes the collaboration complex, and management of the project requires a higher level of coordination and communication (Griffith et al. 1998; Park & Russo 1996).

Geographical coverage of services is one of the most significant aspects underlying services offered. The significance of geographic area in the collaboration has been studied by some researchers who examined and stressed the importance of the region to the extent of collaboration between companies in the network (Gustavsen & Hofmaier 1997; Hagg & Johanson 1982; Saxenian & Dabby 2004). For example, the importance of the region is evident in Emilio Romagna in Italy, Gnosjö in Sweden (Klint & Sjöberg 2003) and Silicon Valley in California, which is the centre of innovation in the high technology sector. These regions play a significant role for companies, enabling them to collaborate to a great extent.

Geographical scope and service scope are related because, as mentioned, the most important aspect of services is to be present in an area and for there to be good coverage of services in that area. Oum et al. (2004) argued that a significant aspect of a firm's competitive edge is its geographical presence. It is also evident that without presence in the market, LSPs cannot deliver their services to customers.

Service scope reflects the type of logistics services, the mode of transport—that is, road, rail, sea, air and intermodal transport—as well as warehousing and value-added services. It is obvious that the main income of a company comes from these services. As already mentioned, this study focuses only on road, rail and intermodal services.

The complexity of products and services influences the type, development and conduct of a collaboration in a strategic network (Klint & Sjöberg 2003). Moreover, logistics services, both in terms of scale and the variety of services, may be the focus of collaboration among service providers in supply chains.

Similar to Schmoltzi and Wallenburg (2011), the final dimension of collaboration structure—that is, resource scope—integrates the remaining factors of Klint and Sjöberg's model, which are complementarity, social structure and company size. These three factors relate to the similarity and complementarity of resources and the capacity of those resources to shape the collaboration between companies. The different categories of resource scope refer to market competence and market penetration resources, which consider the core competency of partners that determines the established partnership (Kale et al. 2000; Oxley & Sampson 2004). It is

evident that the similarity, complementarity, capacity and social structure of resources can facilitate better cooperation among partners (Schmoltzi & Wallenburg (2011)).

2.8 Research Framework

The literature reviewed in this chapter incorporates a variety of theories, different models of general collaboration: collaboration inside the supply chain; and vertical collaboration (Naesens, Pintelon & Taillieu 2007). Wood and Gray (1991) argued that collaboration is an ongoing process in an antecedent–process–outcome model (Figure 2.8). They studied various collaboration theories and stated that ‘Only some of the theories can address the collaborative process; the others leap from preconditions to outcomes, leaving us with a “black box” to cover the area in between’ (Wood & Gray 1991, p. 143). They argued that the interactive process of collaboration and its components are missing and offer limited understanding. Therefore, to understand collaboration, scholars are required to study three crucial areas: antecedents to collaboration; process of collaboration; and outcomes of collaboration. However, it is evident in the literature that these three areas are rarely studied independently. These antecedents of collaboration are anticipated to enhance the probability of successful collaboration endeavours (Thomson 2001) and incorporate different factors likely to improve collaboration outcomes.

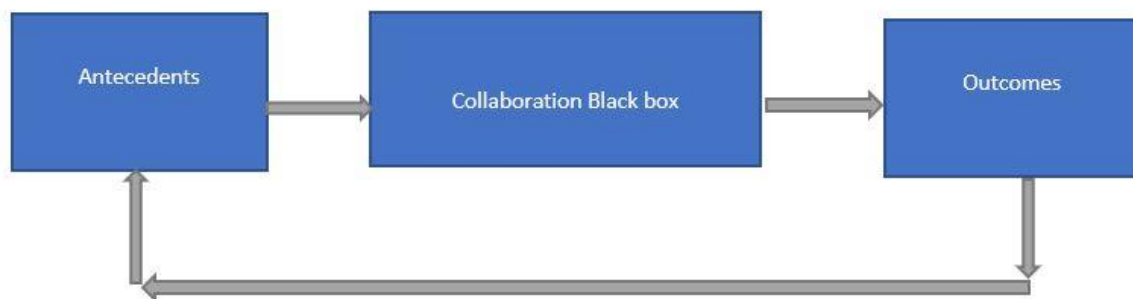


Figure 2.8: Interactive collaboration process (Wood & Gray 1991)

Thomson and Perry (2006) further developed the Wood and Gray (1991) model and process of collaboration by adding five key dimensions to the collaboration black box, which emerged from their research: 1) governance; 2) administration (structural dimensions); 3) mutuality; 4) norms of trust and reciprocity (social capital dimensions); and 5) organisational autonomy (agency dimension).

Governance and administration dimensions refer to the structural dimensions, rules and structures that parties arrange to govern collaborative activities through shared power organisation (Clift et al. 1995; Crosby & Bryson 2005). Partners must collectively generate working rules to learn how to participate in decision making (McCaffrey, Faerman & Hart 1995; Wood & Gray 1991); what information is required to produce and share; and how to distribute costs and benefits of collaboration (Ostrom 1990).

The process of forging mutuality and reciprocity represents an activity that enhances beneficial relationships and builds social capital norms. Mutual benefits lead partners to share valuable information and be interdependent based on either their shared interests or different interests (Thomson 2001). Reciprocity refers to demonstration of the willingness of a party to collaborate only if the other party demonstrates the same willingness to interact collaboratively (Thomson & Perry 2006). The reciprocity mentality of 'tit-for-tat' or 'I will if you will' stems from the expectation of parties in a collaboration with regard to what Ring and Van de Ven (1994) call 'fair dealing'. Scholars such as Axelrod (1984; 1997), Powell (1990) and Ostrom (1990) have distinguished reciprocity as a key success factor in collaborative action.

The fifth and final dimension (Thomson & Perry 2006) is organisational autonomy, which refers to the process of adapting individual and collective interests. Autonomy is a crucial factor in understanding collaboration because partners are willing to retain their independent power of decision making even when they follow shared rules in the collaborative organisation (Thomson & Perry 2006; Wood & Gray 1991). In some cases, participants retain autonomy and power even in a collaboration. However, in some other types of collaboration, such as federations, power is surrendered to the collaborative alliance. Thomson and Perry (2006) argued that the tension created between individual and collective interests is a recurring theme and a significant factor in many case studies in collaboration research. Autonomy therefore requires exploration within their model of collaboration. They argued that these five dimensions together give meaning to collaborative action (Figure 2.9).



Figure 2.9: The antecedent–process–outcome framework (adapted from Thomson & Perry 2006, p. 21)

The review of the literature also showed that collaboration is an evolving process (Bedwell et al. 2012). Therefore, similar to Wood and Gray (1991) and Thomson and Perry (2006), and based on CT, an interactive process of horizontal collaboration is proposed as the basis for the framework in the current study. A variety of theories are adapted in this framework, an approach welcomed in SCM studies (Halldorsson et al. 2007; Mentzer et al. 2004). Section 2.3 reviewed seminal literature regarding the four organisational theories and evaluated their potential to provide a theoretical foundation for the growing topic of horizontal collaboration. These theories—TCE, RDT, GT and CT—represent in this research the theoretical foundations from which to shed light on horizontal collaboration among LSPs in the Australian logistics context.

TCE is one of the most influential theories on inter-organisational relationships. As shown in the review, trust is the cornerstone of a successful business relationship. The extensive academic literature suggests that an adequate governance structure helps partners to cope with conflict and to build efficient collaboration in line with TCE (Crujssen 2006; Halldorsson et al. 2007; Schmoltzi & Wallenburg 2012; Wallenburg & Raue 2011). Moreover, cost management is the centre of attention of TCE. As already noted, horizontal collaboration enables partners to pursue their different objectives; cost management and reduction being the most cited aims of partners.

Opportunism and self-interest of human resources have been widely examined in supply chain studies using TCE theory (Pomponi, Fratucci & Tafuri 2015). Human actors provide strong support for success or failure of collaboration efforts (Hammant 2011). The potential for opportunistic behaviour and damage from opportunism cannot be ignored. The goal of a

company, therefore, is to manage the flow of its goods and services while mitigating the risk of opportunistic behaviours. As stated by Williamson (2008, p. 6), ‘cost-effective ex-ante safeguards to deter ex-post opportunism’. Therefore, how transaction costs are managed determines the success or failure of a business (Rindfleisch & Heide 1997). TCE, therefore, can help researchers to better understand the opportunistic behaviour of human actors and the governance mechanisms required for successful collaboration among LSPs in Australia (Figure 2.10).

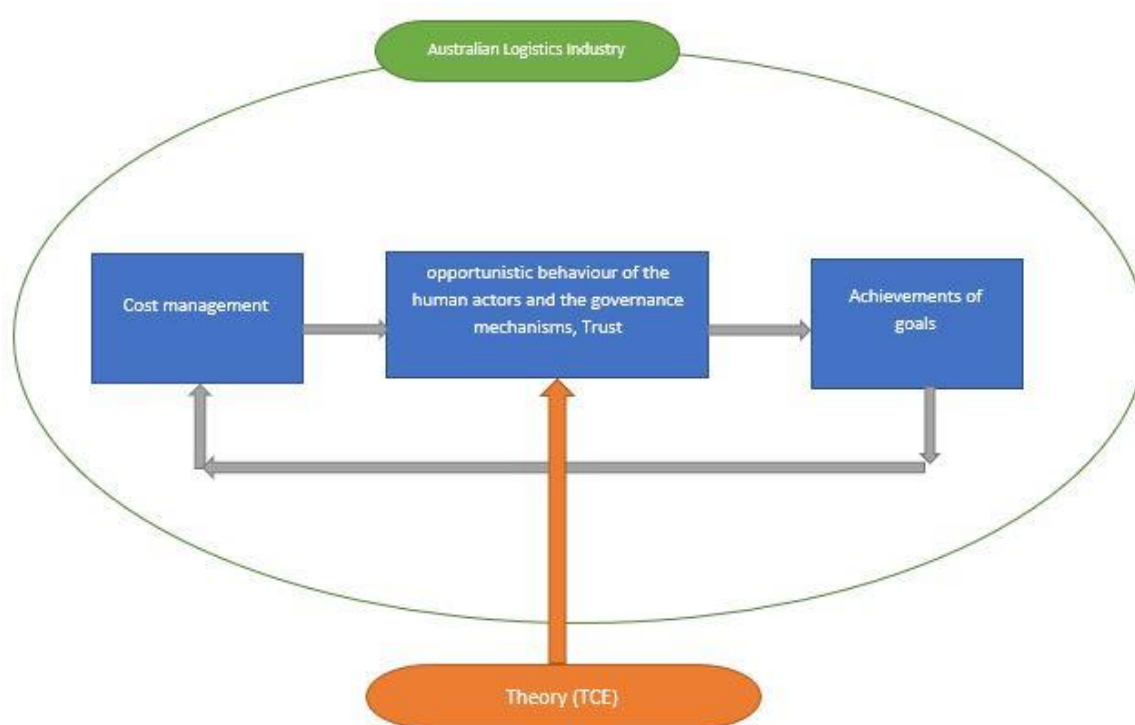


Figure 2.10: TCE and the framework of the study

RDT creates the foundation for understanding the formation of power in inter-organisational relationships (Ireland & Webb 2007). Resources are perceived as the basis of this power and the means of survival of a firm in its environment (Scott 1987). RDT associates the survival of the company and its success with possessing valuable and scarce resources that maximise the firm’s power. As a consequence, in the transport and logistics environment, RDT focuses on cooperation and coordination among supply chain partners to generate shared benefits. RDT may lead this study to understand how horizontal collaboration initiatives build upon the structure of the logistics industry and how LSPs might use their powers efficiently in their relationships.

RDT can help supply chain researchers to understand how horizontal collaboration initiatives rely on industry structure and where supply chain members can use their abilities to exert influence over other parties (Pomponi, Fratocchi & Tafuri 2015). Figure 2.11 represents the study framework and RDT theories in the Australian logistics context.

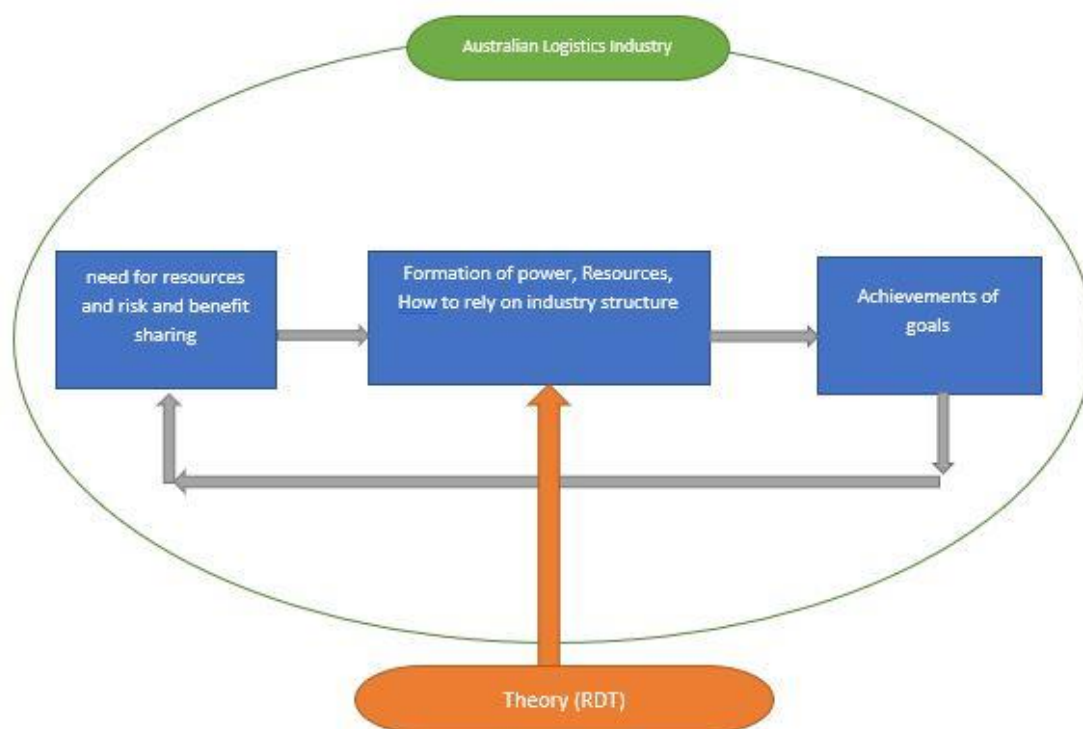


Figure 2.11: RDT and the framework of the study

GT is about win-win or positive-sum outcomes and means that everyone is a winner in a collaborative situation (Neumann & Morgenstern 1944). It may help in this research to determine how organisations work together to shape effective decisions and how to achieve their joint objectives. The CGT decision is one that enhances positive outcomes that lead to greater benefit for parties in collaboration rather than if they were working alone, in competition. GT can help business partners such as LSPs to clarify the cooperation context, understand and influence each other's choices and recognise their outcomes and rewards (Dufwenberg 2011). CGT provides a natural framework for profit and cost allocation (Liu, Wu & Xu 2010). CGT then can help companies in a collaboration to allocate collaboration costs fairly; as a consequence, logistics companies are able to allocate the cost savings resulting from the cooperation to reduce empty haulage and achieve considerable cost reductions (Krajewska, MA & Kopfer 2006; Liu, Wu & Xu 2010; Adenso-Díaz et al. 2014). Figure 2.12 shows the framework developed for this study using GT.

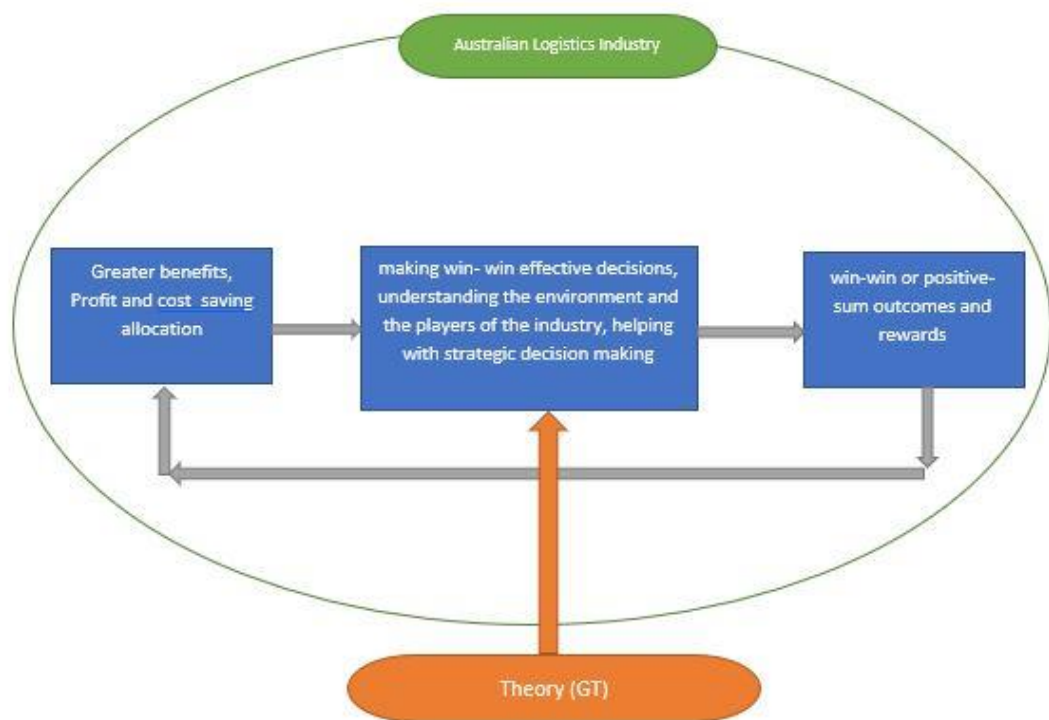


Figure 2.12: GT and the framework of the study

In summary, the review of the literature and the role of different theories has enabled the proposal of a horizontal collaboration process research framework for this study that integrates the theories and studies reviewed. The analysis framework developed here allows application of findings from the literature and relevant theories to the framework, which enables this study's contribution to knowledge to be clearly demonstrated in the conclusion chapter.

The framework represents the different factors that influence collaboration and are likely to lead to successful collaborative efforts (structure, opportunities and impediments). The framework leads to a better understanding of horizontal collaboration among LSPs in the Australian logistics context (Figure 2.13). As shown, drivers, impediments and structure of the collaboration are factors that affect establishment of the horizontal collaboration process, and partnership process and cessation in the Australian logistics context. These factors are interdependent and together represent the black box of horizontal collaboration in Australia (Fawcett et al. 2012; Wood & Gray 1991). The complementary, not equally and jointly exclusive use of the theories, will enable a better understanding and more effectively represent the viability, motivation, challenges and particulars of horizontal collaboration.

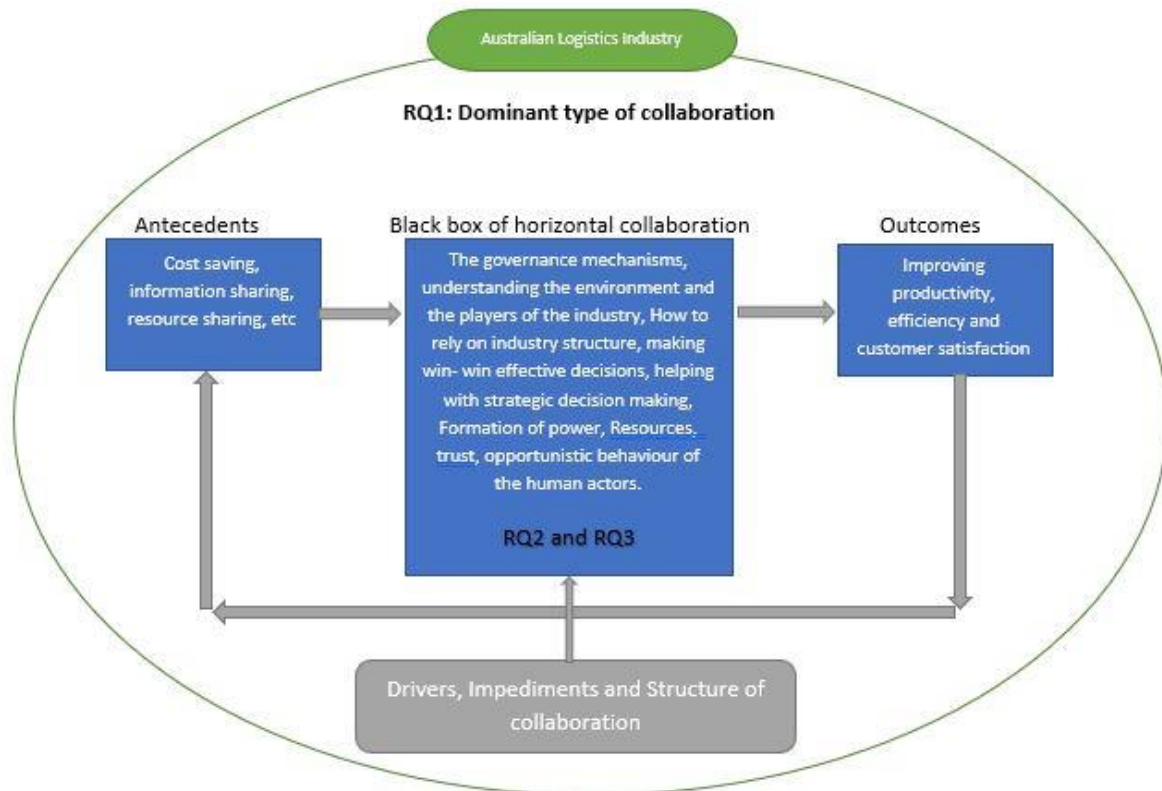


Figure 2.13: Proposed research framework—The process of collaboration

The different factors and associated research questions provide a deeper understanding of the complexity and intricacy of horizontal collaboration efforts in practice. The first research question of this study investigates the dominant type of collaboration in the Australian logistics industry, and two research questions are organised around the black box of horizontal collaboration. In addressing these questions, this study examines the nature and structure of horizontal collaboration among LSPs. Moreover, it investigates opportunities and impediments to horizontal collaboration in the Australian logistics context. Finally, the end product is a theoretical model for understanding the development and practical application of horizontal collaboration among LSPs in Australia.

This framework proposes that horizontal collaboration be adopted to create positive strategic outcomes including improved productivity, efficiency and customer satisfaction, reduced costs and improved customer service (Fawcett, Magnan & Fawcett 2010; Hansen & Nohria 2004; Helfat & Peteraf 2003;). Collaborative arrangements such as strategic alliances support new organisational formations that strive to achieve objectives and efficient outcomes through collaboration rather than competition (Todeva & Knoke 2005).

The objective of the literature review of research and theory related to horizontal collaboration was to understand the research and theorising that had been undertaken and thus what is known about horizontal collaboration among LSPs. The review showed that because of the shortage of horizontal collaboration studies (see, e.g., Leitner et al. 2011), the literature does not provide a comprehensive framework for planning and implementing horizontal collaboration in logistics and transport (Pomponi et al. 2013).

This literature review led to development of a broader perspective on horizontal collaboration. The argument presented here is that there are different types of collaboration that can be, and are, used in the Australian logistics context. Three significant factors—drivers, impediments, and structure of the collaboration—contribute to horizontal collaboration in the logistics and transport field. Understanding drivers, avoiding impediments and adopting an efficient collaboration structure together give meaning to establishing horizontal collaborative relationships and may lead to positive outcomes (Figure 2.13)

2.9 Conclusion

This chapter presented the first part of the literature review and focused on developing a framework of business collaboration in a supply chain context. This part elaborated on the evolution and emergence of business collaboration and reviewed the rationale for collaboration, different definitions, key reasons and factors. Important factors such as drivers of collaboration were presented.

There is a range of theoretical approaches to the study of collaboration among companies. This chapter continued by reviewing dominant theories of collaboration. Business collaboration theories have usually been considered from three perspectives: economic, strategic and organisational. Theories used in this study are TCE, RDT, GT and CT.

Different types of collaboration, vertical, horizontal and lateral collaboration and simultaneous cooperation and competition, referred to in the literature as the coopetition phenomenon reviewed in this chapter. The chapter presented challenges and impediments to collaboration, followed by collaboration structure and introducing the research framework of the study. Finally, the last section concludes the chapter.

This chapter introduced current debates about collaboration and provided knowledge to understand how collaboration can be established, structured and developed between parties. Following literature chapter focuses on logistics and logistics service providers and common challenges of collaboration with a specific reference to horizontal collaboration.

Chapter 3: Literature Review Part 2—Organisational Collaboration in the Transport and Logistics Industry

3.1 Introduction

This chapter presents the second part of the review of the literature underpinning this research. The objective here is to examine the profile of the logistics industry and establish an understanding of what constitutes collaboration among logistics providers in supply chain contexts. The chapter investigates logistics players. The main approaches to logistics collaboration and the common challenges faced by logistics companies in establishing and maintaining collaborations are the focus of discussion in this chapter. Thus, the chapter applies the findings from part one regarding the structure and process of business collaboration, to examine the type and nature of collaboration in the logistics industry.

This literature review chapter is important for demonstrating a thorough comprehension of the logistics industry. Academics and practitioners differ in their views about horizontal collaboration as a viable way of coping with the challenges facing the logistics industry. This chapter identifies key debates and problems related to different types of collaboration in the specific context of the transport and logistics industry; dominant explanations for the existing forms of collaboration; how logistics parties collaborate; and opportunities and impediments to creating and sustaining a logistics partnership.

The literature reviews in Chapters 2 and 3 complement each other in identifying areas of controversy and helping to develop research questions. Consequently, the literature review chapters form the basis for an investigation of the process, nature, structure, drivers and barriers to collaboration in the transport and logistics industry, which is the main objective of this thesis.

This chapter is organised into seven sections. Section 3.1 is the introduction. Section 3.2 introduces LSPs and logistics users. Section 3.3 concentrates on common challenges that logistics companies face to establish and maintain collaborations. Section 3.4 presents the main approaches to logistics collaboration, both vertical and horizontal. A review of different types of collaboration in maritime logistics, air logistics and landside transportation is also presented. Section 3.5 review the existing literature on horizontal collaboration models. Section 3.6

introduces the proposed model of horizontal collaboration between logistics parties in Australia; and finally, Section 3.7 concludes the chapter.

Companies plan for better customer service through developing their logistics services. The quality of logistics functions has often been associated with the providers of logistics services. The next section introduces providers of logistics services, specifically third-party logistics (3PL or TPL) providers.

3.2 Logistics Service Providers

Sumantri (2012) performed a content analysis based on various journal publications from 1995 to 2009 and classified LSP research based on its research purposes and objectives. He stated that areas from the past were not covered in more recent research and that there is ambiguity about the marketing of logistics services (Selviaridis & Spring 2007). Consequently, authors have proposed various classifications of LSPs that recognise asset-based and non-asset based LSPs (Razzaque & Sheng 1998; Sheffi 1990). Asset-based LSPs own physical assets such as warehouses, trucks and equipment, focusing on management and offering logistics solution to their customers. Non-asset based LSPs design, organise and manage logistics activities and rely on their logistics knowledge and information systems. They integrate their resources and capabilities with those of other service providers to fulfil customer requirements (Selviaridis & Spring 2007). LSPs then manage the flow of goods and materials from the point of origin to manufacturers, and flow of products from manufacturers all the way through distribution centres to retailers and finally to end customers. Among the services that LSPs offer are transportation, warehousing, packaging, inventory management, materials handling, order fulfilment and freight forwarding. During the last few decades, logistics services have developed in terms of both scale and the variety of services.

LSPs are also known as logistics parties by academics and practitioners. 1PL, 2PL, 3PL and 4PL are popular examples of logistics parties (Crujssen 2007; Marasco 2007; Papadopoulou 1998; Saglietto 2013; Selviaridis & Spring 2007). Some logisticians have introduced other terms such as 5PL and 7PL, which have not attracted the attention of academics or practitioners. Some authors have referred to a lack of clarity and ambiguity in the definition of each party, arguing that definitions do not precisely describe the four PL categories in terms of a firm's profile, services and asset ownership (Marasco 2007; Saglietto 2013; Selviaridis & Spring 2007). It thus could be argued that the changes and evolution of logistics parties from 1PL to

4PL is a response to the growing needs of users and customers for higher logistics efficiency during the development of logistics services.

Some authors have classified 1PL provides as the shipper, supplier or manufacturer of cargo, and 2PL as the customer (Hertz & Alfredsson 2003; Papadopoulou 1998). They explain that 3PL providers are firms acting as an intermediary to which logistics is outsourced by sellers and buyers (Hertz & Alfredsson 2003).

Papadopoulou (1998) stated that, from 1900 to 1950, logistics services were performed by manufacturers, as they had basic logistics services and acted as 1PL. Logistics providers had complete control over logistics operations, which were mostly limited to transportation and warehousing. Accordingly, from the late 1950s to late 1970s specialised transport and warehousing services were performed by companies in a similar way to services offered by 2PL. 2PL providers were specialised firms in transportation and warehousing and provided a broader service nationally or covered a larger geographical area than was possible for a 1PL (Papadopoulou 1998).

During the last four decades 3PL has received considerable attention from logistics researchers. Terms such as logistics outsourcing, contract logistics, contract distribution and 3PL have been applied accordingly to describe the activity of contracting out all or some of the logistics functions traditionally performed in-house by companies (Aertsen 1993; Bowersox 1990; Knemeyer et al. 2003; Lieb 1992; Maltz & Ellram 1997; Marasco 2007; Razzaque & Sheng 1998; Sink, Langley & Gibson 1996). The use of 3PL terminology, however, has not been consistent. In some cases, 3PL has been used to describe arm's length interactions between transport and/or warehouse companies, while in other instances it has been used to describe more complex communications that can encompass the entire logistics process (Lieb 1992; Marasco 2008; van Laarhoven, Berglund & Peters 2000). Lieb (1992, p. 29) stated that 3PL concerns 'the use of external companies to perform logistics functions that have traditionally been performed within an organization. The functions performed by the third party can encompass the entire logistics process or selected activities within that process'. Similarly, Coyle et al. (2003, p. 425) advised that 3PL involves the use of an external firm 'that performs all or part of a company's logistics functions'.

These definitions offer broad determinations of 3PL where the focus is on outsourcing the logistics activities which previously performed in-house (Aertsen 1993; Bowersox 1990; Lieb

1992; Sink et al. 1996). Some narrower definitions include service features, long-term relationships, sharing of risks and benefits, customisation of logistics solutions and mutual efforts to develop collaboration; and propose that 3PL activities aim at incorporating strategic and not just tactical dimensions (Skjoett-Larsen 2000). For instance, Murphy and Poist (1998, p. 26) defined 3PL as ‘a relationship between a shipper and third party, which compared with basic services, has more customized offerings encompasses a broader number of service functions and is characterised by a longer term, more mutually beneficial relationship’.

Lewis and Talalayersky (2000), Piplani et al. (2004) and Sauvage (2003) have explained the relationship between a 3PL provider and its client to conceptualise 3PL activities. Knemeyer and Murphy (2005) and Bowersox, Mentzer & Speh (1995) described 3PL relationships as a spectrum or continuous scale that comprises single or arm’s length transactions at one end, and the entire logistics processes or integrated services at the other.

This thesis is based on the premise that outsourcing is the primary reason for 3PL and that a 3PL is an intermediary between shippers (sellers) and consignees (buyers) that works closely with its clients to deliver required logistics services based on customers’ requirements. This is why this thesis discusses Australian logistics providers and how they collaborate to prepare logistics services for their clients.

The term 4PL provider was coined by Andersen Consulting in 1996 (Saglietto 2013). The underpinning principle of the 4PL idea is that logistics needs to serve supply networks and globalised markets that are more complicated than local deliveries, and that the management and capabilities of performing in a complex environment do not exist in any one LSP. Consequently, there is a need for an organisation to be a focal point that can use its knowledge of supply chains to gather other 3PLs to manage and integrate a total solution for the end-to-end supply chain. Andersen Consulting defined 4PL as ‘an integrator that assembles the resources, capabilities, and technology of its organization and other organizations to design, build and run comprehensive supply chain solutions’.

According to Christopher (2011), 4PL brings together a coalition of ‘best of breed’ service providers with the assistance of its capability in information systems and logistics expertise to provide a cost-effective service and guarantee an efficient sustainable supply chain solution. Other studies have focused on the 4PL role in the supply chain (Bumstead & Cannons 2002), its dominant factors (Bourlakis & Bourlakis 2005), design (Tan et al. 2007), optimisation of the

4PL decision model Chen & Su 2010; (Li et al. 2003; Yao 2010) and its operational advantages (Chen & Su 2010; Lau & Goh 2004; Mukhopadhyay & Setaputra 2006). However, they do not address the general confusion regarding differences between 3PL and 4PL (Papadopoulou 1998). Some authors, including Razzaque and Sheng (1998) and Berglund et al. (1999), are in agreement that 4PL firms have virtually no physical assets of their own. They have argued that 4PL is a non-asset-based integrator of a client's supply and demand chains. In their opinion, in the 4PL concept, the management of logistics activities is outsourced to an independent, accountable company that focuses entirely on management tasks, so there is no need to own logistics assets.

Saglietto (2013) conducted a seminal study and classified various features of 4PL firms. He presented a comprehensive taxonomy of 4PL, common features and a pragmatic definition of 4PL. He stated that:

4PLs are independent consulting firms whose role is to design, organize and coordinate the whole logistics, documentary and regulatory chain to enable a client to send goods, documents, and information. They are integrators (principal contractor and project manager) that combine their own resources, capacities, and technologies with those of other service providers to design and manage complex value chains based on the provision of dedicated computer services. (Saglietto 2013, p. 113)

Lead logistics provider (LLP) is another term for logistics providers that is not defined clearly by practitioners and academics. Some scholars, such as Christopher (2011) do not differentiate LLPs from 4PL companies. According to Mangan and Lalwani (2016), the LLP has a much more expanded scope of responsibility compared with other LSPs. As the name suggests, it is a firm that leads and take the responsibility for services of a client in the supply chain. An LLP plans logistics processes and manages the provision and integration of a seamless logistics service through its resources and capabilities, as well as the organisation of its subcontractors. In the case of collaboration over the services to a particular customer, the LLP takes responsibility and leads the collaboration.

This section has defined the different types of LSPs. The increasing demand by global markets for outsourcing logistics activities and using logistics providers has created an expanding need for logistics services. This demand has prompted considerable investigation and attention towards the important concept of logistics parties. Under these circumstances, cooperation in logistics is widely recognised as a future challenge for LSPs (see, among others, Mason et al.

2007). Thus, this study considers both the significant role of LSPs and how challenges shape cooperation among logistics companies.

Having defined logistics and SCM and how they frame this research, it is also important to consider the effects of the different understandings and common challenges that have emerged from that discussion regarding the logistics industry, and examine how collaboration occurs in the logistics industry.

3.3 Common Challenges within the Logistics Industry

The twenty-first century is characterised by an ever-higher level of change in business markets (Cruijssen 2007). Companies face changes and challenges such as globalisation, increased competition, increased customer expectations, environmental management and rising costs of services (Von der Gracht & Darkow 2013). This situation highlights the role of logistics as a central element and precondition for business and global trade (Cruijssen, Cools & Dullaert 2007). As stated by Clausen, De Bock and Lu (2016), sustainable logistics activities are recognised as the generator of a more competitive and successful market from economic (profit), social (people) and environmental (planet) perspectives and a prerequisite for global trade in the European market. To cope with the changes and challenges in global markets, the logistics industry must be agile, highly efficient, cost-effective, safe and trustworthy, and environmentally friendly (Pomponi et al. 2013). Under these circumstances, challenges for the logistics industry arise from a globally competitive environment, social and environmental concerns, limitations and restrictions, as well as infrastructure, knowledge requirements, information flow and integrated ICT utilisation. This section provides an overview of these challenges in the area of the logistics industry.

Modern business operates in a highly interconnected globalised world and a highly competitive market characterised by its faster rate of change, where logistics activities are recognised as the vital part of our everyday lives (Naesens, Gelders & Pintelon 2009). Different industries rely on a variety of logistics services that facilitate sourcing raw materials and supplies for production lines and the distribution of finished goods. The importance of logistics networks for connecting people and markets matches that of the virtual internet network (Ceniga & Sukalova 2015).

Logistics services facilitate global trade, enabling specialised transport of life-saving medicines to local hospitals in remote locations (Cruijssen 2007). Given the globalised market and

consequent competition, LSPs need to save themselves in this dynamic and complex environment by having a faster response to these challenges, to achieve higher sustainability and increase their profit margins (Hudnurkar, Jakhar & Rathod 2014). In practice, LSPs need to increase their shipped volumes and benefit from economies of scale (Groothedde 2005). However, Cruijsen (2006) showed that in Europe, LSPs are still micro or small companies, and often family-owned businesses. In addition, the logistics market in China is highly fragmented, with more than 700,000 LSPs (Hu, Wang & Liu 2008). Finally, SMEs and owner drivers form a significant part of the logistics market in Australia, consisting of 42,000 companies covering around 80% of the transport market (Magner 2017).

Logistics activities have numerous positive effects on social life and economic growth, while satisfying the demand for time and place utility, creating new jobs, lowering poverty and providing services to enhance economies. Moreover, logistics can help in the ‘greening’ of society by ensuring efficient reverse logistics for the re-use of products and materials (Clausen, De Bock & Lu 2016). However, the logistics industry has also been shown to have adverse effects on people’s lives and their surroundings (environment) via climate change, which should be taken into account and minimised (Pomponi, Fratocchi & Tafuri 2015); for example, by (1) reducing carbon footprints and greenhouse gases, noise and the inadequate use of land (Cruijsen 2007); (2) utilising more renewable energy sources and reducing the use of fossil fuels (Clausen, De Bock & Lu 2016); (3) and improving humanitarian supply chains and human health and labour conditions (Soosay & Hyland 2015).

Empty haulage is a major problem for logistics companies. Although large volumes allow LSPs to have more efficient transport, LSPs cannot achieve their potential in efficiency because manufacturers require a high level of response towards their retail distribution centres (De Kok, Van Dalen & van Hillegersberg 2015). According to Doherty and Hoyle (2009) 24% of the vehicles that transport cargo in the EU are moving empty and when carrying cargo, their average load factor is only 57%. Thus, the loading capacity used by LSPs is low, which affects their running costs and profit margins. At the same time, the world is concerned about climate change and increasing greenhouse gas emissions (European Commission 2012). Logistics activities and empty haulage are among the main factors contributing to environmental hazards and CO₂ emissions. For example, statistics show that road transport accounts for 20% of total gas emissions in the EU and increased by 23% in the 20 years from 1990 to 2010 (European Commission 2012).

Information flow and efficient use of ICT is another significant challenge faced by the logistics industry and its service providers (Cruijssen 2007). ICT facilitates the flow of goods and related information and helps connect manufacturers, shippers and customers worldwide (Gunasekaran & Ngai 2004). ICT improves the quality of services, the making and controlling of contracts, tracing of products and building of trust between partners (Cruijssen 2006). The logistics industry may improve the quality of services, reduce the costs of operation and increase profitability to create a win-win situation by managing information and coping with information technology changes and challenges. By doing so, LSPs can become more competitive and offer customers the services they require at a lower price (Bonacich & Wilson 2008). Technological advances help LSPs in the development or adaptation of the knowledge required to implement transportation management systems, intelligent transportation systems and enterprise resource planning (Abbasi & Nilsson 2016).

The logistics market is enormous and fragmented, and consists of a wide range of service providers and users. Logistics customers come from diverse industries. Manufacturing, healthcare, retail, trade, government and public utilities, information technology, telecommunication, banking and financial services, and media and entertainment benefit from the broad selection of logistics services.

LSPs consist of different sizes and types of company. Multinational organisations and very large logistics companies dominate the logistics market and offer extensive, comprehensive services to customers. However, there are also SMEs that offer less comprehensive logistics services and owner drivers who own at least one truck and provide basic transport services.

This section presented the main characteristics and everyday challenges of the logistics industry. The industry is confronted with many changes and challenges in a dynamic environment. It is highly fragmented, with a high level of competition and low profit margins. All these factors shape the way that LSPs collaborate. Thus, cooperation among LSPs is widely recognised as one of the future challenges facing the logistics industry with market globalisation and fierce competition (see, among others, Mason, Lalwani & Boughton 2007; Pomponi et al. 2013; Pomponi, Fratocchi & Tafuri 2015).

3.4 Collaboration in the Transport and Logistics Industry

The emergence of complex and global supply chains, and fierce competition, present continuously increasing challenges for LSPs. One of the viable ways of reacting to and coping

with these challenges is to cooperate either vertically, with suppliers and customers or horizontally, with competing LSPs that are proximate in the supply chain or in distant supply chains (Cruijssen 2007). Research has shown that LSPs usually choose to horizontally cooperate with other logistics companies and that this type of collaboration has become much more common in recent decades. For example, Schmoltzi and Wallenburg (2011) found that around 60% of logistics companies engage in at least one horizontal relationship with other LSPs. In spite of this, practitioners and researchers still have a limited understanding of the variety of factors and determinants of this kind of collaboration.

In the last two decades some attention has been given in research (e.g. Audy et al. 2012) to the relatively new idea of horizontal collaboration in logistics (Leitner et al. 2011). Several studies have focused on the elaborate features of horizontal relationships in the transport and logistics field; for example, transportation management (Buijs & Wortmann 2014; Mason et al. 2007; Wen 2012) and the general type of collaboration—vertical or lateral (Deepen et al. 2008; Knemeyer et al. 2003; Lambert, Emmelhainz & Gardner 1996; 1999; Stefansson 2006). However, various important aspects of horizontal collaboration have been overlooked and thus remain unclear.

Vertical collaboration has attracted the attention of researchers and there are abundant examples of vertical relationships among LSPs and shippers; for example, logistics success factors in vertical collaboration (Deepen et al. 2008; Lambert, Margaret & Gardner 1999; Moore 1998; Tate 1996), partners and the relationships between them (Knemeyer et al. 2003; Lambert, Emmelhainz & Gardner 1996; Stefansson 2006) and features of partnership performance (Gibson et al. 2002; Stank et al. 2003). Nonetheless, the literature on horizontal collaboration among LSPs is not developed (Leitner et al. 2011; Pomponi et al. 2013). In the horizontal collaboration literature, research outcomes have been limited to a few LSP case studies and focused only on specific modes of transport: for example, maritime (Midoro & Pitto 2000; Slack, Comtois & McCalla 2002), road (Lemoine & Dagnæs 2003, Ludvigsen 2000), rail (Nijkamp 1995; Ohnell & Woxenius 2003) and air (Fan et al. 2001; Glisson & Cunningham 1996; Oum et al. 2004). Horizontal collaboration is also dominant in aviation. Alliances are central to collaboration in the aviation industry (Oum, Park & Zhang 2000; Park 1997). Airline alliances bring many advantages to customers and the industry. They facilitate customer service by offering an extended network, easier reservations, and fast and stress-free movement between connecting flights. As a result of collaborations between airlines, flight times and ticket

prices have reduced; however, alliances may increase prices for routes that have no enough passenger traffic. Although horizontal collaboration is well studied in aviation (Fan et al. 2001; Oum, Park & Zhang 2000) and maritime transport (Shepperd & Seidman 2001), the literature on horizontal collaboration in transport and logistics, especially land transport, is relatively limited (Leitner et al. 2011).

In maritime transport research, shipping conferences have played a significant and dominant role for maritime transport users (Leitner et al. 2011). A shipping conference is an alliance formed by shipping companies to establish and agree on freight rates and other tariffs regarding freight and cargo services on different shipping routes. Conferences offer rate stability that prevents price wars and competition among conference members. Many countries have exempted shipping conferences from the application of competition and consumer law, but as competition and consumer rights gain more attention in such countries this exemption has changed to support consumers and promote competition among exporters and shippers (Khemani & Shapiro 1993). Shippers are usually in conflict with shipping conferences because shipping lines determine the prices in conferences, which reduces the ability of local transporters to compete and have more effect on price setting in their area. Such challenges resulted in the introduction of various legislative acts in the United States (US) from 1916 to 1998 (Lewis & Vellenga 2000).

The literature on horizontal collaboration among LSPs in landside research is sparse. Caputo and Mininno (1996) analysed logistics functions in the grocery market and stated that some policies may help competing LSPs to reduce their cost of operations. Among these policies are those relating to standardised pallets and cartons, multi-supplier warehouses, joint outsourcing and joint route planning. Erdmann (1999) analysed the design of horizontal collaboration and elaborated on guiding principles and recommendations for cost allocation and collaboration design. Hageback and Segerstedt (2004) studied horizontal collaboration among logistics companies in a rural area of Sweden and argued that ‘co-distribution’ among 20 companies reduced their costs by 33% in that area. A remarkable exception in this field is an extensive review by Cruijssen, Cools & Dullaert (2007) of the literature on horizontal collaboration in transport and logistics, as well as the drivers, facilitators and barriers to horizontal cooperation in different studies. Cruijssen, Dullaert & Joro (2010) undertook a large-scale survey of the potential benefits and impediments to horizontal collaboration among LSPs in Flanders, Belgium. The Flemish road transport companies surveyed identified that impediments to

horizontal cooperation included finding a reliable collaboration partner and a mechanism that fairly allocates the benefits of the cooperation.

The relevant literature is limited to opportunities and, in some cases, barriers to horizontal collaboration and fails to address a general conceptual classification of this type of collaboration from different points of view and for different modes of transport. Studies have also neglected to propose a comprehensive framework that will facilitate effective implementation of horizontal collaboration for logistics companies.

3.5 Existing Models of Horizontal Collaboration

Technological advances and e-commerce is reshaping the geography of logistics services and require a new look at the collaboration and concepts such as coopetition, logistics and supply chain integration (Leitner et al. 2011; Pomponi et al. 2013). Some scholars have proposed collaboration models in the transport and logistics area. Such models are often established based on earlier models of general types of cooperation and alliance, such as in the study of logistics-based strategic alliances conducted by Zinn and Parasuraman (1997). This section reviews the literature on horizontal collaboration models.

The earliest model was developed by Lambert, Emmelhainz and Gardner (1996; 1999). Although this model was designed for the vertical supply chain relationship, its objectives are well explained and can be translated to accommodate horizontal collaboration as well. The model consists of an examination of the drivers and facilitators of collaboration; scaling of the components of partnerships; and measurement of the outcomes of partnerships (Figure 3.1). The authors considered the time horizon and degree of relationship in three stages of relationships among parties. Section 2.5 discusses in detail the stages of the relationship[s] between collaborating parties. A Type I relationship refers to an early-stage relationship; it is short term and focuses on single functional or operational transactions. Type II involves coordinated activities to advance mutual business interests; the focus moves to long-term relationships in which the parties plan and coordinate multiple functions and departments. Type III takes the form of integration in planning and the duties of partners. There is no end point for this type of collaboration and partners share their resources, risks, benefits and trust.

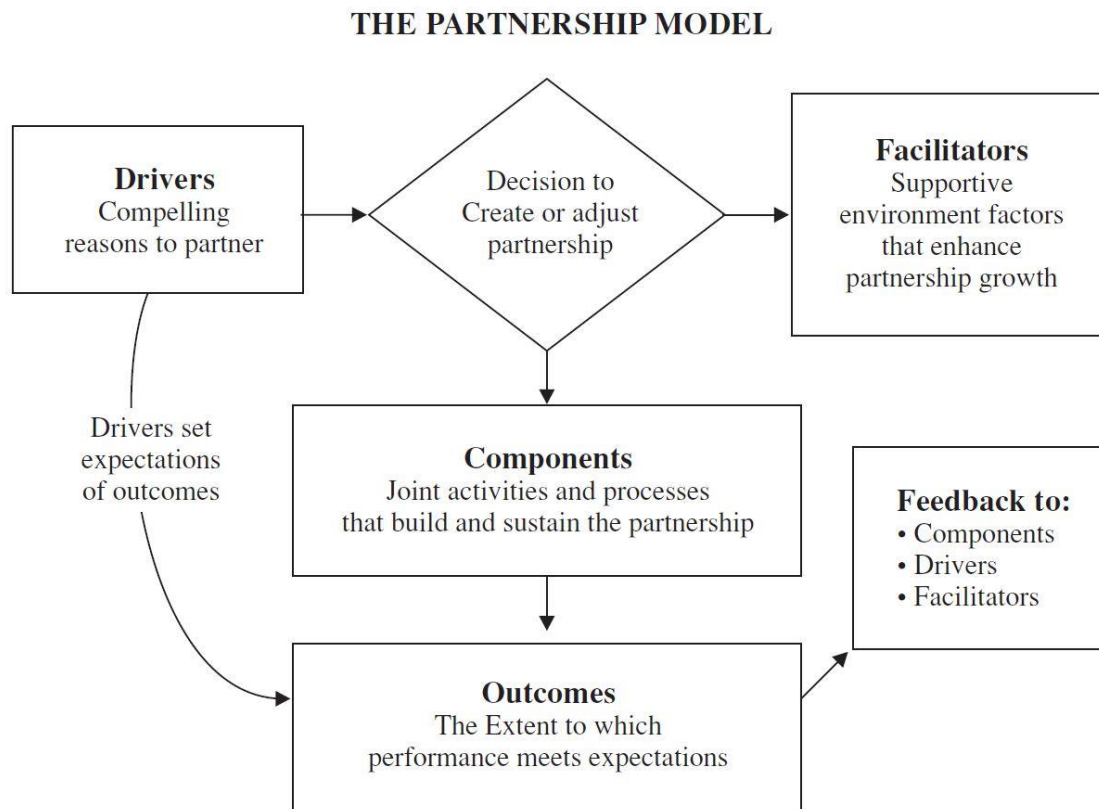


Figure 3.1: Partnership model (adapted from Lambert, Emmelhainz & Gardner 1996, p. 4)

Cruijssen (2006) distinguished different typologies of horizontal cooperation in practice and investigated different dimensions to portray them. Their cooperative dimensions, similarities and differences were identified and examined. According to Cruijssen, these tentative typologies include four dimensions: 1) the presence or absence of competition among partners; 2) combined tangible and intangible assets, which covers orders, logistics facilities, rolling stock, market power, supporting processes and expertise; 3) the decision and interaction level (operational, tactical and strategic); and 4) the objectives of collaboration (cost reduction, growth, innovation, quick response and social relevance).

Naesens, Pintelon and Taillieu (2007) argued that as trust had previously been explored and studied in-depth in the social context, they explored models presented in the social literature and tested them in a supply management context. Consequently, they proposed a model that helps to develop and sustain trust in horizontal logistics initiatives. The model was validated and illustrated by several case studies of companies involved in transport, telecommunications, fast-moving consumer goods (FMCG), chemicals and beverages (Naesens, Pintelon & Taillieu 2007). Phase 1 is the starting point of collaborative energy that makes collaboration happen. A

convener (i.e. facilitator of the cooperation) identifies all stakeholders; objectives are then defined and it is ensured that resources for the collaboration are available. Phase 2 covers direction setting and problem solving. In this phase, collaboration parties agree on the basic decision rules, information that should be shared before implementing collaborative initiatives. Phase 3 involves implementing and sustaining the partnership. Various factors should be considered that involve defining procedures, making agreements, managing power imbalances and evaluating the partnership (Naesens, Pintelon & Taillieu 2007).

Audy et al. (2010) proposed a model that concentrates on building and managing collaboration for improving key logistics activities such as warehousing, transportation and distribution (Figure 3.2) Their model focuses on collaborations that involve either joint planning or collaborative planning and execution of operations in logistics activities. Five coordination mechanisms are suggested to plan logistics activities and calculate shared benefits simultaneously to ensure efficient coordination of logistics activities, information sharing and gain sharing among logistics partners (Audy et al. 2010).

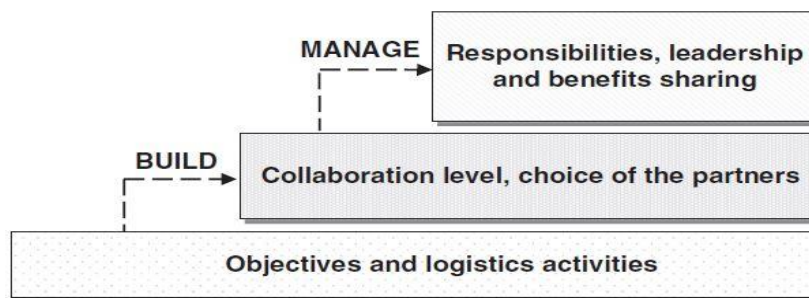


Figure 3.2: Building and managing logistics collaboration (adapted from Audy et al. 2010, p. 634)

McKinsey (2010) defined and characterised different types of horizontal cooperation in terms of advantages and disadvantages. The leadership of partnerships plays a significant role in his approach. The simple approach addresses the concerns of parties regarding transparency but offers limited gains. Alternately, the so-called peer-partner kind presents a greater possibility for achieving gains and advantages but requires a high level of transparency and information exchange between partners. Consequently, partners need to develop an appropriate system of administration and control. It is evident that the higher the amount of revealing and accommodating of significant information, the greater the risk of opportunism among collaborating parties. McKinsey suggested a middle-ground option where one entity takes direction as the leader in charge of the cooperation to facilitate the relationship and secure

potentially large gains. According to Stephens (2006), who studied the United Kingdom (UK) retail industry, the presence of a broker can enhance the possibility of horizontal collaboration initiatives.

Leitner et al. (2011) introduced a cooperation model for horizontal logistics for individual logistics companies and identified and designed the operation of optimal cooperation for network partners. The proposed model presents the structural concepts based on two primary dimensions: the level of cooperation; and the potential for consolidation. Cooperation level ranges from total absence to intense cooperation. Consolidation ranges from a lower level—that is, individual transport planning—to high-level consolidation, which covers lateral supply chain cooperation or coordination between logistics and production.

Moutaoukil, Derrouiche and Neubert (2012) proposed a model for pooling the supply chain as a horizontal collaborative logistics strategy. They argued that to establish logistics strategies, parties must share and pool different activities at various decision levels of the company. They distinguished three levels of collaboration: operational, tactical and strategic. These levels of collaboration are not related to the time horizon of a partnership, as in other models such as that of Lambert, Emmelhainz and Gardner (1996), but occur alongside the pooling supply chain activities. The strategic level is related to the collaboration engagement process, which ranges from identifying compatible partners and the objectives of pooling, to the pooled network design. The tactical level is about the management of interdependencies in which collaborating parties work on localisation of joint warehousing and platforms, planning supply and distribution, as well as coordination and information sharing. The operational level is related to effective implementation of the operation, which covers the area from operation execution to the development of protocols for dispute resolution (Moutaoukil, Derrouiche & Neubert 2012).

Pomponi et al. (2013) proposed a model for horizontal collaboration in the logistics context to develop mutual trust among partners through continuous cooperation. Operational, tactical and strategic stages are introduced in which each step is defined by particular joint aims and shared assets (Figure 3.3). At the operational level, the shared assets are data, information and fleet/carriers, which covers several aims ranging from cost reduction to improved customer service and productivity. Shared assets at the tactical stage are logistics facilities, warehouses and supporting processes. These assets help partners to achieve multimodal collaboration, better resource management and reduced supply risk. Last, shared assets at the strategic level are

orders, market power and expertise, which are coupled with aims that range from innovation and value creation to growth and networking (Pomponi et al. 2013).

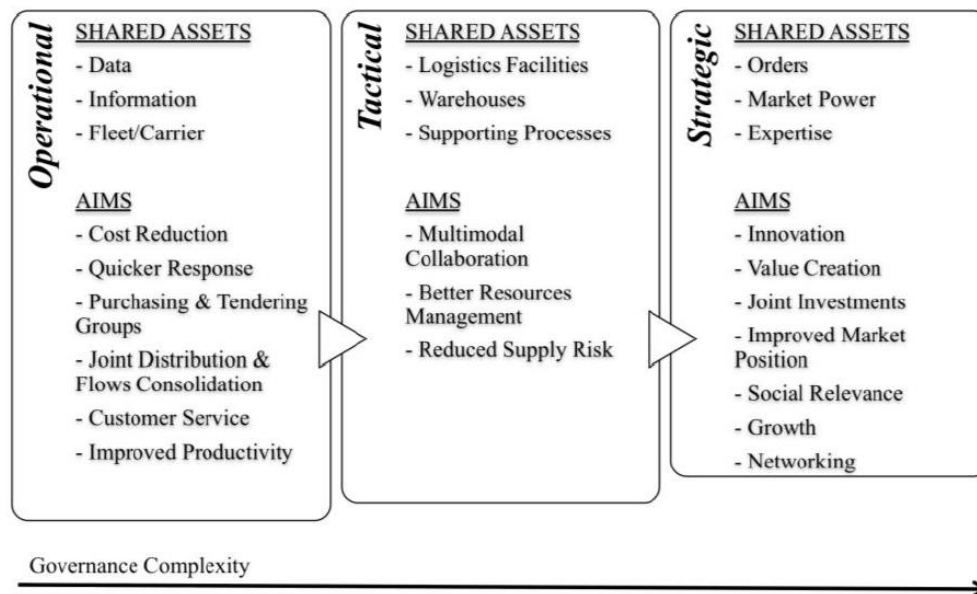


Figure 3.3: The horizontal logistics cooperation model (adapted from Pomponi et al. 2013, p. 250)

Pomponi, Fraticchi and Tafuri (2014) also proposed a theory-based model to develop trust in horizontal logistics collaboration. The proposed tool has two main dimensions: mutual trust among partners; and the extent of cooperation. In this model, the authors used TCE, Social Exchange Theory, RDT and Social Dilemma Theory as their theoretical foundation to design and implement inter-organisational horizontal initiatives.

Finally, Defryn 2017 proposed a horizontal logistics cooperation model in which collaboration parties individually or jointly solve their logistics optimisation problem. He argued that each partner has multiple objectives for a partnership; consequently when parties come to a collaboration, two possibilities arise. The partners may define a set of goals for the partnership containing all objectives of the partners, and then find a solution to achieve these objectives and divide the cost on the basis of the objectives to each partner. This option is referred to as the Defryn coalition efficiency approach. The other option is a partner efficiency approach in which each partner seeks to achieve its individual objectives without combining them into collaboration objectives (Defryn 2017). The next section uses the findings of the literature review to propose a horizontal collaboration model for LSPs in Australia.

3.6 Proposed Model of Horizontal Collaboration

The findings of the literature review conducted on horizontal collaboration models (Section 3.6) can be summarised as follows.

First, the literature on horizontal logistics collaboration require a new look at the collaboration and related concepts, such as coopetition, logistics and supply chain integration. Some scholars have suggested collaboration models that are often established based on earlier models of general types of cooperation and alliance (e.g. Gulati, Wohlgezogen & Zhelyazkov 2012; Zinn & Parasuraman 1997). Consequently, the literature does not offer comprehensive models of collaboration to support the design and implementation of horizontal logistics collaboration in the transport and logistics context. With the exception of the conclusive work of Cruijssen (2006), which focused on understanding key elements of horizontal cooperation initiatives, studies have mostly concentrated on transport activities (Bahrami 2003; Caputo & Mininno 1996), clarifying different variables related to collaboration rather than designing and implementing horizontal collaboration among various parties (Pomponi, Fratocchi & Tafuri 2014).

Second, trust is the cornerstone of a successful business relationship. Many studies have examined the role of trust to establish successful cooperation (Cheng, Yeh & Tu 2008; Schmoltzi & Wallenburg 2012; Wallenburg & Raue 2011; Wilhelm 2011; Danesh, Ahmadi Nasab & Choon Ling 2012). Most literature on collaboration in SCM considers the economic advantages and benefits of vertical collaboration, often overlooking factors such as trust and mutual confidence (Naesens, Gelders & Pintelon 2009). Studies such as Rindfleisch (2000) have shown that in contrast to vertical collaboration, horizontal relationships are likely to lead to opportunistic behaviour towards collaborating parties. Opportunistic behaviour and the absence of trust lead particularly to failure of collaboration initiatives (Seppanen, Blomqvist & Sundqvist 2007). This is why studies should consider trust in horizontal collaboration, which has largely been neglected (Naesens, Gelders & Pintelon 2009).

The review of the literature also showed that the most cited goal of horizontal collaboration is cost reduction. It is widely accepted that each partner may pursue different objectives (Pomponi et al. 2014). Therefore, partners plan and begin to explore their basic objectives during the partnership process (Cruijssen 2012; Pomponi et al. 2013). When partners enter a joint operation, they individually or jointly optimise their collaboration objectives. Consequently, at

every stage of a collaboration, the objectives of the collaboration and individuals should be carefully reviewed and supervised (Defryn 2017).

The establishment of a horizontal collaboration involves sharing information on different levels. Coordination and ICT are a significant catalyst for the process of partnership formation (Moutaoukil, Derrouiche & Neubert 2012). Achieving the real-time flow of information offers the key to success for a collaboration. To accomplish this, the collaboration needs to harmonise its organisational structure, which also requires ICT integration among partners (Gunnarsson & Jonsson 2003). Consequently, any proposed model for collaboration should consider the flow of information to facilitate an efficient management and control mechanism for the partnership.

Finally, studies across different environments have proposed that partnerships may evolve on a time horizon basis (Fischer 2013; Morgan & Hunt 1994; Thorelli 1986; Vangen & Huxham 2003), from the lowest operational decision level to a tactical and ultimately more strategic cooperation level (Pomponi et al. 2013). That is, partners interact continuously, sharing broader and extensive activities and experiences and pursuing their objectives. The degree of collaboration develops between partners, along with the time and increased trust (Pomponi et al. 2013). That the evolution of horizontal collaboration takes form on a time horizon basis is a logical assumption for the horizontal collaboration model proposed in this study.

Based on the literature review findings, Section 3.5 examined some models described in the general business collaboration literature and also existing horizontal collaboration models and proposed a model to enhance collaboration between companies. This analysis forms the basis of the proposed model that enables consideration and evaluation of the variables and critical dimensions of the collaboration black box (see Section 2.8).

This thesis proposes a model for enhancing horizontal collaboration that will be evaluated in Chapter Eight for its applicability in the Australian logistics context. Different Phases and features of collaboration model will be validated using relevant key questions and statements in the interview to support and approve broad areas of collaboration model. This conceptual model suggests a three-step approach for projecting, implementing and sustaining horizontal collaboration between companies. The model adopts trust and extent of cooperation as its main two dimensions, within which three stages of horizontal collaboration are built, practised and fostered.

Figure 3.4 presents the proposed evolutionary model for horizontal collaboration among companies. This model is consistent with other studies such as that of Bowersox et al. (1995) and Lambert, Emmelhainz & Gardner (1996) in that the logistics relationships describes a spectrum or continuous scale that consists of single transactions or arm's length relationships as the starting point and integrated logistics services or horizontal collaboration comprising numerous strategic complex interactions at the other end.

The model involves three phases: setting the stage (paving the way); building and implementing; and managing and sustaining the horizontal collaboration. Each phase incorporates criteria that are important for the emerging and evolving conditions in a productive horizontal relationship. Table 3.1 outlines the different stages and corresponding factors in the proposed collaboration model, and the following sections introduce each stage, relevant factors and relationships described by the research framework of the study.

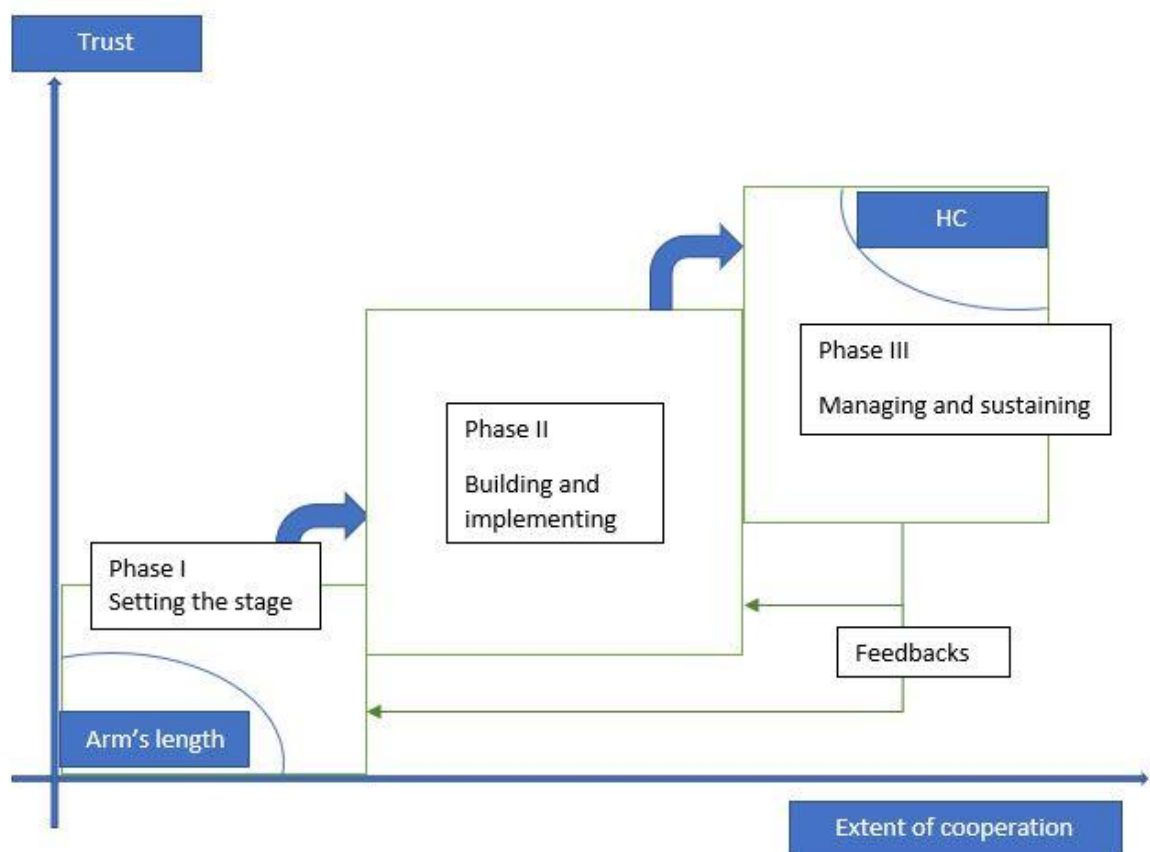


Figure 3.4: Proposed model for horizontal collaboration

Table 3.1: Different phases and corresponding factors in the proposed collaboration model

PHASE	CORRESPONDING FACTORS IN THE COLLABORATION MODEL
PHASE 1: SETTING THE STAGE	Opportunities, objectives, and intensity of collaboration (operational, tactical, strategic)
PHASE 2: BUILDING AND IMPLEMENTING THE COLLABORATION	Actors, factors (collaboration structure, drivers and impediments), resources, context, control mechanism (information sharing, gain sharing)
PHASE 3: MANAGING AND SUSTAINING THE COLLABORATION	Management and control, evaluation and feedback

3.6.1 Phase 1: Setting the Stage

This phase paves the way to exploring the conditions for establishing horizontal collaboration, namely the objectives to achieve; opportunities to motivate collaboration; and intensity of collaboration (operational, tactical, strategic). During this stage, the management of the company prepares the conditions to promote a collaborative culture and environment. Establishing teams with good communication skills and trialling some collaborative projects helps to launch collaborative initiatives (Naesens, Pintelon & Taillieu 2007). Implementing specific collaborative projects is useful for successful building of relationships and collaboration in the second stage.

During this phase, entities define their strategy and vision for the collaboration; problems and objectives; possible partners (competitors or complementors); and available and required resources to build a feasible collaboration (Mankin & Cohen 2004; Naesens, Pintelon & Taillieu 2007).

This stage represents the antecedent to collaboration in conformity with this research framework in which the opportunities and expectations of the partners play a significant role in building a successful horizontal collaboration.

3.6.2 Phase 2: Building and Implementing the Collaboration

Phase 2 of the horizontal collaboration model focuses on building and implementing the collaboration and is consistent with the collaboration process in the research framework; that is, the black box of collaboration.

During this stage, five elements of the collaboration should be considered: actors; factors (collaboration structure, drivers and impediments); resources; the context; and the control mechanism (contract, information sharing, gain sharing).

Actors are decision makers in every industry whose decisions and actions will influence the outcome of a collaboration among partners within the industry. For example, in the Australian logistics industry, logistics companies, policy makers, regulatory authorities and customers are among the stakeholders in the Australian logistics context. They likely influence types of collaboration and relationships in the process of delivering and using services (Audy et al. 2010). Actors shape the industry's structure, competitiveness, skill requirements, concentration and employment for the community. Consequently, their role in advancing the collaboration should be examined.

As mentioned earlier regarding the research framework of this study (Section 2.8), factors such as drivers and impediments of collaboration provide a deeper understanding of the complexity and intricacy of logistics collaboration efforts in practice. Besides, adopting the best structure support will lead to the most benefit from collaboration. Therefore, such factors should be examined to determine their specific functions in the industry.

A better understanding of the environment of the collaboration, the profile of the industry, market structure, company size and the competitive landscape assists with decisions about efficient and successful collaboration and delivery of practical solutions to society and the community.

Last, a successful and long-lasting collaboration needs a management and control mechanism to build and facilitate collaboration among partners. A governance mechanism implements various components of the collaboration in a way that every element is in the right place to appropriately manage, control and determine the practical work of the components and to ensure a continuous productive collaboration. The formality of the relationship, information

exchange, evaluation of gains from the partnership and fair sharing of benefits among partners are important dimensions that should be planned and agreed among partners.

3.6.3 Phase 3: Managing and Sustaining the Collaboration

The model proposed here suggests that the final stage of successful building of a horizontal collaboration lies in controlling and sustaining the system to support growth of the collaboration. Two dimensions are important and should be considered: management and control; and evaluation and feedback.

At this stage, partners are working together and conflicts and tensions may be arising. It is not possible to completely resolve tensions and conflicts but by accepting basic rules, holding joint meetings (Lambert, Emmelhainz & Gardner 1996; Naesens, Pintelon & Taillieu 2007) and implementing a control mechanism (De Kok, Van Dalen & van Hillegersberg 2015) partners can protect the collaboration or reduce the frequency of conflict and manage them (Cruijssen 2012). Ellram (1995) identified factors leading to partnership failure and stated that poor communication among partners is a significant factor. Organising regular face-to-face meetings involving relevant departments may help partnerships continue in the right direction (Cruijssen 2012; Lambert, Emmelhainz & Gardner 1996).

3.7 Conclusion

This chapter presented the second part of the literature review. It determined useable explanations on different logistics parties and their functions in logistics industry. Moreover, based on the literature review findings, existing horizontal collaboration models are reviewed and proposed a model to enhance collaboration between companies. This chapter also identified a variety of challenges facing the logistics industry. These include challenges arising from global competitive markets, and social and ecological concerns and restrictions, which recent research has begun to show can be addressed through adoption of collaboration. Having examined common debates about collaboration and after reviewing the main approaches to logistics cooperation, the aim of this research is to understand how collaboration is established, structured and developed in the logistics industry in Australia, with specific reference to horizontal collaboration. The next chapter discusses the research objectives and questions for the study that have emerged from the combined literature reviews, and designates the methodology used to collect the data to address those research questions.

Chapter 4: Research Methodology

4.1 Introduction

This study focuses on horizontal collaboration among companies operating at the same level(s) in their supply chain. These companies can be either competitors or unrelated companies in different supply chains that share knowledge, resources, information and facilities to reduce operating costs, improve efficiency of services and enhance market positions. The main objective of this research is to investigate the existence and feasibility of horizontal collaboration among LSPs in Australia.

A number of studies have examined organisational relationships in the supply chain strategies of organisations with limited attention to horizontal collaboration. The nature, structure, drivers and impediments to this kind of cooperation among business organisations are not yet clearly understood. Cruijssen, F, Dullaert, W & Hein (2007) reviewed the literature on horizontal collaboration among transport and logistics organisations and concluded that, unlike ocean and air transport, research on horizontal collaboration on landside logistics is scarce. Hence, this study aims to shed light on this area.

This chapter describes the study methods, presents the justification for the methodological choice and explains the details of their employment. It is divided into eight sections. Section 4.1 is the introduction. In Section 4.2, the research objectives and questions are reviewed. Section 4.3 elaborates on the research design, methods and methodology and justifies the researcher's choice of qualitative methods. The data collection and analysis within this study adopted a qualitative methodology predominantly involving semi-structured interviews with logistics managers from Australian LSPs, government authorities and representatives of industry professional associations. The interviews focused on organisational experiences of horizontal collaboration through the individual experiences, observations and views of key managers in the supply chain sector. After a brief presentation of the theory of knowledge acquisition—which is a core characteristic of social research—a detailed discussion and justification for how qualitative methods assisted the researcher and why the researcher preferred this method to collect the data are provided. Section 4.4 describes different sources of data and provides a justification for the appropriateness of the data collected. Section 4.5 outlines the tools and process of data collection while Section 4.6 describes the methods of data

analysis. Section 4.7 highlights ethical considerations in the research and Section 4.8 provides a brief conclusion.

4.2 Research Aims and Questions

As previously discussed, globalisation and recent changes and challenges in business create economic and financial challenges for logistics companies. Most importantly, they increasingly face declining profit margins. The main driver of these challenges is increasing global competition (Naesens, Gelders & Pintelon 2009). To reverse this trend, a number of approaches have been attempted, including economy of scale strategies through M&A, increased subcontracting of aspects of operations to 3PL providers and experimentation with non-traditional cross-operator collaboration to mitigate costs and enhance operations efficiency (Razzaque & Sheng 1998). It is the latter strategy with which this is concerned, largely because of its rarity and novelty in relation to the literature, but by extension, the lack of widespread knowledge and understanding of its application. As explained in Chapters 2 and 3, much is known from research about vertical collaboration among businesses generally and LSPs specifically, but little has been documented regarding horizontal collaboration (Leitner et al. 2011; Pomponi et al. 2013). Therefore, the purpose of this study is to investigate the existence and feasibility of horizontal collaboration among LSPs in Australia. The study examines the extent to which horizontal collaboration exists and is being adopted and how horizontal collaboration takes form among LSPs in Australia. It asks, what is the structure of the current collaboration among LSPs in Australia and It is therefore important to develop a clear understanding of the nature and structure of horizontal collaboration between logistics service providers in order to determine its viability as an effective industry strategy for individual businesses to achieve greater productivity, cost savings, and service delivery efficiency.

In the Australian transport and logistics context, the study:

1. examines the nature and structures of current collaboration among industry operators
2. investigates the existence and feasibility of horizontal collaboration
3. investigates the opportunities and impediments to this kind of collaboration.

The end product is a theoretical model for understanding the development and effective application of horizontal collaboration among LSPs in Australia.

The following are the research questions arising from the research objectives of the study.

- In the Australian transport and logistics context, what is the dominant form of industry organisational collaboration?
- To what extent does horizontal collaboration exist and is being practised; and what form does horizontal collaboration take among LSPs in Australia?
- What are the major opportunities and impediments to horizontal collaboration and how might it take form (begin, develop and sustain) in the context of the Australian logistics sector?

4.3 Research Method and Methodology

A research design describes the overall strategy a researcher chooses to integrate the different parts of a study, logically and coherently. Therefore, the research design ensures that the study will efficiently address the research components, research questions and problem (Saunders, Lewis & Thornhill 2009). The research design establishes the blueprint for the collection, measurement and analysis of data to ensure the ultimate reliability, validity and integrity of the research and that the chosen strategy will address the study objectives (Creswell 2003; Saunders, Lewis & Thornhill 2009).

The selection of an appropriate research approach is vital to the success of a research project because it determines where the research begins, how it proceeds and what types of research techniques are appropriate (Blaikie 1993; Creswell 2003). The selection of the research methodology depends on the paradigm that guides the research activity—more specifically, beliefs about the nature of reality and humanity (ontology), the theory of knowledge that informs the research (epistemology) and how that knowledge may be accessed (methodology) (Popkewitz, Tabachnick & Zeichner 1979; Ropolyi 2015).

Two dominant ontological and epistemological views are commonly used in research: positivism and interpretivism. The positivist ontology holds that the world is external (Saunders, Lewis & Thornhill 2009) and that regardless of the researcher's belief or perspective there is only a single objective reality to any research phenomenon or situation (Saunders, Lewis & Thornhill 2009). Positivist researchers keep their distance from research participants to remain neutral regarding the emotions of the participant and to make a clear distinction between reason and feeling (Creswell 2018).

In contrast, an interpretivist–constructivist view, which most often constitutes the basis of qualitative research, sees the world as constructed, experienced and interpreted by people in their social interactions with each other and their social systems (Bogdan & Biklen 1992; Guba & Lincoln 1985; Maxwell 2006; Merriam 1988). According to this view, the nature and purpose of investigation is interpretive and therefore the knowledge acquired through this approach is constructed socially rather than determined objectively (Carson et al. 2001; Creswell 2018).

Researchers have studied these paradigms for many years and presented arguments for and against each. The context and thick description of phenomena are two salient issues regarding the research (Geertz 1973). The interpretivist approach emphasises first-hand experience for a better understanding of the world, and therefore relies on the accounts, views and opinions of actors within the systems and communities of study (Merriam 1998). This approach contrasts with the positivist approach, which emphasises the testing of existing laws of cause and effect (Bryman 2001; Farzanfar 2005; Saunders, Lewis & Thornhill 2009). Correspondingly, the methods employed by interpretivists for data collection are often context sensitive (Neuman 2003) and aim to generate thick descriptions of social phenomena from participants. Therefore, as the literature on horizontal collaboration is sparse, with limited in-depth research across different economic contexts, the choice of a qualitative exploratory approach to study its development in the Australian transport and logistics industry is highly appropriate. This approach elicited first-hand descriptions of the business processes, structures and nature of existing and evolving inter-organisational cooperation. Further, the existence and feasibility of horizontal collaboration and its effectiveness in terms of achieving business objectives has not been properly analysed in the Australian context. A comprehensive cause-and-effect relationship cannot readily be investigated and tested in the absence of sufficient existing knowledge.

Qualitative research facilitates the researcher in exploring in-depth participant experiences, sentiments, opinions and viewpoints regarding a particular research subject (Hennink et al. 2011). Qualitative methods provide opportunities for researchers to contact intensely with the field of study. The approach is flexible enough to thoroughly explore the significant depth of phenomena and gather and involve information over a long period. This study thus endeavours to realise the perception of participants from the logistics industry to capture data ‘from the inside’ (Hennink et al. 2011). It pays careful attention to deriving a compassionate understanding of the logistics collaboration process and putting aside preconceptions. This

systematic approach enables a study to extract meaningful and in-depth information from individuals, groups, societies and organisations (Hennink et al. 2011; Miles & Huberman 1994)—in this case, logistics managers within Australian LSPs, government authorities and representatives of industry professional associations.

Qualitative methods expose meanings rather than impose them (Cooper, Dewe & O'Driscoll 2001). This explicates the relationships of participants to their locations and environment and allows participants to provide their insights to be explored and seen by researchers (Creswell 2018). Further, attaching participants to their environments and their field, such as collaboration centres as is the area of the study here, enriches the meaning of data and avoids overruling the opinions and insights of participants (Hennink et al. 2011). This approach, therefore, enables the researcher in this study to explore how collaboration among LSPs may be structured and developed for different occasions and geographies.

Qualitative methods are more effective for studying and examining processes and the way in which people in particular settings play a role, act and manage day-to-day situations. They are sensitive to contextual factors and enable a researcher to analyse and examine complex processes efficiently (Hammersly 2013). The collaboration process is identified and undertaken by people and organisations whose perception and attitudes are directly involved in the process. The value and procedures of the collaboration and competition process cannot be easily measured and observed using quantitative or neutral methods. Instead, as argued by Hennink et al. (2011), a qualitative method may allow the current research to focus more on the subjective aspects of practitioners' perceptions regarding horizontal collaboration effectiveness in terms of achieving business objectives (Creswell 2018). By using a qualitative method, the complex network of multiple LSPs and buyers and the complexity of cooperation and coordination among LSPs in different processes and activities can be investigated.

To summarise, qualitative methods were considered more appropriate than quantitative methods for this study as they offer superior opportunities to identify in-depth logisticians' understandings, experiences and personal perceptions regarding horizontal collaboration with competitors in Australian supply chains. This approach will help to expose meaning and explain the relationships of LSPs in their different locations, occasions and geography and to interpret them while considering influential organisational cultures and socio-economic contexts. Thus, the approach will help to understand how LSP managers make decisions and form collaborative structures. It is a methodology that foregrounds and emphasises the variety of situations in

collaboration centres in which organisational collaboration takes place. It will help to understand how and to what extent Australian logistics companies cooperate and what is the nature and structure of this type of cooperation. Analysing the nature, structure and effectiveness of organisational collaboration requires data on in-depth perceptions and concepts that are genuinely embedded in people's thoughts and minds, organisational cultures and structures and their motivations for cooperation. These are concepts that are socially complex, abstract and mostly invisible. For example, collaboration is created through the processes of a long-term relationship, trust and socialisation within a socio-economic context. Collaboration is a complex phenomenon that is promoted by social connections that can affect interactive or structural positions in a network of cooperative organisations. Consequently, the practices or aspirations of logistics firms and logisticians in relation to other LSPs—that is, different types of relationships—cannot be detached from their social relationship. Adopting a qualitative approach, therefore, offers an effective means to explore these complex processes and relationship.

This study thus adopts a qualitative method and an interpretivist–constructivist approach. Cooper et al. (2003) stated that interpretivism is selected in research to examine one's point of view about the whole phenomenon and explore the 'mystical' nature of the world (Saunders, Lewis & Thornhill 2007). This study follows a systematic process, starting with a comprehensive review of the literature to determine the research aims, objectives and questions. This was followed by the design and field application of research tools to collect data. Finally, the data were coded, analysed and presented in key findings. The specific method used to collect data was qualitative semi-structured interviews with key informants from the transport and logistics sector.

4.4 Data Sources

This study relies on primary data collected through semi-structured interviews with participants in the Australian transport and logistics industry. Senior logistics managers/executive were identified and targeted as key informants for the study as the most appropriate source of information on cooperation among LSPs.

A key informant participant is a knowledgeable person who has recent first-hand experience in the research area and awareness of the phenomenon under investigation. This person is competent and willing to participate and provide the required information (Krause, Luzzini &

Lawson 2018). Kumar et al. (1993) in their inter-organisational research using key informants argued that managers at the executive level are the most knowledgeable with respect to firm-specific cooperation activities. This is mostly because inter-organisation relationships originate from the senior executives of a company. Moreover, Krause, Luzzini and Lawson (2018) stated that managers are knowledgeable about their functional area and can provide valid responses to questions. These managers discuss details and make decisions on how and to what extent companies enter a collaboration and therefore they are aware of the different aspects of the relationship and how they may influence the company's objectives in the market.

Participants for this study were recruited by means of purposeful sampling. Purposeful sampling is a technique widely used in qualitative studies to identify and choose a sample of information-rich cases to achieve the most effective use of restricted resources (Palinkas et al. 2015; Patton 2002). This approach involves selecting and identifying individuals or groups that are particularly knowledgeable about or experienced with the phenomenon of interest (Cresswell & Plano Clark 2011). It helped this study to achieve the intended depth of understanding and to predict, describe and elaborate on the collaboration among LSPs in the Australian logistics context.

In this research project, three groups of potential participants at the executive/manager level were recruited initially according to the type of activities of their logistics services and their individual knowledge and relationship to the topic of study:

1. logistics managers and practitioners
2. logistics association representatives, and
3. logistics authority representatives.

Potential participants were contacted with the assistance of academics such as the research supervisors and the researcher's acquaintances in logistics and non-logistics companies who had relationship with potential participants in the selected organisations.

Interviewees' assistance was then sought to refer the researcher to other potential participants from the logistics firms, logistics associations and governmental authorities.

This strategy assisted the researcher to select and interview 33 persons including 24 logisticians, five practitioners from logistics associations and four government authority representatives.

The study then targeted top management and practitioners from logistics organisations. LSPs were purposively chosen from a broad range of logistics companies to cover all types of logistics companies active in Australia. The logistics organisations used included those involved in transportation, warehousing (distribution centres, container terminals, inland container depots), contract logistics (designing and planning supply chains, total logistics solutions, 4PL activities), freight forwarding and other activities such as stevedoring, port operations, cross-docking and packaging. Twenty-four people from logistics companies and practitioners were interviewed. Their details are provided in Table 4.1. A description of participant recruitment is provided in Section 4.5.2. Size of the companies categorized in three sizes, Small and Medium Enterprises (SME) consists of companies with 5-200 employees, Large companies, 200< employees<1000, and very large companies which have 1000 or more employees.

This research also elicited data from government authorities. Five policy officials were selected from relevant departments directly connected to transport and logistics companies on the landside and with a connection to cooperation among companies. The aim of these interviews was to understand how governments appreciate collaboration and how cooperation can preserve limited resources and improve advantages of synergy for companies. The interviews were also used to better understand how government officials and policy makers consider horizontal collaboration in the logistics and transport industry in Australia. Interviews were conducted with representatives from government authorities such as the National Transport Commission (NTC) and the Australian Competition and Consumer Commission (ACCC). The ACCC's primary objective is to conduct initial competition or cartel assessments in response to allegations of anti-competitive conduct that may substantially contravene the *Competition and Consumer Act 2010* (CCA). In practice, the ACCC governs and prevents M&A activities that reduce competition between organisations in Australian markets. One of the NTC commissioners, who was also the owner of a medium-sized logistics company, was also interviewed.

Table 4.1: Participants and logistics firms in the study

No.	Code of interviewee	Company Code	Type of company	Activities	Size	Interviewee's position	Years in industry
1	DR	APLF	Logistics association	Logistics association activities	SME	Chair	30+
2	AM	CE	Logistics company, 3PL	Logistics solutions	Very Large,	Container solution manager	6+
3	DB	CE	Logistics company, 3PL	Logistics solutions	Very Large	Business development manager	25+
4	AO	XF	Transport and logistics, 3PL	Freight forwarding, transport	SME	CEO	10
5	RH	SCL	Logistics association	Logistics association activities	SME	Vice president	6
6	DD	IC	Logistics professional and consultancy	Logistics consulting	-	Member of Board	20+
7	ID	PMC	Port authority	Port activities	Large	Board member, consultant	19
8	CH	LL	Logistics company, 3PL	Warehouse management, logistics solutions	Very Large	President, development, strategy & innovation	20+
9	LW	ESL	Warehousing and distribution, 3PL	Warehousing and distribution	SME	Managing director	8

No.	Code of interviewee	Company Code	Type of company	Activities	Size	Interviewee's position	Years in industry
10	CT	ST	Postal companies owned by Australia Post	Logistics activities and last mile delivery business-to-business and business-to-customer	Large	General manager (GM) international	15
11	CP	DBS	Freight forwarding	Freight forwarding	Large	Distribution centre manager	30
12	AM	DBS	Freight forwarding	Freight forwarding	Large	National transport manager	22
13	PI	WIS	Defence force	Logistics activities	-	Consulting, lecturing	35
14	HM	TG	Logistics company, 3PL	Warehouse management, logistics solutions	Very Large	Nike business logistics group	30
15	MO	SA	Packaging company	Packaging	Large	Head of group logistics and planning	15
16	RW	KN	Freight forwarding	Freight forwarding	Large	Logistics manager Victoria	20+
17	SL	SA	Packaging company	Packaging	SME	Head of logistics	10
18	DM	CCC	Container depot	Container logistics	SME	Managing director	38

No.	Code of interviewee	Company Code	Type of company	Activities	Size	Interviewee's position	Years in industry
19	SH	TG	Logistics company	Warehouse management, logistics solutions	Very Large	Site manager	40
20	OV	AGI	International freight forwarding	Freight forwarding	Large	Vice president, global accounts	5
21	MP	BGL	Logistics company	Warehousing, distribution	Large	Director business development	8
22	GV	PS	Stevedoring, container terminal	Container logistics	Large	Customer relationship specialist	22
23	ZN	SCL	Warehousing	Warehouse management,	SME	Distribution manager	11
24	PN	KIT	Freight broker	Container freight	SME	Managing director	35+
25	NB	BL	Transport company	Transport logistics	SME	Owner and company director	44
26	CS	ASC	4PL	4PL activities	SME	Managing Director	16
27	KW	WTG	Transport company	Transport logistics	SME	Group manager	35

No.	Code of interviewee	Company Code	Type of company	Activities	Size	Interviewee's position	Years in industry
28	J P	TCA	Government body	Government regulatory commission	-	Productivity and safety director	20
29	MH	TCA	Government body	Government regulatory commission	-	Chief planning officer	15
30	ME	SCT	Container logistics	Container logistics, rail, road, distribution	Very Large	National development manager—port services	21
31	NH	ACA	Government authority	Government authority	-	Deputy GM, enforcement coordination, Enforcement division	16
32	JH	ACA	Government authority	Government authority	-	Enforcement division	6
33	GP	SGH	Retail	Retail logistics, Ware housing	T2	GM supply chain	10

4.5 Data Collection

This section explains the methods employed for data collection following identification of the underpinning methodological perspectives identified above. When using a qualitative research approach, there are a number of possible methods for collecting data, including focus groups, one-to-one interviews and observational methods.

A focus group may be the best way to collect data when the researcher wishes to obtain information from a small group of experts or practitioners, rather than individuals. Focus groups are a useful means for the researcher to understand how experts behave or think in certain ways and provides comprehensive reasons for group beliefs and attitudes (Creswell 2018). This method enables the researcher to bring together a sample group to discuss and criticise insights already formed by the researcher to gain a greater understanding of the research problem. Participants usually check and balance other views and discussions, which limits and corrects extreme views (Saunders, Lewis & Thornhill 2009). However, group-think is typically a problem in focus groups (Boateng 2012) as it may misleadingly suggest that there is some collective view. In this research, there was no basis to expect the existence of a collective viewpoint as little was previously understood about horizontal collaboration in supply chains. It was therefore difficult to identify people knowledgeable in the area of horizontal collaboration and encourage them to participate. Other disadvantages of focus groups include lack of privacy, the small number of interviewees and difficulties in recording and analysing open-ended discussions (Walden 2006). Thus, focus groups were not considered a useful tool for this research.

Observation generally involves spending a long time in a situation to observe what is going on in the field of study. The focus of this research method is on what is seen, and field notes and recordings are used to answer research questions (Pitney & Parker 2009). However, cognitive information such as beliefs, nature, feelings and perceptions of process members, particularly in transactional contexts, cannot be observed. This type of cognitive information is needed to gather data about the human side of the problem requiring observation (Arumugam, Antony & Douglas 2012). Therefore, observation was not considered a useful tool to collect data about the nature of collaboration and the attitude of LSPs towards horizontal relationships.

Given the above arguments that focus group and observation methods were not considered useful for this study, the research used the interview method for data collection. The next section elaborates more on this specific research method.

4.5.1 Interviews

Using an interview approach to collect data helps the researcher to understand the subjective meanings of reality about the phenomenon being researched (Saunders, Lewis & Thornhill 2009). Interviews are important sources of data in qualitative studies, and the strength of interviewing as a qualitative research tool is well established. Fontana and Frey (1998, p. 47), for example, referred to interviewing generally as ‘both the tool and the object; the art of sociological sociability’. They argued that interviews are a natural tool for social communication. Researchers have always seen interview as the best source of data for social research (Denzin & Lincoln 1998; Holstein & Gubrium 2003).

Considering the Australian context of this research and that horizontal collaboration studies are at an early stage in supply chain strategy research with few studies, it is argued that the type of data sought here relates to interpreting relationships among organisations (Saunders, Lewis & Thornhill 2009). Therefore, the interview method stands out as one of the best approaches for data collection. Interviews help the researcher to understand and better explore the attitudes, beliefs, perceptions, feelings and culture of people interviewed. Interviews offer an easy way to communicate with knowledgeable persons and ask them freely about their experiences and observations (Creswell 2011). Thus, to ensure collection of in-depth, rich and appropriate data, interviewing was the most appropriate method for this research.

There are three main types of research interviews: structured, semi-structured and unstructured (Saunders, Lewis & Thornhill 2009). Structured interviews are basically scripted questionnaires that are verbally directed. In this interview type the researcher strictly follows a list of prearranged questions, guiding the respondent to provide responses to specific questions. This approach involves very little exploration beyond specific responses (Saunders, Lewis & Thornhill 2009). Structured research interviews produce little or no variation in responses and provide for no further follow-up questions to investigate further explanations. Conversely, unstructured interviews do not reflect any predetermined theories or ideas and are performed with little or no structure (Saunders, Lewis & Thornhill 2009); instead, they are conducted following broad topics or themes within the subject of investigation. Unlike structured

interviews, they are characterised by wide variation and constant reconfiguration of discussions to allow an in-depth investigation of the subject. They tend to take a long time to complete and are normally conducted in relaxed informal settings; in most cases at the usual dwelling of the participant. Interviewers do not normally follow an interview guide or script. For this reason, they are also known as in-depth interviews (Saunders, Lewis & Thornhill 2009).

Semi-structured interviews follow a loosely structured interview guide consisting of several key thematic questions that help to define the broad areas to be explored (Holstein & Gubrium 2003; Hopf 2004). The loose structure allows the interviewer and interviewee to undertake a much broader exploration of the subject matter while staying within certain set topical parameters (Holstein & Gubrium 2003; Hopf 2004). The strength of this method is that it allows for both structure and significant depth. The interview is allowed to explore a broad range of themes within a set topic. Thus, it would normally be characterised by greater flexibility with regard to the order and nature of questions asked (Denzin & Lincoln 1998; Fielding & Thomas 2001).

Of these three interview types, the semi-structured interview has the most advantages, including time management and its structured feature. Some researchers have stated that semi-structured interviews enable reasonable structure to provide the scope of exploration while also allowing rational wisdom and some extent of exploration on the topic of enquiry (Denzin & Lincoln 1998; Fielding & Thomas 2001; Holstein & Gubrium 2003; Hopf 2004). Considering the characteristics of semi-structured interview, which gives the researcher the opportunity to talk freely and control and guide the interview—and subsequently ask related questions during interview to understand different aspects of the topic of enquiry—it was considered best suited to this study. Structured interviews would not give the authority to the researcher to go into detail and focus on some aspects and areas of the topic (Saunders, Lewis & Thornhill 2009). However, semi-structured interviews enabled the researcher to balance the structure, scope and depth of exploration on the basis of the intended research direction and contain its parameters to reach the depth and thickness of information needed. This information assisted in the development of an understanding of the distinctive type and structure of logistics cooperation; examination of the potential opportunities this represents for logistics organisations; and improved understanding of the relevant impediments to its adoption. This information also helped the researcher to develop a framework for enhancing horizontal collaboration in the sector.

4.5.2 Process of Face-to-Face Interviews

In this research project, potential participants were recruited initially by their relationship to the topic of study; their assistance was then sought to refer other participants. The interview recruitment process began by preparing a recruitment table. A recruitment table records the person's name, company name, business function, related department and contact details and is prepared to facilitate access to potential key informants from the industry. Based on the prepared table (see Table 4.2), valid contact details for invitations to interview were gathered for up to 100 potential participants. For privacy reasons, contact details for participants have been removed.

A brief, informal email invitation to participate in the PhD study was sent to each potential participant, to which was attached a PhD information letter containing a concise summary of the research for their information.

Table 4.2: Recruitment table

Name	Company	Type	Position	Contact details
Ixxx Gxxxxy	SPC	Port authority	Executive GM	L4, 20 Wxxxx St, Wxxxxx Bay, NSW 2000 Tel: 02 9296 4625, 04xxxxxxx email: xxxx@sxxx.com.au, www.sxxxx.com.au
Jxxxx jxxxx	SPC	Port authority	Shipping manager	L4, Txxxxe, Miller Points, NSW 2000 Tel: 02 9296 4823, 04xxxxxxx, email: xxxx@sxxxx.com.au, www.sxxxx.com.au
Gxxx Gxxxx	SPC	Port authority	CEO and director	L4, 20 Wxxxx St, Wxxxxx Bay, NSW 2000, Tel: 02 92xxxxx, 040xxxxx email: xxx@sxxxx.com.au, www.sxxxx.com.au
Pxxx Kxxx	APT	Transport and Logistics co	GM	58 Rxxxx St, Rocklea, QLD 4106, Tel: 07 38751677, 041xxx www.axxxxx.com.au
Kxxx Wxxxx	DP	Port Authority	Project manager	POBox 285, Dxxxxxr, WA 6713, Tel: 08 91596547, 04xxxxxxx, email: xxxxx@dxxxxx.au, www.dxxxxx.au
Dxxx Rxxx	ISC	Consultant	Managing director	Mobile:041xxxxx, Email: info@i xxxxx.com.au, www.ixxxxx.com.au

A prepared format interview guide helped and guided the interview sessions (Appendix A). It helped the researcher to retain the main structure of the interview and to reach each step logically to answer the research questions. The interviews were structured in a way that extended exploration and understanding to gather the accurate perceptions and experiences of the participants and enable the flexibility to hold a comprehensive, meaningful and efficient conversation (Fielding & Thomas 2001; Hopf 2004). To facilitate this free flow, the following stimulus/guide questions formed the foundation of the interviews.

INTERVIEW GUIDE

1. Biographical information:

1.1. Personal information:

Name: Position:

Years of service in organisation:

Years of service in industry:

1.2. Organisation information:

Name: Type:

Structure: Size: No of employees:

Branches:

Facilities and equipment:

2. Dominant type of organisational cooperation in the industry:

What type of cooperation did you see in the industry?

3. Type of inter-organisational cooperation:

What types of inter-organisational cooperation do you have with other organisations?

What types of inter-organisational cooperation do you see between other organisations?

4. Horizontal collaboration in the logistics industry:

Nature: Type:

Advantages: Challenges:

Opportunities Objectives

4.1. Type and structure of the cooperation

What type of collaboration do you have with other companies?

Level of collaboration (operational, tactical, strategic)

Please specify type and structure of this cooperation in the below areas:

- Contractual scope:

What type of cooperation agreement do you have with other companies? For example: verbal, written (equity involvement, joint venture ...)

- Organisational scope:

How many companies are involved in the cooperation and what is the nature of this collaboration?

- Service scope:
What is the service scope of cooperation? Road, rail, sea, air, intermodal transport or value-added services.
- Geographical scope:
Do you cooperate nationally, regionally or nationwide or is it an international, continental or intercontinental scope?
- Resource scope:
Do you use complementary or similar resources in your partnership?

How different tiers of LSPs work together; how to sustain horizontal collaboration with other LSPs:

Potential drivers and opportunities to horizontal collaboration:

What types of the below drivers do you expect for horizontal collaboration in transport and logistics?

Potential drivers: costs and productivity, customer service and market position.

Barriers to horizontal collaboration:

What types of barriers do you expect/face for horizontal collaboration in transport and logistics?

Barriers: partner selection, determining and dividing the gains, negotiation and coordination and ICT.

Horizontal collaboration in practice:

Which the following types of horizontal collaboration exist in the transport and logistics industry in Australia?

Lobbying group	Maintenance group
Purchasing group	Chartering
Warehouse sharing	Freight sharing
Knowledge centre	Road assistance
Co-branding	Tender group
Asset pooling	Intermodal group
Shared cross-dock	

Model of horizontal logistics collaboration:

Which model do you think will work here in Australia?

How to sustain horizontal collaboration between LSPs:

Other important info that you think is better to share?

What do you see as the future of horizontal collaboration here in Australia?

A letter of consent to participate in the PhD study was prepared and approved by the Human Research Ethics Committee (HREC) of RMIT University. This letter was provided to participants to read and sign before beginning the interview (Appendix B).

A copy of the interview questions was sent in advance to participants. For this purpose, a letter of invitation (Appendix C) and PhD information letter (Appendix D) were prepared to provide participants with required information regarding the scope of the study. The interviews were conducted in a professional manner in their offices and were recorded with their consent to enable the researcher to more accurately transcribe them later. Each interview lasted for around 1 hour, to a maximum of 90 minutes. Prior to the interview session, participants were asked if they were comfortable having the interview recorded. Participants were informed that participation was voluntary and that they were free to withdraw from the project at any time and could withdraw any unprocessed data they had previously supplied. They were notified that the recordings were only to be used by the researcher for the purpose of the study, and the privacy of their personal information would be safeguarded and only disclosed if they consented to the disclosure or as required by law. Signed participant consent forms were filed at RMIT University, in accordance with the HREC rules and regulations of RMIT University.

During the interview, a recorder and a notebook were used to record and register the supplied information. This is because memory cannot be relied on completely and important information may be lost or forgotten in the absence of recordings. The notebook helped the researcher to record key elements and important information from participants to later develop written notes regarding comprehensive and meaningful text. It also was helpful for keeping a record of the interview session including date, time, place and other details.

4.6 Data Analysis

Marshall and Rossman (1989, p. 150) defined data analysis as ‘the process of bringing order, structure and meaning to the crowd of collected data’. This process was explained as ambiguous, time consuming and disordered, but also creative and interesting. In this regard, Best and Khan (1998) argued that interpretation and data analysis require the employment of inductive and deductive logic for the mass of data.

Cohen et al. (2007, p. 461) described qualitative data analysis as ‘the process of making sense from research participants’ views and opinions of situations, corresponding patterns, themes, categories and regular similarities’. Some scholars have captured the essence of data analysis:

for example, Gibbs (2007) provided a definition and described it as an ongoing and iterative process, indicating that data collection, processing, analysis and reporting are intertwined. This process transforms the mass of collected data into a clear, insightful, understandable and trustworthy original analysis (Gibbs 2007).

Creswell (2018) argued that there is no standard with no absolute way to relate a specific type of qualitative data to a specific type of analysis. From this perspective, it can be concluded that each type of qualitative data analysis, to some extent, will involve a unique design. With this in mind, the researcher in this study followed a qualitative content analysis process to analyse the qualitative data from semi-structured interviews. Some scholars have described this analysis as a spiral analytic process (Creswell 2003; Marshall & Rossman 1989; Watling & James 2012); it is not just a fixed linear action.

In this research the qualitative content analysis involved the following steps:

Recording of interviews: The data were recorded with participants' consent by a digital audio recorder, and audio recording on an iPhone was performed as a backup to ensure that data were protected from technical failure and faults and to ensure that all interviews could be played back. As stated previously, taking notes served as an extra backup to ensure that important parts of the data were recorded.

Verbatim transcription: The interviews were transcribed in exactly the same words as used by participants, and as soon as possible. Interviews were transcribed by an expert to ensure swift completion. Each completed verbatim transcript was listened to again to ensure the correctness of the transcription and to make general sense of the data, or, as stated by Esterberg (2002), to achieve a level of intimacy with data. Some parts of the transcriptions which were not completely clear were discussed with some respondents for verification.

The entire set of transcribed text and field notes were thoroughly read to obtain a comprehensive impression of the content and context and to achieve an in-depth insight into the data before beginning the analysis and coding of the mass of data.

Data coding: Codes are labels assigned to a word, specific unit of data or segments of data with related meanings that are identified in the process of data analysis (Henning et al. 2004; Neuman 2003). The data were coded manually and also by use of NVIVO software. During the data coding process, different meanings, connections, relationships, trends, categories, sub-categories and themes were identified.

In this research, the coding process followed was as described by Neuman (2003), which consists of three steps: open coding, axial coding and selective coding. The transcription text and field notes were thoroughly read and relevant statements were organised. This process is referred to as open coding in which the focus of the researcher was on wordings, phrasings, comments, consistency, frequency and context. Different codes were marked, highlighted and labelled.

Axial coding was the second step, in which categories and patterns were identified and organised concerning context, causality and coherence.

The last step of coding was selective coding. This involved selective scanning of the existing codes and comparing, contrasting and relating them to the study, specifically to the research questions. Related codes were then organised and listed in categories of common themes and sub-themes according to the aim of the study.

To provide a better understanding of the qualitative analysis employed in the study, the content analysis process for the semi-structured interviews is illustrated in Figure 4.1. This process ensured a logical and systematic approach to the qualitative analysis data conducted in this study. This ensured that the study went beyond basic comparative and descriptive goals to discover the motivation and rationale for participant responses (Neuman 2003).

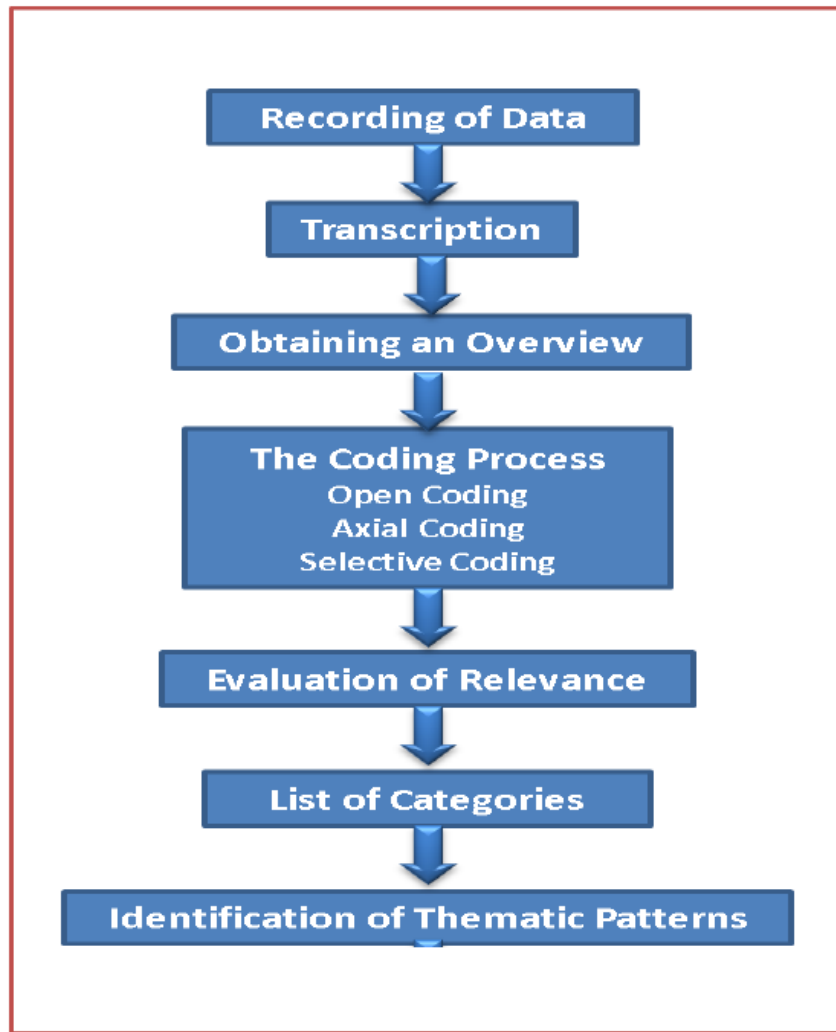


Figure 4.1: The qualitative content analysis process used in this study

In this research, themes relating to collaboration among LSPs in the Australian logistics context were identified. Table 4.3 lists themes and sub-themes identified from the issues that emerged from the transcribed interviews.

Table 4.3: Themes and sub-themes identified in the study

Name	Files	References
Dominant types of cooperation in industry~	13	16
Buyer-seller	3	3
Horizontal collaboration	1	1
No collaboration	8	9
Vertical Collaboration	9	10
Drivers,opportunities and advantages of collaboration	27	40
Examples of HC in Australia	9	9
Future of logistics in Australia	25	25
HC , geneal view	8	8
HC Between Different tiers of LSPs	12	20
T1 and other tiers (T1,T2 and T3)	9	19
T2 and other tiers(T1,T2 and T3)	6	9
T3 and other tiers (T1,T2 and T3)	4	4
HC in practice	17	19
Asset Pooling	18	20
Co-branding	17	17
cross dock	13	13
Freight Sharing	15	16
Knowledge centre	17	17
Lobbying group	15	15
Maintenance group	14	14
Purchasing group	16	16
Road assistance	15	15
Tender group	15	15
Warehouse sharing	16	17
Horizontal Collaborations through customers	13	18
Impediments, barriers and challenges to HC	26	50
Other barriers in Australia	1	1
Fears of mergers and Acquisitions	6	8
immature industry,egos in companies, Change of at	8	15
industrial relations	1	1
Level of Authority of the managers, switching jobs	2	2
Logistics market structure, T1 and international FFV	7	8
Responsibility and leadership of the contract	4	5
why should I collaborate, i have everything, big enc	3	4
Partner selection	5	6
Lead logistics providers	5	6
Logistics in Australia	10	20
Government, policy maker and large companies role	1	1
Large logistics users	3	3
Market segments	5	6
Tiers of LSPs in Australia	1	1
Mergers and acquisitions, Role of law and ACCC	15	25
Models of Horizontal Collaborations, Role of trust, soci	17	21
Structure of HC	1	2
Formality scope	19	23
Geographical scope	18	23
Organizational scope	9	9
Resource scope	14	18
Services scope Road, Rail,...	19	22

4.7 Ethical Considerations

In the context of research, ethics refers to the appropriateness of the researcher's behaviour in relation to the rights and wellbeing of those who become the subject of the research or may be

affected by it (Saunders, Lewis & Thornhill 2009). The researcher must take into account a number of key ethical issues that emerge at different stages of the research. Saunders, Lewis & Thornhill (2009) identified the following key ethical issues to be considered:

1. privacy of possible and actual participants
2. voluntary nature of participation in the research and the right to withdraw at any stage of the process partially or completely
3. consent and possible deception of participants
4. maintenance of the confidentiality of data provided by individuals or identifiable participants and their anonymity
5. reactions of participants to the way in which data is sought (e.g. embarrassment, stress, pain).

Considering the potential widespread ethical issues pertaining to researches, the necessary steps were taken to obtain ethics approval for this research. Before conducting the research, ethics approval was obtained from the HREC of RMIT University (Appendix E) to comply with the RMIT University regulations before beginning data collection.

4.8 Conclusion

The research approach and methods described in this chapter were specifically selected to ensure that the research would provide an in-depth understanding of horizontal collaboration among logistics firms in Australia.

Data were collected thoroughly and analysed exhaustively to ensure that the outcome addressed the research question, by employing a qualitative approach. In this study, qualitative semi-structured interviews were explicitly administered to a broad range of LSP companies, logistics authorities and associations across Australia. The research followed a systematic process, beginning with a comprehensive review of the literature to determine the research aims, objectives and questions; followed by the design and field application of research tools to collect the data.

Purposeful sampling was employed to ensure that the study identified appropriate and representative participants from the broad range of logistics companies that are active in Australia.

This study employed a qualitative content analysis process to analyse the data. Data were coded and analysed manually and also by use of NVIVO software through the three steps of open, axial and selective coding.

The logical step-by-step and systematic data analysis adopted in this research ensured that the study goes beyond simple comparative, descriptive findings to discover the motivations and rationales for collaboration among logistics organisations in Australia.

Chapter 5: The Profile of Australian Logistics Industry Exemplar Companies

5.1 Introduction

This chapter is the first of three data analysis and findings chapters. Its main objective is to examine practitioner stakeholder perspectives on the Australian logistics industry, including those of LSPs and users.

The data in this chapter were gathered via interviews with various stakeholders in the Australian logistics industry, including top-level managers and practitioners of logistics organisations, LSPs and users, and government authorities. In addition, the chapter draws on materials from a number of sources including industry market reports, logistics company policy documents, and government statistics and policy documents. The chapter lays out a complex web of interests of different stakeholders in the logistics industry and examines the profile of logistics industry exemplar companies and market segments. This and the following two chapters thus focus on the profile of the logistics industry; its structure, opportunities, challenges and impediments to horizontal collaboration among LSPs in the Australian context, with reference to the research questions presented in Section 4.2 and repeated here for convenience:

In the Australian transport and logistics context, what is the dominant form of industry organisational collaboration?

To what extent does horizontal collaboration exist and is being practised; and what form does horizontal collaboration take among LSPs in Australia?

What are the major opportunities and impediments to horizontal collaboration and how might it take form (begin, develop and sustain) in the context of the Australian logistics sector?

This chapter is organised into three sections. The first is the introduction. Section 5.2 then presents data about the profile of the logistics industry. It examines the situation in the transport and logistics industry; the different players—that is, LSPs and logistics users—and interactions among stakeholders in various segments of the logistics industry. Section 5.3 concludes the chapter.

5.2 Profile of the Logistics Industry in Australia

This section provides an analytical overview of the Australian logistics market, represented by the green oval in the research framework of the study (Figure 5.1). This section portrays the profile of the industry; its market structure, company size and competitive landscape. This section is important because an understanding of how the industry is organised and structured, and the positions and locations occupied by different stakeholders, enables identification of their potential interactions and thus determination of whether they could collaborate and what kinds of collaboration might exist in the industry.

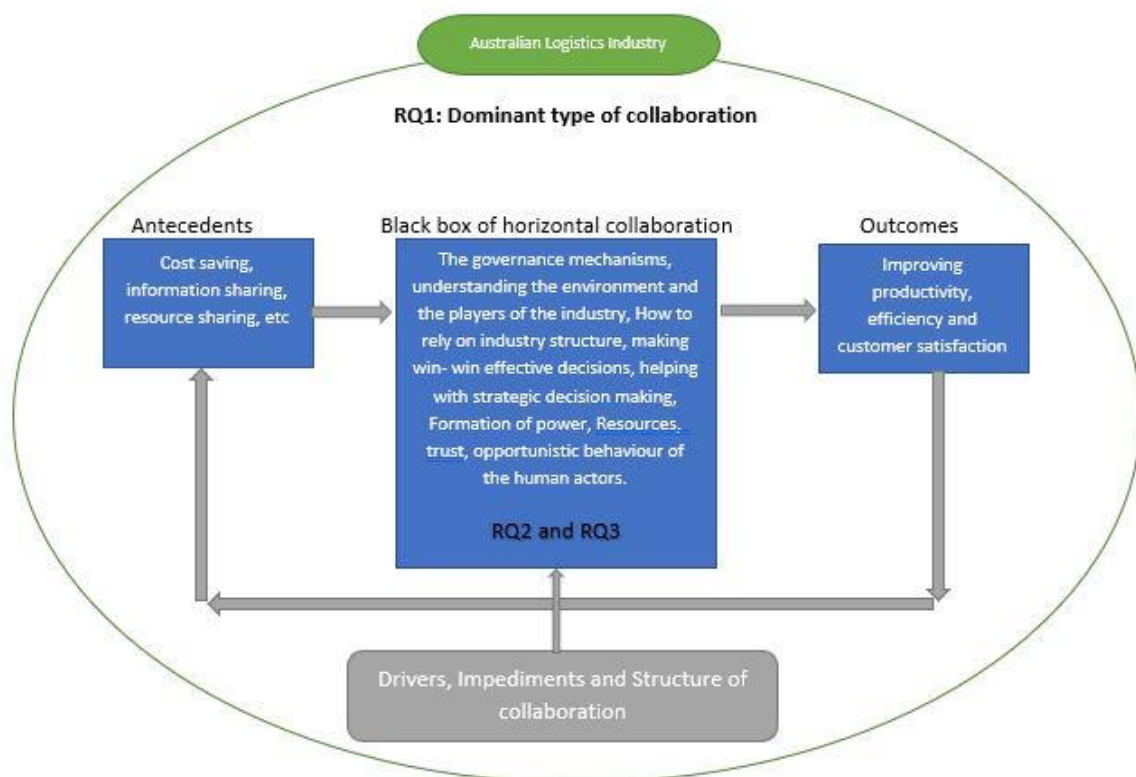


Figure 5.1: Research framework—The interactive process of collaboration in the Australian logistics context

Understanding the organisation of the industry in total requires an examination of different stakeholders in the industry, which include LSPs, logistics users and industry segments. Interactions among industry players in different market segments shape the way in which LSPs collaborate.

5.2.1 LSPs in Australia

The Australian logistics market is large and fragmented (Participant No. 10), consisting of a wide range of service providers (Participant No. 25). A handful of multinational organisations and very large Australian companies dominate the logistics market and offer extensive, comprehensive services to customers (Participant No. 1). The four largest operators command 20% of the road market revenue, and have significant market power throughout the supply chain because of their infrastructure ownership (Magner 2017). These companies handle the majority of profitable contracts and often subcontract work to SMEs and owner drivers, which are the lowest level of operators in the transport and logistics market (Magner 2017).

However, there are SMEs that offer less comprehensive logistics services, and owner drivers who own at least one truck and provide basic transport services (Participant No. 27). SMEs and owner drivers form the largest proportion of LSPs, with a total of around 42,000 companies, accounting for around 80% of the transport market in Australia (Magner 2017). There is a high level of competition at the lowest level of transport providers because of the minimal barriers to entry to the market (Magner 2017).

In the last few decades, a continuous wave of business consolidation shaped by numerous mergers and acquisitions (M&A) has led to increasing dominance of a few large LSPs (Participant No. 6). To a large extent, customer demands and preferences have created this situation because of the need for one-stop shop services (Participant No. 2). The larger providers have superior ability to fulfil this requirement, leading to the demise of many medium-sized providers (Selviaridis & Spring 2007).

Participants were asked about the different tiers of logistics companies in Australia. How do you classify them? What are their characteristics such as size, services, market coverage and so on? Participant responses identified various attributes of LSPs in the Australian logistics industry. In practice, classification of the different tiers of logistics providers is not always clear-cut, as there are similarities between logistics providers in different tiers. For instance, multiple tiers typically offer multiple logistics services, which makes it challenging to clearly distinguish each tier from other groups (Participant No. 2). Table 5.1 depicts some characteristics of the different levels of logistics providers in Australia as highlighted by the participants of the study. This improves understanding of the various tiers of LSPs in Australia.

Some participants classified Australian LSPs into three tiers (Participant No. 1, 2) and some separated SMEs into two groups and classified them as four tiers (Participant No. 3, 14). However, most participants agreed to classify LSPs into three tiers. For the purposes of this study and based on the information received from the participants, Australian LSPs are categorised into the three vertical tiers shown in Table 5.1.

Table 5.1: Some characteristics of different tiers (T) of logistics providers in Australia

	Size and employee numbers	Number of companies in Australia	Service feature	Coverage
T1	Very large, more than 1000	Few Australian organisations and multinational companies	Integrated services, total logistics solution and end to end services	All parts of logistics network, international and global branches
T2	Large, ≥ 200 less than 1000	Many	Specialised and multiple services in closely related logistics activities	Specific parts of logistics network
T3 Owner drivers	SME, 5–200 1 person	42,000	Limited, low capacity services Basic transport services	Specific parts of logistics market; e.g., niche markets

5.2.1.1 Tier 1 Logistics Companies

Participants in this research identified the attributes of the different tiers of LSPs in the Australian logistics context. The responses confirmed that at the top of LSPs in Australia, there is a small number of very large organisations that provide integrated (strategic and operational), one-stop shop, comprehensive total-solution logistics services (Participant No. 1, 26). These companies usually manage the total logistics solutions for large logistics users, such as large manufacturers and retailers in Australia. T1 logistics companies have sufficient equipment, financial strength and extensive logistics knowledge and skills to integrate and provide comprehensive logistics solutions in different parts of the supply chain (Participant No. 6).

T1 companies usually have various logistics companies in their group and use their owned firms to serve their customers. However, in some cases, such as rural areas in which they have none of the required capabilities, they involve other LSPs to provide services. They take the

responsibility for the logistics network and improving its functional performance by identifying and using different logistics firms from other tiers of LSPs, aggregating traffic, designing routes and functional procedures, and optimising logistics operations. They have developed advanced information systems that enable them to provide track and trace services, warehouse management, vehicle routing, scheduling and operations reports (Participant No. 1, 9).

Large logistics users mostly prefer to work with T1 companies as they benefit from their extensive, comprehensive logistics services. For example, T1 services in the automobile industry incorporate inbound transport, line feeding, consolidation and deconsolidation, inspection, warehousing, order management, picking and packing, sorting, labelling, outbound transport, and management of logistics services and logistics companies on behalf of the client (Participant No. 7).

T1 organisations also supply infrastructure (e.g., warehouses and distribution centres) and operate some services from there, such as transport, packaging, inspection, sorting, labelling, and distribution for clients that need this type of service in some areas (Participant No. 11).

T1 logistics companies have their origins in road transport, freight forwarding or warehousing, and acted as T2 logistics companies for years before developing and increasing their services into other areas of logistics activities to offer a one-stop shop for their clients. There are some similarities between T1 and T2 logistics companies. However, T1 LSPs are different from T2 companies in that they prepare comprehensive integrated services and work as one-stop shops for logistics users (Participant No. 14). They are large in size, have an extensive range of activities that extend beyond physical activities like transport and warehousing, have a total service coverage and provide solutions using all modes of transport including road, rail, sea and air. As integrated transport and logistics operators, T1 companies cover a large part of the logistics market and provide end-to-end interstate, intrastate, local and global supply chain solutions. For example, Toll Logistics has more than 40,000 employees and operates as a widespread global logistics network over 1,200 locations in more than 50 countries (Toll Group 2018).

The participants mostly talked about different tiers of logistics companies; for example, Participant No. 1 discussed T1 logistics companies as follows:

Tier 1 would be Linfox and Toll, and freight forwarders like Kuehne Nigle and DB Schenker. They are very structured in their approach. They are very singular in terms of their approach

to the customers. They are very, in my opinion, very isolated and focus purely on price for those particular type of customers that they have, and within 3PL providers, it's normally around cost and what they can deliver to the customer. They can provide a one-stop shop for customers.

Most of the participants provided similar assessments of the attributes of T1 companies and confirmed them as the top tier of LSPs in Australia.

5.2.1.2 Tier 2 Logistics Companies

Based on the participants' responses, T2 logistics companies in Australia specialise in one type of logistics service, such as warehousing or transportation, and/or one region (Participant No. 1). T2 companies are also logistics operators that provide logistics services at different stages of the logistics market.

These companies are logistics operators that typically concentrate on transportation services or warehousing and closely associated physical activities such as order fulfilment, deconsolidation, packaging, inspection, sorting and labelling. They focus on a particular part of the supply chain rather than on the whole logistics chain and typically manage a related range of services across specific parts of the logistics market (Participant No. 7). T2 companies are operators ranging from organisations that provide local, regional, interstate and intrastate transport, couriers to business-to-customer (BC) services.

T2 companies are usually categorised as large companies, but they are much smaller than T1 organisations. BlueStar Logistics and Silk Contract Logistics are examples of T2 companies. BlueStar Global Logistics mostly provides transport and related activities (BlueStar Global Logistics 2017), while Silk Logistics focuses on warehousing and uses other companies to prepare transport and distribution services throughout the logistics market in Australia (Silk Contract Logistics 2017). Silk Contract Logistics, as its name suggests, concentrates on contract logistics or warehousing. It has 22 warehouses nationally in Australia and uses services from T2 or T3 transport providers to cover its logistics distribution market (Silk Contract Logistics 2017).

Most of the participants identified the attributes and functions of T2 companies; for instance, Participant No. 8 explained had the following to say about T2 logistics companies:

Tier 1 logistics companies are a one-stop shop, whereas some of the other logistics providers in Tier 2 level, there would be even more the type of arrangements for just purely shipping, air, rail or road they tend to become very singular in their approach, they offer mostly transport or warehousing activities.

The responses, including the sample extract mentioned above, indicated the agreement among participants about the different features of T2 logistics firms in the Australian logistics industry.

5.2.1.3 Tier 3 Logistics Companies

T3 logistics companies are mostly SMEs and micro-organisations, for example, owner drivers. The main differences between T3 and both T1 and T2 logistics companies are their size and market share (Participant No. 4). From the size point of view, T1 organisations are very large, T2 are large (200 employees or more) and T3 companies have fewer than 200 employees. However, T3 companies typically in the transport and logistics industry have less than 50 employees (Participant No. 2).

SMEs have specific strengths and weaknesses (Shibin et al. 2017). Technology and globalisation has decreased the importance of economies of scale in many activities and consequently enhanced the potential contribution of smaller firms in offering services. However, conventional problems such as financial strength, difficulties in employing technology, limited management capabilities, low productivity and regulatory compliance have become more crucial for this type of small company in a technology-centred, globalised environment (Participant No. 4).

T3 LSPs are certainly more agile than large firms in the logistics market. Therefore, they can move efficiently and more quickly to enter niche markets that larger companies are not occupying, meeting the faster lead times that customers are now demanding (Participant No. 27). They are very well placed in the ever-changing logistics market conditions and can adapt and move at a fast pace to invent new services that meet customers' requirements. Moreover, they have the required personal connections in last mile delivery, regional area and logistics services that require managing a relationship to fulfil a client's promise. When it comes to speed, reliability and niche markets, T3 LSPs play a significant role in the Australian logistics market. The optimum size of T3 companies gives them the ability to find opportunities in niche logistics markets not enjoyed by large companies from the T1 and T2 levels (Participant No. 25).

T3 LSPs contribute to logistics activities based on their size and capabilities. They are usually involved in local activities; serve T1 and T2 firms, and sometimes help international logistics companies such as shipping lines and international freight forwarders to serve their customers in the Australian logistics market (Participant No. 20). They offer a variety of services in small capacities and in niche markets, such as transport and warehousing services, freight forwarding, customs brokerage, taxi trucks, courier deliveries and container activities (Participant No. 4).

T3 LSPs at the lowest level of transport service providers in Australia are owner drivers. Participant No. 14 considered them a separate group and classified them as T4. Owner drivers own at least one truck, which may be either a rigid truck or an articulated truck consisting of a prime mover and semi-trailer coupled by a turntable or B-couple (Australian Trucking Association 2016). Some owner drivers have more than one truck. For example, they have a number of rigid trucks, prime movers and semitrailers to offer different transport services. SMEs and owner drivers make up T3 LSPs in Australia, with around 42,000 companies covering around 80% of the transport market (Magner 2017). Examples of T3 logistics companies discussed by the SMEs interviewed here are Xtreme Freight and BransTrans Logistics. Xtreme Freight is a medium-sized company with a close connection to freight forwarders and customs brokers, offering a range of services from air freight transport and warehousing, to related services including courier deliveries, taxi trucks and container movements (Xtreme Freight 2019). BransTrans Logistics is a family-owned company that focuses on transport; it is located in Traralgon, a small town 160 km east of Melbourne, and carries raw materials, building materials and equipment to supply manufacturing industries located locally, interstate or even overseas (BransTrans 2019).

Participant No. 4 also discussed T3's capabilities over the other tiers and explained:

As SMEs, we do specialised logistics. We found that people are very process driven and with the larger companies they haven't got the ability to adapt and change and be flexible with their customers need. We are able to adapt to global and market needs challenges quickly and swiftly, so our niche is supplying what that client wants and when they want it.

Another participant (No. 14) spoke about the role of T3 in regional areas and small towns, explaining that:

Australia is so big. We might have a small town; say Bairnsdale or Sale here in Victoria. That small country town might only need or have one guy with one truck, and that's all they need because there's only 10,000 people or 5,000 in that town.

Participant No. 1 described the characteristics of owner drivers in Australia:

At the lowest level would be a provider, who would be an operator, and nothing taken away from those particular people. They are a community, whether it be a country community or providing service to a client or a set of clients in order for them to continue the business.

Most participants emphasised the difficulty of covering rural areas and niche markets without having this tier of small service providers in the Australia-wide logistics market.

The responses of participants indicated agreement about the various features of LSPs in the Australian logistics industry, as summarised in Table 5.1.

This section discussed LSPs active in the Australian logistics industry at the time of the study. The other important group of logistics industry stakeholders that have interests in various logistics activities and play a substantial role in connecting different parts of the industry are logistics service users, which form the subject of the next section.

5.2.2 Logistics Service Users

To be able to properly understand how organisations interact to produce and deliver services, it is important to consider different kinds of logistics service users in the market. Participants in this study were asked about the attributes and roles of different logistics users in the Australian logistics context. The responses confirmed that, like LSPs, logistics users are highly diverse in the Australian market, ranging from small businesses to very large companies (Participant No. 1, 2). The logistics market provides services to various areas including retail, manufacturing, healthcare, trade and transportation, government and public utilities, information technology, telecommunications, banking and financial services, and media and entertainment (Participant No. 6). Users of the transport and logistics industry range from a business entity relying on multiple logistics services for receiving pallets, mail and other everyday business requirements (Participant No. 27) to a person who receives a Christmas card via a mail carrier (Participant No. 10). The use of logistics services in different areas is anticipated to rise considerably, which in turn is expected to strengthen the growth of the logistics market globally (BITRE 2014).

Figure 5.2 shows some major users of logistics services in Australia. They include retailers, supermarket groups, food processors, beverage producers, mining companies, manufacturers and suppliers of services. The contribution of multiple buyers and service providers in the logistics industry in Australia creates a complex network and may contribute to the complication of cooperation and coordination activities.



ARNOTT'S BISCUITS, BHP BILLITON, CADBURY SCHWEPPE, CSR, MYER, COCA-COLA, FORD AUSTRALIA, COLGATE-PALMOLIVE, DAVID JONES, HOLDEN, DEPARTMENT OF DEFENCE, DELL COMPUTER, KRAFT FOODS, NESTLÉ AUSTRALIA, GOODMAN FIELDER, SOUTHCORP, QANTAS AIRWAYS, JOHNSON & JOHNSON PACIFIC, SPC, RIO TINTO, UNILEVER, SIMPLOT

Figure 5.2: Some major Australian logistics companies

Overseas users (buyers and sellers) such as shippers also play a primary role in purchasing logistics services for export and import in Australia (Participant No. 20). Logistics activities such as warehousing and distribution of imported and exported products are usually managed by overseas forwarders or their local branches in Australia (Participant No. 20). For example, Japanese electricity companies and steel mills typically manage export and shipping of coal to Japan (Participant No. 7).

Many large companies which frequently need logistics services in Australia have in-house logistics operation facilities and infrastructure that enables them to provide some logistics operations, such as warehousing and inventory management. This type of logistics user requires in-house knowledge and skills to operate its logistics services and manage external service providers efficiently when needed (Participant No. 19).

However, other large user companies benefit from the infrastructure, facilities, equipment and services provided by T1 and T2 LSPs. Some large users of logistics services manage the 3PL selection process by appointing a portfolio of external service providers in different parts of the logistics market, such as capital cities and regional areas. For example, Participant No. 33, a large user of logistics services, explained how they use different LSPs in Australia to manage their supply chain:

So, I will start with WA. We have two distinct distributors; the majority is done by a company called Toll Fast and a smaller company—because Toll doesn't do regional transports in that area and aren't good at it—we've gone to people that are good at the service—a small company called Sterling Freight. So, in Australia, we have a company with both of transport and depot services, and it's a strange name, but it's called Hedgehog Logistics. We call it HH Logistics. In Victoria, we have DCs, so the majority is done by a company called Transworks who would be in the second tier and again the HH guys do some regional deliveries for us. In NSW, a company called DXT do all of our distribution for us and operate the depot. And Brisbane we have in far north QLD Toll again and in Brisbane a smaller company called Express Direct.

The responses of the participants and the available reports about logistics industry in Australia indicate the presence of different types of service providers, market segments, knowledge and expertise for professional activities, and the number of services a company needs contributes to the complexity of the logistics market and complication of determining which tiers of LSPs are suitable for the company (Participant No. 17). Some large retail users of logistic services, such as Coles and Woolworths, require sophisticated services and a one-stop shop for their logistics (Participant No. 1). Therefore, they usually prefer to work with the big LSPs—T1 and T2. They have the power and influence to change the supply chain based on their requirements. They prefer to work with a few large LSPs rather than many small or medium enterprises. They gain better visibility, service and support from those service providers (Participant No. 1).

Large users of logistics services change the logistics market in favour of big companies from T1 and T2 to accept risks and the responsibility for the project (Participant No. 26). T1 and T2 LSPs take over leadership of contracts from large logistics users and manage the supply chain through the use of multiple small and medium logistics companies or even owner drivers. Participant No. 8 explained the role of large logistics users:

Coles has a contract and put it to a tender, and we compete, and one of us (Toll or Linfox) is the winner. Then Coles has a contract for transport, and another company is the winner. We do not collaborate; we are fundamentally just service providers into Coles. Coles has got the relationship, so the horizontal collaboration to me is where there is a joint bid.

The information from different sources shows that the major users of logistics services are spread across all areas of the Australian economy. Figure 5.3 shows a sample of logistics end users in Australian supply chains.

MANUFACTURING, CONSTRUCTION, TRADE (WHOLESALE AND
RETAIL), FREIGHT FORWARDING, MINING (COAL, IRON ORE, ETC.),
AGRICULTURE, GRAIN GROWING, FORESTRY AND FISHING,
AGRI-BUSINESS (COLD STORAGE), PASSENGER, COURIER AND

Figure 5.3: A sample of major logistics users in Australia

Large logistic users work with different large logistics providers in different industry market segments. This is the main subject of the next section.

5.2.3 Logistics Industry Market Segments in Australia

Considering the operating environment and the variety of LSPs, which ranges from owner drivers to large Australian Stock Exchange (ASX)-listed companies, this research revealed major industry sectors on which the logistics industry in Australia focuses. These are FMCG, retail, automotive, mining, and government and defence (Toll Group 2018). These segments frame the various models of operation and consider the different types of activities and how customers benefit from working with experts and specialists in their field and their marketplace. This strategy enables companies to reach their aim of long-term, close working relationships with their clients (Participant No. 7). This approach is valued by customer management teams that seek benefits from working with a few companies that have the know-how and industry insight, and who take responsibility for delivering logistics solutions.

Participant No. 7 raised the issue that LSPs focus on different market segments:

So, if I go to just logistics providers, you will find whether it's DHL or Toll or Linfox they all have sector focused so they will all develop the sector focus. For example, they have developed automotive sectors like Toll automotive, Linfox automotive, Toll retail, Linfox retail or Toll FMCG and Linfox FMCG industrial logistics. They will create focus around particular areas of operations, where the requirements are quite different.

He expanded further on the benefits of this approach:

So, their people came from automotive and fast-moving consuming, and they embedded them in their organisation. They knew the terminology, the lingo, the language and they developed synergies and economies of scale at the individual manufacturers or distributors. Many

manufacturers weren't able to provide and had the power of size and scale, to provide a better offer. And here in Australia, we saw it a little later; Toll was very successful and inherited a few organisations—so they're superb at it. Linfox and Toll were much more focused; DHL has come here and done the same thing.

To understand logistics market characteristics in Australia and to demonstrate the parties involved in different industry segments (Figure 5.4) this research has complemented the information gained from interviews with data and information from the Bureau of Infrastructure, Transport and Regional Economics (BITRE), which presents research findings and statistics on infrastructure, transport and regional development in Australia; from IBISWorld, one of the largest industry-based research providers in Australia; and from other industry research documents. IBISWorld documents include reports on different transportation modes i.e. road (Magner 2017), rail (McGregor 2017a) and rail passenger transport (Magner 2016a) and postal services in Australia (Magner 2016b); as well as industry reports on port operators (McGregor 2017b), airport operations (Tarrant 2016) and general warehousing and cold storage (Burgio-Ficca 2017) in Australia. Exploration of the industry through the interviews undertaken here and the document review has revealed a complex structure in which providers may be categorised into vertical tiers based on company size, market share, the variety of services provided and horizontal segmentation according to market and service, as well as regional specialisation.

Figure 5.4 summarises Australian horizontal and vertical logistics industry segments and related share by mode of transport, warehousing, end-use industry, major operators and geography. Modes of transport include road (intrastate, interstate and urban), rail (bulk including coal, metalliferous minerals and grain; and non-bulk freight, general cargo and containers), air (international and domestic) and maritime (international and coastal freight categorised by type of cargo; i.e., bulk, general cargo or container).



Figure 5.4: Horizontal and vertical logistics industry segments in Australia (adapted and compiled from the IBISWorld industry report 2017 and interviews conducted with logistics executives)

Road transport dominates the Australian non-bulk cargo market, utilising advantages in speed, price, reliability and comfort. The largest articulated trucks in the industry transport cargo between (interstate) and across states (intrastate) over an area of 7.692 million square km, forming states and territories of Australia. Road freight successfully competes with other modes of transport; that is, rail, sea and air. In urban communities, light commercial vehicles are the predominant type of transport for last mile delivery consisting of business-to-business (BB), BC and customer-to-customer (CC) transport. Road freight enhances the economy, and customer demand for road services is an advance indicator of changes in economic growth (BITRE 2014).

Rail services are the next most common service that most LSPs use in Australia. Rail services dominate the transport of heavy cargo over long distances in Australia. Homogenous bulk freight such as coal, minerals, iron ore and grains are transport by the rail industry. Rail transport also covers non-bulk cargo such as containers. However, container transport faces intense competition from road operators (BITRE 2014).

Figure 5.4 also indicates end users of logistics services based on the mode of transport, being road (manufacturing, construction, wholesale trade, retail and freight forwarding) or rail (grain growing, mining, black coal mining, construction and wholesale trade). For example, the end users of sea transport are mining, manufacturing and grain-growing companies. Finally, end users of logistics services in Australia are freight forwarders, business freight, courier companies and postal services.

As seen in Figure 5.4, there are major operators that are active in different transport modes. For example, the main operators in road transport are the Toll Group, Linfox, K&S and other companies including 42,000 owner drivers and 567,033 trucks (Magner 2017). The main rail operators are Aurizon, Australian Logistics Acquisition Investment Pty Ltd which owned companies such as Asciano, and Twentieth Super Pace Nominees Pty Ltd, trading as (SCT) Specialized Container Transport Logistics (McGregor 2017a). Figure 5.4 also demonstrates the complexity of the logistics market based on the geography of services including distribution centres, and cold storage (percentages based on states; i.e., New South Wales, Victoria and so on), warehousing and storage facilities.

5.3 Conclusion

This chapter analysed practitioner stakeholders' perspectives of the Australian logistics industry via data from interviews with representatives from LSPs, and user and market segment stakeholders. It described the profile of the industry, market structure, company size and competitive landscape. Different tiers of logistics providers were classified into three levels based on size, the number of such companies in Australia, different service features and market coverage. Logistics users were shown to be highly diverse in the Australian market, ranging from small businesses to very large companies across all areas of the Australian economy. The interview analysis showed that the logistics market provides services to major industries such as manufacturing, construction, trade (wholesale and retail), freight forwarding, mining (coal, iron ore, etc.), agriculture, grain growing, forestry and fishing, agribusiness (cold storage), passenger, courier and postal services.

The data from the interviews show that the variety of products being transferred and what is required to move them in a legally compliant way adds to the complexity of the logistics market. In addition, different market segments and the interwoven interactions of logistics users and emerging overseas markets, combined with offshore manufacturing, influence the complexity

of delivering practical logistics solutions to society and the community. Stakeholders in the Australian logistics market such as logistics providers, logistics users and government authorities were shown to be likely to influence different types of collaboration or relationships in the process of delivering and using services. They shape industry structure, concentration, competitiveness, skill requirement and employment for society.

Organisations were shown to manage the complexity and dynamism of this market by understanding the drivers and impediments to collaboration and by adopting the best structure for getting the most benefit out of a collaboration.

The next two chapters of data analysis examine how the complexity, general composition and organisation of the Australian logistics market influences types of relationship and the nature of collaboration among LSPs.

Chapter 6: Collaboration in the Australian Logistics Industry

6.1 Introduction

Chapter 5 described the complex context of the Australian logistics industry and showed that there is a range of factors influencing relationships among them. Stakeholders in the logistics market, such as logistics providers, logistics users and government authorities are likely to influence different types of collaboration and relationships in the process of delivering and using services. To explore why this is the case, the relationships and collaboration among LSPs in the logistics industry are now considered.

As outlined earlier, the aim of this study is to investigate the existence and feasibility of horizontal collaboration among LSPs in Australia. The study examines the extent to which horizontal collaboration exists and is being adopted, and how horizontal collaboration might begin and develop in the Australian logistics industry. Therefore, the analysis in this chapter seeks to identify the types of relationships among Australian LSPs to clarify their nature and structure, and the extent of horizontal collaboration involved. Moreover, the analysis considers factors that influence relationships among LSPs, including structural factors, spatial factors, and drivers and opportunities for collaboration.

This chapter is organised into eight sections. Section 6.1 is the introduction. Section 6.2 reviews types of collaboration and describes the most prevalent kind among logistics companies in Australia, vertical collaboration. Section 6.3 and section 6.4 describe how LSPs understand vertical and horizontal collaboration in Australia. Section 6.5 explores current collaboration structures among LSPs in Australia. Section 6.6 highlights the key influences on adoption of collaboration, Section 6.7 presents potential drivers of collaboration among LSPs, and finally, Section 6.8 concludes the chapter.

6.2 Collaboration in the Australian Logistics Industry

The Australian logistics industry is characterised by a high level of competition and low volume, low-profit-margin cargo distributed over long distances in various market segments. In the Australian logistics industry, road transport is the primary distribution mode and SMEs are the dominant transport operators.

The data from the interviews show that intertwined relationships among logistics users and large service providers influence the market. Therefore, large logistics users give work to T1 companies that in turn subcontract the work to SMEs to distribute the cargo (Magner 2017). Emerging overseas markets combined with offshore manufacturing adds to the complexity of the logistics industry. Global markets are connected, so overseas players such as shippers have a significant effect on import and export markets in Australia. For example, they influence and manage logistics activities such as warehousing and distribution through their local branches (Participant No. 20). Consequently, logistics industry stakeholders such as powerful logistics users and large logistics providers influence the type and nature of the relationship among LSPs in the market. This section develops an extensive understanding of the type and nature of relationships among LSPs in the Australian logistics industry and elaborates on how LSPs interact, and why these types of relationship have developed.

The data from the interviews show that LSPs differ in the types of relationship they enter into with other logistics companies; some seem to have no relationships at all (Participant No. 11). Three types of collaboration were identified in the literature review: horizontal, vertical and lateral. However, the data collected in this study provided clear evidence that the type that is practised more in Australian logistics is vertical collaboration.

Although the focus of this study was to investigate horizontal collaboration, participants were initially also asked to describe the dominant type of collaboration among LSPs in the Australian logistics industry. Not surprisingly, like other countries, it is widely expressed by participants that vertical collaboration occurs more in practice in the logistics industry in Australia (Participant No. 2, 8). The data show that in the Australian logistics context T1 companies subcontract transport activities to many small and medium LSPs. Consequently, subcontracting is the primary vertical relationship among LSPs in Australia (Participant No. 8, 14). It is also evident that most participants of the study aired their views that horizontal collaboration among LSPs has not evolved to any extent and remains in its infancy in the Australian logistics context (Participant No. 26).

Vertical collaboration also commonly called ‘supply chain management’ (Crujissen 2006; Simchi-Levi et al. 2000) is a historical approach globally, employed by LSPs to integrate suppliers and customers (Participant No. 8). Traditionally, vertical collaboration has been the major form of relationship among supply chain players. In this way, supply chain stakeholders outsource their logistics activities to logistics companies and collaborate with them (Participant

No. 8). Further, T1 and T2 LSPs work as the suppliers of transport activities and subcontract freight distribution to lower logistics tiers. Participant No. 8 explained this kind of vertical relationship among LSPs as follows:

The majority of the relationship between LSPs is about the supplier–buyer top relationship, which is influenced by subcontracting agreements. The evolution of these relationships in the last 20 years in this industry has been the expansion of outsourcing environment, so we collaborate with different suppliers and customers in the different levels and parts of the supply chain.

This quote indicates that outsourcing logistics services and subcontracting logistics activities is the basis of vertical collaboration among LSPs in Australia. The next sections explain how LSPs understand and define vertical and horizontal collaboration in the Australian logistics context.

6.3 How LSPs Understand and Practice Vertical Collaboration in Australia

Vertical collaboration is more common in practice and easier to implement than horizontal collaboration (Renko 2011). There is an abundant formal literature on vertical collaboration involving suppliers and customers (Cruijssen 2007). Traditionally, supply chain players such as manufacturers and cargo owners considered outsourcing logistics activities to 3PL providers to benefit from specialised services (Participant No. 27), reduce costs, and improve service and efficiency (Participant No. 4). Consequently, LSPs practised vertical collaboration more than other types of collaboration in the Australian logistics context. Based on the information from the interviews the nature of vertical collaboration in supply chains can be represented as in Figure 6.1. Vertical collaboration was described by study participants as a relationship among organisations that work at different levels of the supply chain and do not compete in their respective markets. LSPs in Australia serve different supply chain partners including suppliers, manufacturers, distributors, retailers and customers (Participant No. 8). They plan, implement and control flow and storage of goods, services and related information among supply chain partners. In doing so, LSPs also collaborate vertically with their supply chain partners such as manufacturing companies, distributors and retailers in different parts of the supply chain to reduce costs and improve their level of service (Participant No. 2).

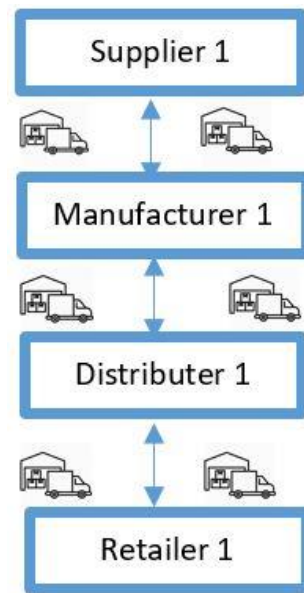


Figure 6.1: LSPs’ vertical collaboration with their suppliers and customers

As noted above, the most popular collaboration in practice for the companies involved in this research was vertical collaboration (Participant No. 2, 8, 14). Participant No. 33, from a large retail company, gave an example of vertical collaboration with logistics companies regarding distribution services. He explained:

We have depots, but we don’t invest in distribution services ourselves, we see no value in it. Distribution of cargo is all subcontracted out to providers. For example, in WA [Western Australia], we have two distinct distributors. The majority is done by a company called Toll Fast and a smaller company—because Toll doesn’t do regional transport in that area. Also, we’ve gone to people that are good at regional services. Therefore, we use a company called Sterling Freight.

The interview data show that supply chain players in Australia have historically been involved in vertical collaboration, sharing information, resources and risk with their suppliers or customers (Participant No. 2). The following extract from the interview with Participant No. 2, the manager of a logistics company, confirmed that supply chain players have been historically more familiar with vertical collaboration than horizontal relationships in Australia:

Similar to other countries of the world, vertical collaboration in Australia started a long time ago compared with horizontal collaboration, which is a newer concept. Vertical collaboration was a result of a joint effort of companies with their suppliers and customers to achieve mutual benefits. Historically LSPs in Australia practised more collaboration with their suppliers and retailers than horizontal relationships with their competitors.

This exemplar quote shows that supply chain players in Australia use vertical collaboration with their suppliers and customers and are reluctant to share information with their competitors in a horizontal collaboration. Participant No. 10 also explained that in the logistics industry collaboration is not practised with other LSPs in the industry:

I think the main reason is like I said before, I think it's more a psychological thing and it's a history that the industry as a whole has not collaborated [horizontally] in the past.

The following extract from Participant No. 2 shows that LSPs work with customers, such as reliable suppliers of parts and materials, to provide a high level of customer satisfaction:

Vertical collaboration is more in practice, and customers outsourced their logistics activities for many years and relied on us [LSP companies] to work for them as their other suppliers of materials and parts.

Most of the participants from logistics companies expressed the same view and confirmed the dominance of vertical collaboration (Participant No. 2, 8, 14). Among customers of logistics services companies, this type of relationship is also prevalent (Participant No. 33). Customers and LSPs work and coordinate together vertically to improve their efficiency of service and give value to each other. Participant No. 33 reflected on this issue. He described vertical collaboration with his company's logistics providers:

I feel there's a good level of collaboration in the logistics sector between logistics companies and us [customers]. Collaboration for us, at our level, is delivering entirely on time and on the right course, right stock, right place and the right time. We as customer and service provider coordinate to get the work done.

The exemplar data shows how customer and logistician participants understand vertical collaboration in the logistics industry in Australia. Moreover, it became obvious in the data collected that efforts at horizontal collaboration between logistics companies in Australia has resulted in adoption of an acquisition strategy of large companies taking over small companies (Participant No. 4). The next section then discusses how LSPs understand horizontal collaboration in the Australian logistics industry.

6.4 How LSPs Understand the Potential for Horizontal Collaboration in Australia

The study shows that horizontal collaboration is not employed by LSPs to interact with each other in Australia. Instead, they use vertical and lateral collaboration. The data analysis shows that vertical collaboration is the dominant type of collaboration among LSPs. Various factors influence horizontal relationships among LSPs in Australia. For example, as in global markets, the ongoing wave of business consolidation shaped by M&A has led to many acquisitions in the Australian logistics industry (Participant No. 10). This has influenced thinking in the industry about horizontal collaboration and is a barrier to its uptake. As Participant No. 4 said:

It's the pure commercial agreement vertically and horizontally, expansion and opportunity is seized through acquisition, not necessarily through cooperation. If cooperation exists in the industry, it's for a narrow period of time and that's just so that I can get inside your business so I can pull you into mine. That's the mindsets of how the industry thinks.

The history of collaboration among LSPs in Australia and the thinking around consolidation and acquisition by larger logistics companies influences the understanding of logistics companies about horizontal collaboration.

For horizontal collaboration among LSPs, however, the data show that there is little or no horizontal collaboration developing in the Australian logistics context. Horizontal collaboration efforts among LSPs may begin but do not continue and develop, but are terminated for many reasons. The interviews revealed that the degree of horizontal relationship and commitment in interactions among LSPs remains largely characterised by 'an arm's length' relationship. However, LSP interviewees did consider horizontal collaboration to be a promising concept. There was clear enthusiasm and interest in the thinking of the logistics industry about horizontal collaboration and its possibilities, potential structures, the areas in which this type of collaboration could be implemented and employed, and potential drivers and opportunities for horizontal partnerships. The participants anticipated that the level of horizontal collaboration will grow in the future.

This section highlights thinking around the conceptualisation of horizontal collaboration in the Australian logistics context as distilled from the interview data. It is important to mention that this section does not discuss the existence of horizontal collaboration in the industry; rather it outlines how interviewees were thinking about and conceptualising horizontal collaboration

and identifying possibilities and advantages anticipated from working horizontally with other logistics entities. The discussion presents some of the views expressed by LSPs about the existing structure of collaboration, specific areas in which horizontal collaboration might be adopted and its likely practices, benefits and advantages.

Most participants in the research from logistics companies said that LSPs do not collaborate horizontally (Participant No. 1, 4, 5, 11, 16, 20, 23, 26, 30, 33). These were company managers who said that the strategic approach that most LSPs have taken is competitive rather than collaborative. However, other participants stated that logistics companies do collaborate horizontally (Participant No. 2, 7, 9, 17). For example, Participant No. 17 explained how their company collaborates horizontally with other logistics companies in warehousing and distribution of cargo:

There is some horizontal collaboration. We have company warehouses, but there are also logistics companies that give warehousing services to us. Silk Logistics manages our warehousing activities, and our company production warehouse interacts with their warehouse. We also collaborate and use some transport providers such as BlueStar Logistics to distribute our cargo.

The examples of collaboration between LSPs mentioned by respondents in interviews did not confirm this type of collaboration as horizontal. Rather, when LSP representative were asked to describe and clarify the kind and nature of collaboration, they referred to ‘buying services’ from other logistics entities. Some respondents said that LSP collaboration is an example of a buyer–supplier, buyer–vendor or seller–buyer relationship. The following extract from an interview with a manager of a logistics company (Participant No. 8) is an example of the buyer–supplier relationship perspective and represents the typical understanding of participants about the nature of horizontal collaboration among LSPs in Australia:

And now looking at relationships more theoretically, it comes to how you cut your definitions. So, at a high level you might say here is the supply chain, which has components and one of those components is logistics; so within the so-called world is there horizontal cooperation inside the logistics space? What you generally will find is while it looks like a horizontal relationship, it is actually a vertical relationship between buyer–suppliers because there would be a prime contracting agent, so the relationship there is an outsourced relationship.

This extract indicates that collaboration among LSPs is not horizontal but simply involves buying services, which represents vertical collaboration.

As suggested previously, LSPs have begun to engage in horizontal collaboration activities, but they try to control the other party and limit their horizontal collaboration. In this type of relationship, large companies try to control smaller LSPs through a managed service or a subcontracting vertical relationship. The following extract from Participant No. 26 is illustrative of this type of relationship, which was assumed by some interviewees to be horizontal collaboration:

I would say that I don't think Australian logistics collaborates very much, that would be my comment. I think most of the companies I've been involved with are trying to control other parties through a managed service or a subcontractor relationship because they want to control the primary contract with the customer.

Apparent contradictions relating to the existence of collaboration among logistics companies arise from the understanding of some respondents about the nature and definition of horizontal collaboration. They suppose that any collaboration with other LSPs involved horizontal collaboration; whereas these types of relationships are in fact vertical relationships. Further, individual understandings of the horizontal collaboration concept may differ from the standard definition. As Lambert, Emmelhainz and Gardner (1996) stated, 'Not all close business relationships are partnerships, nor should they be'. The LSP respondents thought that if their relationships with other LSPs included the key characteristic of shared warehouses and services, this constituted horizontal collaboration. Nonetheless, while some aspects of collaboration exist in their relationships with other LSPs, these are inadequate and based on the definition's need for customisation of relationships to be included, or what Lambert, Emmelhainz and Gardner (1996) referred to as 'tailored business relationships'. Needless to say, trust and openness is the other significant element missing from these types of relationships.

The LSP practitioners were aware that horizontal collaboration is a 'modern' concept and is implemented in other countries such as the Netherlands, where ongoing experiments are successful (Schmoltzi & Wallenburg 2011). Thus, they thought that their relationships with other LSPs constituted horizontal collaboration. They were considering the benefits and theoretical possibilities of horizontal relationships as a promising type of collaboration, while in reality, relationships among LSPs in Australia have not led to ongoing successful horizontal collaboration.

The data also revealed that LSP interviewees considered horizontal collaboration a commercially promising concept. Participants from LSPs attempted to describe what they did

as horizontal collaboration. However, this type of relationship is not actually a horizontal collaboration. The LSPs' relationships did not include the key elements of shared risks/rewards, long-term relationships, the concept of trust or jointly planned activities that are highlighted in the literature on horizontal collaboration. Participants spoke positively and enthusiastically about the benefits and their involvement in horizontal collaboration activities. They expressed a desire for horizontal collaborations in Australia. evolved in the Australian logistics industry.

Many factors have combined to influence the types of collaboration relationships and how these relationships might be continued among logistics companies in Australia. The organisation of the logistics industry and its stakeholders—size, type, facilities and equipment, and power—and the number of LSPs in different tiers strongly influence how logistics companies work together. In addition, both the structure of collaboration and the area in which LSPs relate influence the type, extension and maintenance of relationships. Moreover, there are opportunities and drivers that motivate logistics companies to consider establishing partnerships with other LSPs. However, there are also obstacles and impediments to setting up a horizontal collaboration relationship and sustaining it in the Australian logistics context. Factors relating to organisation, drivers and impediments to cooperation under specific structures and in different areas of the logistics industry determine how likely LSPs are to choose horizontal collaboration as a feasible way of reacting to uncertainties and how likely these horizontal collaborations are to continue and develop in the Australian logistics context. The data suggest that under these circumstances, horizontal relationships between LSPs in Australia did not evolve and any that happen at all remain in the early stages. There is little evidence then from the interviews to suggest that successful long-term horizontal collaboration is practised at all among LSPs in Australia (Participant No. 4, 16, 20, 26, 33). The logistics practitioners demonstrated that they understood collaboration is more beneficial than competition but attempts at horizontal collaboration with other LSPs have not lasted.

In the next section, the structural factors that affect the almost non-existent development of horizontal relationships in the Australian logistics market are identified.

6.5 Views of LSPs on the Existing Collaboration Structure in the Australian Logistics Industry

The literature shows that structures of collaboration are important for shaping organisational collaboration and helping logistics companies to continue such relationships. Researchers have

studied the structural design of cooperation networks and alliances and reviewed how their partnerships are structured (Klint & Sjöberg 2003; Schmoltzi & Wallenburg 2011; Teng & Das 2008). The organisation of a relationship provides a broader understanding of how collaboration is structured, and which area has the most potential for LSPs to collaborate. One of the aims of this study is to explore the structure of current collaboration among LSPs in Australia and to determine the degree to which it is influenced by horizontal collaboration. The study therefore examined the views of LSPs on the current structure of collaboration in Australia. This analysis referred to the structural factors in the analytical model of Klint and Sjöberg (2003), which include eight areas of collaboration and relevant structural design factors. Considering the logistics and transport industry in Australia, the five most relevant structural factors identified both in the literature and in the data were (1) contractual, (2) organisational, (3) service, (4) resources and (5) geographical scope. Participants were asked about these structural elements in relation to how horizontal collaboration could be adopted and then structured in the Australian logistics context.

6.5.1 Contractual Scope

The composition and organisation of the transport and logistics industry determine and shape how various LSPs develop different types of networks, such as subcontracting agreements, joint ventures, strategic alliances and partnerships. To identify the kinds of formality currently employed by LSPs in the Australian logistics industry, interviewees were asked about the legal form of relationships among companies.

Participants described different types of agreements, but a service level agreement (SLA) was the type of contract chosen by most LSPs in Australia (Participant No. 2, 12, 33). An SLA is a contract between a service provider and end user in which the level of services expected from the service provider are defined and the service standards that the provider is obligated to meet are described. Various criteria including start date, quality and required level of service, warranties and responsibilities regarding services are among the factors to which parties agree and that are defined, to produce a common understanding of the functional and operational area (Participant No. 2, 12). SLAs are short-term and considered operational contracts. Horizontal collaboration elements are missing from SLAs and parties do not plan for partnerships in any functional or operational area. An SLA is an example of a seller–buyer agreement in which there is no joint operation or shared commitment between organisations. Sellers and buyers of the service renew their rates and agree on a new rate schedule after a period, for example, one

year. As the following extract of interview indicates, logistics managers believed that agreements between LSPs were operational, short term and based on buying and selling services. Participant 21 explained:

Most SLA agreements are for one year. And the agreements that we do have in discussions are always put down in writing, so it's clear on both sides, but generally, you talk about rates, then you talk about the terms and conditions, which is a variety of different things there, mostly operational.

Most SLAs between LSPs are either short term or do not prescribe the term of the contract, and rates are renewed after a period. Parties usually communicate via email to agree on new rates (Participant No. 25). For agreements among LSPs and logistics users, however, the story is different. Logistics companies need to cover the risk of their investment and take the whole responsibility about their clients. Therefore, this type of agreement between LSPs and customers tends to be longer. Participant No. 8 from a T1 company spoke about agreements with logistics users, which included investment and preparing resources in some areas. He explained:

The role of the 3PL has evolved quite substantially over past years, so much broader scope of work now and it tends to be more integrated, so contracts [between logistics entities and customers] are much larger and tend to be longer. In the past five years, contracts with clients were highly unusual, and it was mainly three-year contracts. But now the capital expenditure can be quite substantial and can be in the tens of millions of dollars. Therefore, we need long-term contracts to make it viable for both sides to manage the risk associated with anything; so, you know, that has implications for both sides.

The above extract shows that the degree of formality of relationships among LSPs and those between LSPs and customers differed. The data do not suggest that contracts between LSPs were prepared to cover a collaboration between logistics entities. The LSPs did not even refer to their contracts as collaboration or partnership agreements. When these types of agreements were analysed in detail, it became obvious that relationships among LSPs were not collaborations, but simply short-term operational agreements regarding cargo volumes and price.

The data revealed that logistics companies in Australia mostly prefer to either not use agreements or limit their relationship to short-term SLA operating agreements. These types of agreement then do not promote and support horizontal collaboration among LSPs in Australia.

6.5.2 Organisational Scope

The previous chapter showed how the network and organisation of the logistics industry, and industry forces, influence relationships among Australian logistics industry players. To explore the structure of organisational scope in transport and logistics in Australia, interviewees were asked about the number and type of companies in a cooperation and whether these types of organisation promote and support collaboration among LSPs. The data revealed that large logistics users and corporations usually prefer to work with one T1 or T2 logistics company per project (Participant No. 2, 3, 8). They may seek other services like consultation from different tiers of logistics firms but establish their main contracts with T1 or T2 companies. This is because T1 and T2 LSPs are well organised and have the required capability, capacity and knowledge to take the lead and serve customers.

Some interviewees referred to the organisational scope of cooperation and mentioned that there is usually a one-on-one relationship. Participant No. 3 explained:

Normally it's one on one. You have someone looking for the services and the supplier of services. So, the normal in 3PL is the one-on-one contractual relationship. LSPs conclude a legally binding agreement between two parties and not more. Whether it is customers or another logistics company, the agreement is dyadic and not multilateral.

He added that increasing the number of companies in a project caused complexity for the project:

What is more difficult is how you form strategic alliances and how you protect the interests when it's two servicing one. You just make one the subcontractor and have one direct relationship or do you have two agreements? That's what makes it tricky. And if you have a subcontractor, then he must be completely linked to the agreement for servicing of that customer. All of the terms are back to back, so there're no gaps regarding arrangements.

The one-on-one organisation supports large logistics companies in taking responsibility for the services about the customers experiences and working as the sole contact. Most participants expressed the same view. They confirmed that one company is the lead and gathers other service providers to join the project. For example, Participant No. 14 explained the organisation of such a cooperation as follows:

There's usually one company at the top that is the driver and has the contract, and the others are all suppliers. That's all I know.

The data provided no evidence that the organisational scope of cooperation in the Australian logistics context is useful in harmonising the collaboration process. The current organisation of the Australian Logistics industry does not provide a systematic approach to collaboration or facilitate communication between companies and the planning necessary for a continued commitment to collaboration. The current organisation of collaboration in the Australian logistics industry is one on one. Different tiers of logistics companies, particularly large logistics companies, accept full responsibility for the performance of the work about their customers. As Participant No. 26 mentioned, logistics companies want to be:

the only contract door and have all the other parties working for them

and to subcontract activities to other logistics companies. The view of the LSP practitioners of the relationships between LSPs shows that the current organisational structure does not promote and encourage logistics entities to share their capacities and capabilities and thus develop horizontal collaboration.

6.5.3 Service Scope

The service scope of a structure refers to the type of logistics services. This section analyses the LSP representatives' views on different services in which horizontal collaboration could be structured. Road, rail, air, sea, intermodal transport and value-added services are examples of logistics services. The data suggest that LSPs expect that horizontal collaboration can be seen between transport operators in different transport modes (Participant No. 7). As mentioned above, subcontracting of road transport services is a frequent occurrence (Magner 2017). Moreover, T1 logistics companies have good vertical relationships with rail transport providers. They have large volumes of cargo that need to be distributed by rail operators. Therefore, they buy services from rail operators in customer–vendor or buyer–supplier relationships (Participant No. 7, 8). Thus, the respondents expected that the probability of developing and building horizontal collaboration among road operators and road and rail operators would be higher. A senior manager of a T1 company (Participant No. 8) elaborated on how they structured their services with rail operators. The following extract explains this vertical relationship and its distinction from horizontal collaboration, as described in his interview:

In the rail area, we work with Pacific National–Asciano; we would buy services off them, and so what tends to happen is that collaboration tends to be supplier–buyer in which we would buy the service from them. So, in the great majority of cases, the supplier–buyer relationship still holds.

Most of the participants expressed the same view regarding the possibility of LSP relationships in road and rail services. They explained that supplier–buyer relationships form the structure of relationships between LSPs and rail and road operators.

Some company representatives explained that relationships between supply chain actors, such as international freight forwarders and customers, are dependent on services in different warehousing activities and transport modes. Participants discussed how international freight forwarders and customers have a role to play in uniting logistics services in Australia.

The data from the interviews show that international freight forwarders need to cover broad areas of Australia. However, investment in some elements of logistics is costly and not feasible (Participant No. 20). This is because demand is volatile and seasonal in some areas, and international freight forwarders cannot invest in transportation and management of physical distribution (Participant No. 12). Therefore, they prefer to use Australian transport companies as their distribution arms to support their network of logistics services.

Participant No. 12 spoke about how international freight forwarders collaborate to distribute their freight and cover different areas of Australia using Australian LSP services and why this is done. He explained:

DHL, ourselves, DB Schenker and Kuehne & Nagel, we are the top three and then obviously you go further down. Within the global networks, there's not a driver or motivation to have assets on the ground, and without them, you still have to move freight and perform logistics. Generally, with the logistic solutions, the global companies will engage assets, as in leasing or owning land, leasing or be engaging with full-time employees. When it comes to the transfer component, you will generally find that the global freight forwarding companies will engage trading partners, which is mainly in the physical transport area. The reason is that—the driver or motivator is the pure fluctuations in volume.

This extract indicates the possibility of linking LSP services with the branches of multinational freight forwarders horizontally in Australia. However, as discussed earlier, these relationships are based on SLAs and are operational. The international freight forwarders have not shown

any intention of engaging with or developing horizontal collaboration with transport companies in Australia.

Customers may play a significant role in making LSPs work together (Participant No. 8). Some customers vertically collaborate with distribution centres to choose their transport providers. This may occur because they have a long history of working together or with a specific service provider to gain better prices, services and value for their money. Participant No. 16 explained:

They might be historic with it with that particular freight forwarder, or it could be at the distribution end. And they either don't see that there will be benefits for them by us taking the entire supply chain or it could be that part of our supply chain hasn't performed well, and they've chosen to go out to tender and find someone else who is giving them a better price or service. People do tend to test the market fairly regularly in Australia. A lot of the companies who don't have an overseas head office are required to go out every three years and tender their outsource services such as logistics, to make sure they're getting good value for money.

Relationships between LSPs in Australia developed for service provision have and still exist as vertical forms of collaboration and this works strategically for them, therefore precluding any development of any possible horizontal collaboration between them, despite recognition of the potential it offers for business.

6.5.4 Resources Scope

The willingness and commitment of logistics companies to share resources such as technology, experience, facilities, equipment, time and money is a significant factor in the general success and performance of a collaboration (Ghoshal 2004). Participants in this research were asked to elaborate on how LSPs contribute resources to improve collaboration in the Australian logistics context.

Participants' responses regarding 'resource scope' highlighted that logistics companies see resources and capacity of other LSPs as an important business driver, and access to appropriate complementary resources is important for them improving the efficiency of their services (Participant No. 8, 10). LSP representatives explained how complementary resources help to improve the capacity and capability of their services, and supported gaining operational advantages and network access in the logistics industry. Participant 8 mentioned:

Well for me there should be a reason, why do you need to collaborate? To me, that's about you do not have a capability or capacity, or you have a small capacity, and you want to extend that. If that is the case, you might go for someone to help you to provide the other end.

This extract indicates that LSPs think about the benefit of horizontal collaboration through sharing and pooling their complementary resources. However, thinking about the benefits of complementary resources does not mean that horizontal collaboration occurs between logistics companies.

Having a presence in local and rural areas requires resources, network coverage, investment in facilities, equipment and people to be able to serve customers. The data show this is why few logistics providers try to share facilities and services in rural areas with a low volume of cargo (Participant No. 1, 8, 14). Participant No. 14 spoke about resource sharing in rural areas and explained:

One company will own a shed and then charge the others for putting their goods there and doing the distribution out of it. So, if I'm TNT [Thomas Nationwide Transport] and I know for example X company already has a shed, or it will be the freight to that town with low freight volume, I will come to you and say if I can bring my freight here and you distribute it; you charge me \$2 or \$4 to store or deliver.

A collaboration can be extended and sustained by the sharing of tangible and intangible resources across the relationship. The data do not suggest that LSPs participate in information exchange, sharing of assets, joint research and development (R&D), or joint investment in technology. Such activities might indicate a high degree of resource interdependence that drives stronger collaboration.

The data show that even LSPs that do not share resources see resource sharing as a major attraction and motivation to collaborate horizontally (Participant No. 21, 25). Most participants from Australian logistics companies expressed the same view about sharing resources. However, for the logistics companies that do share resources, the relationship was viewed strategically as a transactional activity and was restricted to a willingness to share facilities and equipment, rather than sharing information and playing an active role in making decisions in a collaborative business relationship (Participant No. 13, 20). This business strategy then again seemed to restrict the adoption of any horizontal collaboration, despite recognition of what it can offer.

6.5.5 Geographical Scope

In practice, LSPs link to each other in different areas of the logistics industry. For example, LSPs connect in different places and occasions such as terminals, warehouses and distribution centres, and relate to transport operators in different transport modes.

In this section, the views of LSP representatives on the geographical scope over which horizontal collaboration could be structured are described. LSP practitioners talked about areas where LSPs meet each other, where horizontal collaboration could successfully emerge and be implemented to create advantages for stakeholders in the Australian logistics context. However, the data do not suggest that these relationships will lead to horizontal collaboration.

The LSP representative respondents suggested that Australian logistics is focused on capital and other big cities (Participant No. 1, 4). This is because of the population density, which generates robust demand in big cities. For example, the ports of Melbourne and Sydney are important for container imports. Therefore, these areas are entry points and origins for various cargo such as container freight, which require distribution via urban, intrastate and interstate routes (Participant No. 26). T1 logistics companies dominate in capital and big cities with a large cargo volume. They have ample facilities, equipment and resources in the vicinity of capitals and big cities. Thus, the further away from a capital city and into the hinterland of large logistics companies, the more LSPs need to work together (Participant No. 1). Cargo demand is lower, resources are limited and LSPs need to work together and share resources to cover those areas (Participant No. 1, 4, 14).

Australia is a vast continent with a low-density population with people scattered over many geographic regions and cargo requiring distribution via urban, intrastate and interstate routes (Participant No. 26). Large logistics companies focus on urban areas. Thus, interstate and intrastate distribution is where LSPs might expect to develop more relationships and collaboration (Participant No. 1, 4). Intrastate road transport covers transport routes between capital cities and regional areas within a state but excludes transport services in capital cities or urban transport. Interstate road transport covers services between the capital cities. Participant No. 26 talked about the transport geography of the Australian logistics market. He explained:

Australian logistics is very capital city mainland dominated. So, the further you get from a capital city, the more you will find that people work together informally. So, in regional areas, you will have one transport company who is doing work for everybody. So, geographically,

my opinion is that the further you go away from Melbourne, and Sydney especially, the more collaboration occurs informally.

The interview data show that interstate logistics services and freight distribution to regional areas are activities that might be of interest to LSPs for horizontal collaboration (Participant No. 1, 4). Participant No. 1 elaborated on interstate and regional logistics services:

Large companies need help from other country operators to distribute cargo in regional areas. Therefore, interstate and regional are the possible areas of relationships between LSPs in Australia.

The above extracts emphasise the views of LSPs about collaboration in different geographical areas. Other participants expressed views about the possibility of horizontal collaboration in reducing empty mileage and gas emissions in last mile delivery in Australia.

Last mile delivery is another area that LSPs see as having strong potential for working horizontally with other companies (Participant No. 10). In recent years, the number of the vans and trucks delivering goods to retailers and customers in cities has increased considerably. As a result, big cities are experiencing increased emissions, noise and traffic congestion. Some logistics companies, such as Australia Post and Toll Logistics, have their own urban distribution system consisting of distribution centres, an operating vehicle fleet and an efficient system of distributing cargo and parcels to their customers on a regular basis. Thus, there is an opportunity to share resources and develop strategies such as collaboration in last mile delivery. Such a strategy may result in reduced gas emissions and substantial savings in transport costs, reducing the number of vehicles required for shipments and increasing the utilisation of delivery vehicles. There are possibilities for collaboration in last mile delivery in Australia, as explained by some respondents (Participant No. 10, 14). The importance of last mile delivery is well known as an activity in which logistics companies are able to cooperate to a great extent. Participant No. 10 explained that Australia Post has historical market competence in last mile delivery: ‘postmen’ are an example of specific collaboration in resources, and last mile delivery is an area in which other LSPs consider cooperation with Australia Post:

The relationship we have through our posties with customers and consumers is very, very strong. And that’s because we’re known, trusted and become part of the community, and that’s a lot more than logistics technology.

Participant No. 10 also described the possibilities and benefits of collaborating with other large logistics companies in last mile delivery:

The reason someone [LSPs] would collaborate with us is because we have the biggest last mile network and they have the better economics around it. The reason we would collaborate with Toll or Linfox or Main Freight or someone else is because they probably have the best sorting systems for pallets or the best network and line haul for pallets. And the reason you do that is not because capability per se is important, it's because customers will either want one part of it or as they grow, they are saying we want a total solution that can deal with all of our freight requirements; this is where the last mile delivery is important.

However, Australia Post and other large logistics companies have planned and invested in covering their customers separately. They do not work together and collaboration in last mile delivery is not a strategy chosen by large companies. Therefore, in the last mile delivery and many similar cases such as collaboration in empty haulage and using shared depots, LSPs in Australia cannot make great economic savings and help reduce the number of vehicles required for shipments by increasing the utilisation of delivery vehicles and thereby reducing environmental problems.

Analysis of the views of the LSP respondents on the current structure of collaboration and areas in which horizontal collaboration might be possible for LSPs in Australia showed that logistics companies limit themselves to operational and transactional agreements. They tend to control other related LSPs through a managed service or a subcontracting relationship. T1 and T2 LSPs take over the duty and leadership of the contract from large logistics users and manage the chain by using multiple small and medium logistics companies or even owner drivers (Participant No. 14).

Moreover, for the few LSPs that share resources, the relationship is viewed as transactional and operational (resource scope). The data show that LSPs recognise areas (geographical scope) in which horizontal collaboration could be successfully implemented and employed to achieve the benefits of horizontal collaboration. LSPs consider horizontal cooperation a very promising and prosperous concept, although they need more drivers and motivation and there are severe impediments that must be tackled before horizontal collaboration might flourish on a larger scale.

In all examples discussed above, the data suggest the possibility of emerging and developing horizontal collaboration among logistics companies in Australia. Unfortunately, according to the evidence, such opportunities are not taken by LSPs and they do not participate in making decisions in a collaborative relationship (Participant No. 26, 33). The data revealed that although there is little or no horizontal collaboration, there are signs and eagerness regarding horizontal collaboration among LSPs in Australia. There is the possibility and enthusiasm for LSPs to participate in an active collaborative relationship. However, logistics company relationships are still restricted to operational and transactional activities; this type of collaboration does not develop and has remained in its infancy. Under such conditions, one question that comes to mind is: Why has horizontal collaboration among LSPs not evolved and what are the key influences and drivers that motivate logistics parties to cooperate? The next section considers this question and discusses the key influences and potential drivers to horizontal collaboration in Australia as anticipated by the participants in this study.

6.6 Key Influences on Adoption of Collaboration between LSPs in Australia

Collaboration with other LSPs holds particular promise in the Australian logistics context. However, engaging in relationships seems difficult in practice and much remains to be studied about the key factors that influence the type and approach to collaboration in Australia. This section provides an overview of the factors that have significantly affected the nature of collaboration, and drivers that might motivate LSPs to engage in collaborative activities in the Australian logistics context.

The data from interviews in this research show that a number of factors undoubtedly have contributed to the nature of the partnership in Australia. The type of collaboration has developed around some apparent elements, namely organisation of the logistics industry, history of collaboration and drivers for collaboration.

Firstly, collaboration is perceived as a less an important strategic position than maintenance of competition in the Australian Logistics industry. As explained earlier, the nature and type of collaboration among logistics companies in Australia is influenced by the industry association, size, type and power of the businesses, and industry stakeholders; that is, logistics providers and users (see Chapter 5). The transport and logistics industry is a highly competitive and crowded sector in which companies operate on low profit margins. Competition in the Australian logistics context involves rivalry among logistics providers seeking market share

and increased sales volumes and profits by changing the elements of the marketing mix: price, services and place. Increasing operation costs such as rising fuel costs and increases in customers' expectations regarding the quality of services exacerbate these low profit margins (Magner 2017).

The freight network is a critical component of the Australian economy. Australia is an island continent with a population of around 24 million dispersed over an area of 7.692 million square km. Cargo must be distributed over long distances. Rail transport dominates the movement of heavy cargo over long distances in Australia. However, following closure of many rural lines in the mid-twentieth century, the rail network is no longer operational at a level that could cover the transport demands of cargo and passengers in most rural and countryside areas with low population density (Longworth 2013). The broad geographical area of Australia may impose restrictions on combining the cargo demand and make cargo parcels smaller. Consequently, road transport dominates Australia's non-bulk cargo market because of its advantages in price, speed and access to most areas of the country (Magner 2017). Under these circumstances in Australia, the transport network has a significant effect on how LSPs build relationships to cover the whole market.

There are imbalances in the number, size and power of service providers in the logistics industry. The business structure of the logistics industry consists of different sizes and types of logistics providers (Magner 2017). Major industry players from T1 and T2 logistics companies provide transport and integrated logistics services. The logistics industry consists of a few very large players who dominate the market and differ markedly from the numerous small and medium-sized logistics companies. T1 companies have infrastructure and equipment in different states and high-density cargo volume locations.

In road transport, major T1 logistics companies have significant market power and strong relationships with major logistics users, despite their relatively low market share (Magner 2017). In contrast, because of low barriers to entry to the industry, T3 operators including owner drivers dominate the freight market. Participants can enter the general freight market simply by buying a second-hand light commercial vehicle. Considering the large number of owner drivers and SMEs in the market, the major players simply set prices and subcontract cargo distribution, forcing lower logistics tiers to accept lower profit margins or lose contracts (Magner 2017). In addition to the major players, large logistics users such as large retailers and manufacturers hold market power. Wesfarmers and Woolworths are two major logistics users in Australia. They

usually prefer to work with T1 logistics company players and bestow on them the most lucrative logistics contracts. For example, in 2008, Linfox was granted a AU\$1 billion contract by Wesfarmers to distribute their cargo (Magner 2017). The imbalance in service providers in the logistics industry leads to large T1 companies subcontracting their services to small players. The following interview extract from Participant No. 4 illustrates this point about imbalances and practices in the logistics industry:

Major operators have relationships with large logistics users and have all power and control the market by subcontracting the work to the smaller companies.

Most representatives of logistics companies interviewed here expressed this view and confirmed that larger T1 players such as Toll and Linfox have a disproportionate influence on the logistics market and subcontract a significant part of cargo distribution to other tiers of logistics companies to provide logistics services.

The second factor contributing to the nature of partnerships in the logistics industry in Australia is that companies have not collaborated in the past (Participant No. 10). The strategy of consolidation in the second half of the 1990s led to intense competition and M&A in the UK and the US. Historical links and institutional similarities between Australia and UK united Australian M&A with UK industry consolidation (Karagiannidis 2010). Historically, M&A in Australia led to considerable consolidation in a range of industries including logistics. M&A formed the structure of the industry and the model of relationship among LSPs for many years (Karagiannidis 2010). Consequently, the logistics industry is wary of collaboration; relationships between logistics companies have often resulted in the acquisition of small companies by large players. The following extract from Participant No. 10's interview explains this point:

I think the main reason is like I said before, I think it's more a psychological thing, and it's a history that the industry as a whole has not collaborated in the past. There has also been as you would know a lot of consolidation in the industry globally, a lot of mergers and acquisitions and a lot of what you could describe as a land grab. So, it's a classic trend and we are just caught in the way of this thinking.

This view confirms the effect of the absence of 'historical trust' in collaborations among LSPs and emphasises the complexity of collaboration between LSPs of different size and tiers to increase horizontal relationship activities in the absence of this link.

Under these circumstances, the organisation of the industry influences relationships between LSPs and impedes efforts towards establishing and sustaining horizontal collaboration between LSPs. This keeps LSP relationships at the lowest level of arm's length and operational interactions.

Finally, overall positive driving forces that stem from each party's expectations of cooperation can influence relationships among LSPs. Researchers have identified various drivers, such as commercial gain, improved customer service, management and reduction of costs, improvement in productivity, knowledge creation and market share. One of the primary aims of this research is to identify cooperation drivers expected by LSPs in Australia. Therefore, participants were asked to elaborate on the anticipated primary drivers in establishing and sustaining horizontal collaboration in the context of the Australian logistics sector, which forms the subject of the next section.

6.7 Potential Drivers of Horizontal Collaboration in the Australian Logistics Industry

Various drivers that could/would foster development of horizontal collaborative relationships in the Australian Logistics industry were revealed by respondents in their interviews. They anticipated a promising result from adoption of horizontal collaboration. Logistics firms, they believe, establish horizontal collaborations for several reasons. These can be driven either by internal motives (such as access to better customer service and reduced costs) or external motives (such as market conditions or forming a partnership to penetrate a market). Having analysed the key influences on industry organisation, discussing internal and external motives identified by participants from logistics companies will provide a better understanding of the situation of collaboration in the industry.

Potential drivers that influence the type and way of horizontal collaboration as highlighted by interviewees can be categorised into five main groups: reducing costs; creating capability and capacity; productivity; market position; and customer service.

Nowadays, determining and focusing on commercial gains is essential for institutions. The data show that logistics organisations are no exception to this general rule of business. The data show that expected commercial gains and avoidance of losses are crucial to LSPs' long-term survival and for them to be successful and sustainable in a competitive environment (Participant

No. 1, 2, 4, 10, 12). Thus, it is evident that most potential drivers that are significant for each party stem from commercial gains and losses. As the following extract shows, this issue was indicated in one logistics manager's response. Participant No. 5 stated:

The drivers at a significant level come from the fact that logistics companies consider three broad categories: gain, loss or fear. These factors are significant for each company.

The participants' response confirmed that companies that align collaboration to their strategic priorities inevitably appreciate the commercial benefit. Participant No. 8 focused entirely on the economic drivers and said:

To me, I think it is commercially oriented if there is an advantage on each side then you tend to get the cooperation, obviously within legal grounds.

Most of the LSP representatives expressed the same view and pointed out that expected commercial benefits are important for establishing a successful partnership with other LSPs in Australia. The 'fear factor' also influences each party's expectations of participating in jointly planned activities and sharing information and resources.

The responses of LSP representatives regarding potential drivers of horizontal collaboration in Australia in each area are summarised in Table 6.1 and expanded in the discussion that follows.

Table 6.1: Potential drivers of collaboration in the Australian logistics industry

Potential drivers
Cost
Cost reduction/management
Commercial gain
Minimising capital investment
Cost effectiveness through economies of scale
Capability and capacity improvement
Creating or extending capability or capacity
Improving investment capacity
Increasing buying power
Improving capability
Improving resources
Complementing resources
Offering shared services
Leveraging expertise, knowledge and technology

Potential drivers

Complementarity among collaborating organisations

Legislative management (power and ability to do administration work to comply with laws and regulations)

Market position

Innovative market moves

Increasing market presence and share

Penetrating new markets

Securing contracts

Surviving in a competitive market

Achieving market dominant

Securing volume

Customer service

Providing compelling total solutions and avoiding becoming commoditised

Improving service levels

Providing seamless solutions for customers

Streamlining processes for customers

Customer satisfaction

Quality of services

Productivity

Sharing knowledge and people

Improving operational efficiency (e.g. better lead time, lower delay and less waste)

Securing performance

Enhancing efficiency

Information exchange to enhance productivity and efficiency

Operational synergy and business growth

Maximising return on investment

Performance management

Information visibility

Efficiency in warehousing systems and inventory control, and better space utilisation

Other drivers

Being an information centre, such as an in-and-out centre

Collaborating with universities

Establishing efficient research and R& D groups

Eliminating waste in all its forms

Saving resources (e.g. fuel, labour) and reducing environmental impact

Increasing safety

Gaining a competitive advantage

Opportunity to raise your voice and get things done

Product differentiation

Potential drivers

Sharing risks including financial risk

Avoiding risks, eliminating the headaches of working with so many people in the company and having only with one contact point, which is the collaborating company

To understand the potential drivers and opportunities that affect the type and nature of horizontal relationships between logistics firms, interviewees were asked about anticipated drivers and motives for logistics organisations to enter into a horizontal collaboration. These were identified in table 6.1 as follows.

6.7.1 Cost Reduction

In today's uncertain world, with many changes and challenges ahead, the need to contain and manage cost is as strong as ever. The cost of services is rising while customers are more demanding and expect lower prices. Against this backdrop, to survive and remain competitive, organisations search for any opportunity to reduce costs, not from inside their firm per se, but through collaboration with other players in the supply chain.

Most respondents suggested that the strategic outcomes of horizontal collaboration include the potential for cost savings for logistics companies. Participants anticipated that collaboration with other logistics companies would help to reduce costs. They pointed out where precisely the potential drivers for cost reduction in the Australian logistics and transport context are situated and how they could be leveraged. Cost reduction, cost management, commercial gains, minimising the capital investment of the company and cost effectiveness through economies of scale are among the anticipated benefits that LSPs seek in their relationships. Participant No. 3 from a T1 company spoke about the advantage of sharing risks and reducing costs of services for customers. He explained:

The opportunity to reduce your cost. You can reduce the amount of capital that is needed to invest. So, you can minimise your capital investment ... to get capital is a thing that's always risky investing in capital.

The interview data show that cost reduction is a significant driver for most logistics companies. Most LSP representatives expressed concern about cost reduction and how they might reduce their costs through collaboration in the supply chain.

6.7.2 Capability and Capacity Improvement

In today's constantly changing marketplaces, building organisational capacity and capability across the market is important for a company's success. Having logistics knowledge, expertise and technology is key to effectively meeting a customer's requirements. Capability and capacity creation and improvement makes an organisation agile and responsive to its environment. The interview data analysis revealed that the logistics market is looking for collaboration as a way to create or extend logistics capability and capacity, improve investment capacity and develop company resources. For example, Participant No. 2 talked about opportunities and drivers for collaborating with other LSPs in the market:

The advantage would be capability improvement because sometimes we have no required resources. I guess you can also leverage expertise, knowledge and technology as well.

The opportunity to pool more resources and gain more from greater resource complementarity is another aspect of capacity and capability improvement. Participants stated that collaborating companies could complement each other in different aspects. For example, Participant No. 5 discussed the issue of 'legislative management', which concerns the power and ability to do administration work to comply with law and regulations. He explained how small companies from the T3 level of LSPs in Australia could work together and pool their human resources capabilities to comply with transportation law:

The legislative effort of running a truck on the road is huge. You have to be aware of driver hours, axle weights, loading limits, scheduling and axle spread. Legislation around vehicle use, what vehicles can be used where, load spacing—a massive amount of legislation that you have to comply with in order to effectively operate a motor vehicle. Now for the big boys again that's easy. They have a whole department of 30 people whose job is only to make sure that all the legislative compliance is ok. So, the person operating 20 trucks having to employ someone to do that is not a cost-effective argument. However, the small companies probably can't afford to do that. So, companies could come together and say hey, we're both transport companies. We've both got the same legislative pressures, and we can't afford to employ someone but if we share half the cost each, then we can.

This is one example of many benefits that prospective partners, that interviewees in this study identified they could enjoy from adoption of horizontal collaboration, to enhance their capabilities.

6.7.3 Market Position

According to Kogut (1998), horizontal collaboration in uncertain market conditions may provide the promise for companies of enhancing their market position and competitive advantage. Collaboration can provide a tool for a company to improve its service range, expand its available fleet and geographic coverage, and therefore increase its customer reach.

Participants in the study considered horizontal collaboration with other LSPs as a tool to obtain opportunities such as innovative market moves, market presence and share, securing of contracts, market domination, securing of volume and surviving in a competitive market. For example, Participant No. 2 referred to opportunities concerning market position:

you could collaborate to secure and get the contract; otherwise some companies without collaboration would not be able to stay in a competitive market.

As previously mentioned, with a low-density population and low-volume cargo, in some rural areas in Australia LSPs need to collaborate to have market presence and share. The general consensus of interviewees in this research is that adoption of horizontal collaboration offers the potential to improve their LSPs market position.

6.7.4 Customer Service

One of the primary objectives of collaboration in logistics is the creation of value for customers. Consequently, service quality, service level and customer satisfaction are also acknowledged and anticipated as essential aims of logistics collaboration (Ho et al. 2010; Mason et al. 2007).

The interview data analysis showed that improving service levels, providing seamless solutions for customers, streamlining processes for customers, and increasing customer satisfaction and quality of logistics services are among the benefits that Australian LSPs expect from collaboration.

Participant No. 10 argued that their services would become almost indistinguishable from competing offerings over time if they did not use collaboration to enhance their customer services. He explained:

If we're not in the collaboration space, to prepare a compelling solution to customers or we're not trying to collaborate with other players, there's a real risk that each supply chain player

gets played to the lowest cost, and if we're not careful as an industry, we will end up being completely commoditised.

In the business research literature, commoditization is defined as the process by which goods that have economic value and are distinguishable in terms of attributes (uniqueness or brand) end up becoming simple commodities in the eyes of the market or consumers (Davenport 2005). In commoditised market, competition is price- based leading customers to purely select based on the price of commodity (Strategic Toolkit 2019).

The need for productivity and efficiency of services in today's competitive market is as strong as ever. Collaboration tools empower partners and enable them to offer services to increase productivity with faster execution, improved business processes and powerful teamwork. Agility in meeting customers' requirements and optimally utilising the distribution resources of partners in a horizontal collaboration will improve productivity and profits. In particular, the managers interviewed for the study alluded to the fact that horizontal collaboration would enable them to enhance their productivity and achieve operational efficiency (e.g. better lead times, fewer delays and less waste) and increase company performance. This is demonstrated by the following extract from an interview with a company manager (Participant No. 11):

We have a warehouse management system and radio frequency system for our data. Collaboration would enable us to achieve cost reduction, productivity, value generation for our customers, improving service levels, efficiency in warehousing systems, inventory control and better space utilisation.

Horizontal collaboration was identified in the interview data as a key strategy to achieve better business performance with improved productivity, improved efficiency and therefore more costs savings.

6.7.5 Other Drivers

Additional, widely diverse drivers for collaboration were identified in the interviews with logistics companies seeking collaboration in the Australian logistics and transport context. Some were strategic, such as being willing to act as an information centre, as stated by Participant No. 8:

more likely in-and-out centre, collaboration with universities, R&D groups

or operational, such as the:

elimination of waste in all its forms, saving resources, for example petrol, labour savings, environmental impact savings.

Drivers may even be social, as alluded to by Participant No.4:

Collaboration gives the opportunity to raise your voice and to get things done in front of governments.

These potential drivers as mentioned by LSP representatives relate to the expectation that collaborating parties will gain positive outcomes from their relationships with other parties.

6.8 Conclusion

This chapter focused on horizontal collaboration and considered the relationships and collaboration among LSPs in the logistics industry. It elaborated on different types of relationship between LSPs in the Australian logistics context and studied factors influencing these relationships, including structural and spatial factors, and potential drivers and opportunities for the collaboration.

This chapter began by demonstrating that the dominant type of collaboration in Australian logistics industry is not horizontal, but vertical. The data demonstrate little to no horizontal collaboration in practice among logistics entities. Moreover, any horizontal collaboration efforts between LSPs begin but do not continue to develop and are terminated for many reasons. LSP relationships do not include the key elements of shared risks/rewards, long-term relationships, the concept of trust and jointly planned activities that are highlighted in the literature on horizontal collaboration.

The chapter continued by outlining the existing structure of collaboration among LSPs in Australia. It was argued that collaborations entered into by LSPs are limited to operational and transactional agreements. The companies tend to control each other through a managed service or a subcontracting vertical relationship. For the few LSPs that share resources, the relationship is viewed as a transactional activity restricted to a willingness to share in facilities and equipment, rather than information.

The organisation of the logistics industry and its different elements, history of collaboration between stakeholders and potential opportunities and drivers were shown to be insufficient to

motivate the establishment of a successful long-term horizontal collaboration in the Australian logistics context.

The data revealed that although there is minimal collaboration, there is some enthusiasm and signs of horizontal collaboration among LSPs in Australia. Therefore, one profound question that comes to mind is why horizontal collaboration does not flourish and develop between LSPs and what are the obstacles that impede this type of collaboration? The next chapter considers this important question and examines impediments to horizontal collaboration in Australia as identified by the participants in this study.

Chapter 7: Impediments to Adoption of Horizontal Collaboration Among LSPs in Australia

7.1 Introduction

From the discussion and data analysis in the previous two data chapters, it is evident that the nature of the logistics industry in Australia in itself does not promote or encourage successful long-term horizontal collaboration. The logistics industry in Australia is highly fragmented, profit margins are low, the market is dominated by a few very large LSPs and numerous small and medium LSPs compete to retain their market share. Compare to few very large logistics companies which dominate the logistics market in Australia, in Netherlands fifty large logistics company dominate the Dutch market (Pietres et. Al 2012).

The organisation of the Australian logistics industry, its stakeholders and market segments, opportunities and drivers and collaboration structures identified do not support and create sufficient impetus for sustainable long-term horizontal collaboration among logistics entities. For a detailed explanation about nature of the logistics industry in Australia please refer to section 6.6. Under these circumstances, one question needs to be addressed: What are the obstacles that impede horizontal collaboration among LSPs in Australia? This chapter identifies those impediments and explains their effect on the current extent of horizontal collaboration among LSPs in the Australian logistics industry.

7.2 Impediments to Horizontal Collaboration among LSPs in Australia

Some specific impediments to collaboration contribute to the existing situation and influence how organisations work together. Cruijssen, Dullaert & Hein (2007) argued that until now, researchers have paid little attention to the reasons for failure in business cooperation. Studies have instead focused on success stories and the advantages of collaboration. As a result, it is not well understood how barriers and impediments threaten collaboration between businesses and what their role is in hindering efforts to build successful partnerships (Cruijssen 2007; Zineldin & Bredenl w 2003).

Cruijssen, Dullaert and Hein (2007) summarised the various impediments to cooperation activities reported in academic studies. They argued that these impediments generally come from vertical aspects such as the buyer–supplier relationship. However, their objectives related

to horizontal cooperation as well. According to Cruijssen, Dullaert and Hein (2007), impediments to collaboration can be categorised into four groups: partner selection, partnership process, determining and dividing the gains, and coordination and ICT. To better understand these impediments, the participants in this study were asked to identify impediments to establishing and sustaining horizontal collaboration in the Australian logistics industry. The Australian LSP respondents identified similar impediments to the study of Cruijssen, Dullaert and Hein (2007), as stated above, as well as additional ones.

The participants in this research talked about impediments to collaboration among LSPs in Australia and referred to problems in partner selection and the partnership process, such as coordination and ICT; and those that hinder successful collaboration, such as determining and dividing gains and benefits. For example, Participant No. 2 described cultural aspects as significant impediments in partner selection and the process of partnership:

Integration of that company with your company may be challenging. In a partnership, it is usually challenging to integrate the culture of the people and the level of efforts in two companies. That's why in the first step they make a request for information, which is a vendor assessment to assess their cultural aspects and realise if they can work together or not. For example, to see how they can meet deliveries under different pressure levels.

Determining gains created from cooperation and dividing them fairly among participants in the cooperation is another impediment that some participants mentioned in their interviews.

Participants in the study also mentioned price negotiation and bargaining power of the partners; for example, Participant No. 25 spoke about the power of large logistics companies and explained:

It's very difficult to talk to them [very large companies], they won't listen to you. They are kind of special.

Moreover, partners have problems connecting their IT systems; integrating them to transfer information between partners is difficult. Participant No. 12 explained this issue:

So, 5 to 10 years ago, system integration didn't exist. So, we basically had to rock siloed systems, and we still see that now in some cases. As an example, our domestic air freight company and it's been six months, and we still can't integrate from our system into theirs.

Interviewees also identified core obstacles to collaboration in the logistics industry in Australia that stem from in-depth logisticians' understandings, experiences and perceptions of problems that impede successful horizontal collaboration in this context. Interviewees expressed concern about these impediments. These impediments included:

1. The nature and structure of the logistics industry and the attitude of large LSPs generates forces that impede collaboration among LSPs:
 - Who takes the responsibility/lead?
 - I am big enough/have everything why should I collaborate?
2. The fear of M&A as seen throughout the history of collaboration in Australia.
3. The role of government authorities such as NTC Australia and ACCC.
4. Understanding and appreciation of horizontal collaboration; existence of personalities and egos in logistics companies can restrict collaboration between companies:
 - The overall maturity level of the logistics industry needs to progress; managers switch their jobs frequently and cannot see the value generated from the collaboration.
 - There is a lack of policies and procedures for administrative authority in large companies to undertake effective collaboration selection and implementation.
 - Managers in large companies have incomplete authority and power to make decisions about partnerships.
 - Managers in large companies must approach the upper level of authority in large companies and undertake bureaucratic and complicated administrative procedures.

7.2.1 The Nature and Structure of the Logistics Industry and the Attitude of Large LSPs

LSPs operate within a network of actors (e.g. suppliers, customers and manufacturing companies) that interact through resources and activities. The structure of the logistics industry and operating companies have similarities and differences; for instance, size, type of services, resources, modes of transport, and the skill and knowledge of human resources. Each company plans to maximise its benefits, so the existence of these forces makes it difficult for businesses to collaborate easily (Cruijsen, Cools & Dullaert 2007). The interview data show that within the transport and logistics industry of Australia, global forces—that is, multinational companies (Participant No. 20); and online marketplaces, which are massive volume generators of demand such as eBay, Amazon and Temando—contribute to competition and complexity in the logistics

industry in Australia and thus may impede adoption of horizontal collaboration in the logistics industry. Online marketplaces create and develop demand, and act as retailers in markets (Participant No. 10). They have recently emerged and rapidly grown their online retail activities. For example, Temando is one of the technology players that goes to small and medium businesses and says ‘just tell us what you need in terms of delivery requirements and we will go to the market and secure rates from different delivery firms’. Thus, technology platforms like Temando, are marketplaces with massive volume demand generation. Online marketplaces have fundamentally changed the characteristics of the supply chain in many countries and contributed to the logistics industry, essentially by generating massive volumes of demand online, facilitating cross-border trade and spending vast sums of money on marketing to create and increase a loyal customer base. Participant No. 10 explained how these forces affect the logistics industry:

I think those marketplaces—in particular, eBay, Ali Baba, Amazon and Temando—fundamentally changed the supply chain in the US. I think it was last Christmas, two or three years ago; and the volumes that went through UPS and Fed Ex, which were their preferred suppliers. Their volumes were 20–30% down, and it accounted for substantial losses in that final quarter of the year all because the power that has risen with these guys has been really fast and substantial. They have emerged and developed their activities in Australia recently. All these things happened in the last five years, so the industry’s traditional way of thinking has been turned upside down in a very short period of time.

Emerging global factors are influencing the structure of the transport and logistics industry in Australia (Participant No. 20). Among these factors are changes in global and local economies, intense competition in world markets, shrinking profit margins and ever-more demanding customer expectations. Globalisation and the presence of multinational companies also influence local markets; imported and exported cargo that is usually arranged by branches of overseas multinational enterprises that have domestic and international structures; and knowledge and financial ability (Participant No. 4). Multinational logistics companies have presence in global markets and a vibrant network of infrastructure and superstructure in local markets (Participant No. 1, 2). Global companies usually use their local branches and T2 and T3 LSPs to provide logistics services (Participant No. 12). However, Australia’s logistics market is dominated by T1 enterprises that are not interested in collaborating with foreign companies and using their network of companies to serve the logistics industry (Participant No. 5). Moreover, large logistics users such as Coles and Woolworths increase this complexity by

inviting large companies to work for them in different parts of the logistics industry and separating logistics activities between large logistics companies, which increases competition and as a result impedes collaboration. Each of these players has its own investment and supply chain assets (Participant No. 7) and is in competition over the Australian freight market, which has resulted in significant competition acting as a barrier to collaboration (Participant No. 14).

Ballou (2007) argued that contemporary SCM is a competitive weapon and new boundary for demand generation. This novel viewpoint emphasises leveraging the most from an investment and designing and operating the supply chain to enhance the revenues of a firm. According to Ballou's study, a new objective has emerged affecting supply chains to achieve revenue enhancement and maximise return on supply chain assets. The return on supply chain assets for multinational companies must be promising to motivate them to invest in the required assets in their target countries. Multinational companies in the Australian logistics market require investment in supply chain assets, facilities, equipment, people, resources and network coverage to be able to serve their customers. However, the predicted return on such investment is uncertain (Participant No. 2, 10, 14).

All these conditions add complexity to the logistics market, and LSPs are wary of sharing their rewards and risks, and avoid collaboration when they have uncertain investment without a certain volume.

Participant No. 10 from a T1 company talked about multinational companies and their investment inside the logistics market. He described challenges to collaboration between Australian market players and multinational LSPs in the industry:

So, in terms of context, I would say there's been a lot of capital sunk into this market, in the short term I think there will be a tendency for people and players to ensure that those investments retain their volumes and ideally grow them. So, I think there will be a tendency for many of those players to say we need to take share from Australian logistics players. We need to support our investments; if we're supposed to do that it means that you make some decisions which in the short or medium term are economically irrational, but they sure up the platform and the investment and volumes into those businesses.

When T1 company participants talked about collaboration with other LSPs in Australia, most used words to the effect that, 'I am the lead/have everything, why should I collaborate?' (Participant No. 2, 5, 8, 14, 26). This thinking of big LSP companies influences the nature of

collaboration among LSPs, particularly where T1 and T2 companies are involved in services. The responsibility and leadership of the relationship are also important when these types of companies seek tenders from, or subcontract to, subcontractors. One of the senior managers of a large logistics company (Participant No. 1) mentioned T1 companies' concerns about cooperation and explained:

Yeah, barriers are around some of the things like loss of control, and the empowerment that they lose, so that's a barrier. The other one is, did they lose control over linkage with their customer? Because you're outsourcing that and it depends on where on the customer chain you want to outsource and what barriers you want to put up.

Many factors create difficulties for LSPs when working alone or choosing to collaborate and survive in the Australian logistics industry. These include competition with numerous other LSPs over low-volume cargo requiring distribution over long distances in Australian markets, with low profit margins; and the challenges brought by increased costs, heightened customer demands and conflict of interest between players within Australian logistics industry.

7.2.2 Fear of Mergers and Acquisition

M&A have attracted considerable interest and the attention of researchers, practitioners, governments and business analysts, because of its significant effect on industry structure, economic activity and corporate strategy (Karagiannidis 2010). Historically, there have been many M&As in Australia that have incorporated industry consolidation in different industries, including the logistics industry. According to Participant No. 5, these shaped the structure of the logistics industry in Australia for many years.

In a similar manner to other international M&A and the tendency for worldwide M&A (Karagiannidis 2010; Rusko 2011), some large logistics companies in Australia have chosen acquisition as their development strategy. For example, Linfox, one of the largest operators in the Australian logistics market, referred to acquisition as its growth strategy (Linfox 2019):

Over the years, a new business has grown through acquisitions such as Mayne Logistics, FCL Interstate Transport Services, and Provincial Freight-lines, as well as forming joint ventures, including BevChain with Lion Nathan, and working with Agility Logistics in the resources sector.

CEVA Logistics and Toll Holdings are two interesting stories in M&A. The origins of the CEVA Foundation can be traced back to 1946 when the company TNT was established in Australia based on a single truck owned by Ken Thomas. In 2007, TNT Logistics Australia merged with Eagle Global Logistics (founded in 1984 in Houston, Texas, US) to establish CEVA (Dennis 2006, p. 8). In 2013, CEVA Logistics ranked among the top 10 global and domestic 3PL providers, and as an international logistics network it employs approximately 1,370 people and operates in different areas of transport and warehousing in Australia (Dennis 2006).

In the same way, the Toll Group has a history of acquisition of other companies including Carpentaria Transport (2002), Refrigerated Roadways, IPEC, Finemore Holdings, Strang Stevedoring Australia, ARN Logistics and TNT's port operations (Karagiannidis 2010). The most common reason given for these acquisitions is increasing capabilities, gaining a competitive advantage or larger market share and expanding the service. The acquisition was important for the Toll Group, the biggest player in the logistics industry of Australia, which outlined its specific risks in an ASX and media release on April 2015 (Toll ASX report 2015):

Mergers and acquisitions: Toll has a history of numerous and significant mergers, acquisitions and divestments and there is an intention to continue to conduct such activities in the future. These activities may include risks not identified as part of due diligence and valuation or which may arise during integration with the Toll Group.

One of the Toll Group's strategies is undertaking major mergers, acquisitions and divestment, which has played a critical role in the development of the company and is a significant growth strategy (Toll ASX report 2015):

Since being listed on the Australian Stock Exchange in 1993, we've undertaken a vigorous program of expansion and growth. Strategic acquisitions have played a critical role in our development of the horse and cart operation established by Albert Toll in Newcastle, Australia in 1888 to the global integrated logistics business that Toll Group is today.

Logistics and transport companies in Australia are cognisant of the historical background of acquisitions and are thus afraid of collaboration (Participant No. 1, 10, 33). As Participant No. 5 mentioned:

Collaboration and working together is a threat, you know what? Why don't I just buy you out and I acquire your business into mine and then I can do it on my own? There's a threat of takeover.

Participant No. 10 also said:

the industry as a whole has not collaborated in the past.

M&As have unsettled many companies in the Australian logistics context. For instance, Participant No. 4, an SME manager, mentioned her thoughts regarding the purchase of StarTrack by Australia Post and explained:

Yes, what there is to be sad about is that with every transport company owned by Australia Post what impact does it have? All it does is reflect on what's happening in the marketplace. The reality is that large organisations are becoming increasingly aware of margins and increasing those margins by acquisition. It's a natural thing.

Nonetheless, she continued that this phenomenon is a real concern for SMEs attempting to grow themselves in the market. She explained that:

I understand it is an actual base but the thing is you need to offer something to stay competitive, so the big ones will use you, in that way you're growing. You either grow by acquisition, or you grow by service. Service is the key. The relationship is the key, and partnership is the key. We all have to make a strategic decision whether we continue in one way or acquisition is definitely something that you have to look at.

Participant No. 12, the national transport manager of a logistics company, summed up what many company representatives expressed regarding collaboration with other LSPs:

acquisition in Australia is traditionally based on cornering the market. So rather than ... it's a decline in the traditional sales market as in the sales manager is going out, knocking on doors. Companies have derived that it's easier to acquire a company that is in the market that they want to engage in. So rather than invest in sales, strategy and marketing they're buying the company because they want to invest in that market—what are they acquiring? A customer at the end of the day. So realistically they are buying an asset, but they are really buying the will. So that's what the true acquisition in Australia is about.

Most interviewees expressed a similar view about acquisitions in the Australian logistics market. Thus, it is evident from the data that when LSPs think about collaboration in different parts of supply chains they are concerned about being acquired by their collaborating partners.

7.2.3 The Role of Government Authorities

The existing legal and regulatory frameworks in Australia influence relationships between companies, in ways similar to other jurisdictions globally. For instance, Participant No. 20 from an international freight forwarding company spoke about his experience worldwide:

I think horizontal collaboration is also not something which is being encouraged in European Union, Africa and Australia, by the different rules and legislation on cartel and anti-competitive laws. There are a lot of laws that prohibit people and companies from working together because authorities such as the ACCC are afraid of fixing rates and stuff like that.

Other study participants expressed similar views and concerns about government authorities and their effect on collaboration; and compelling reasons regarding how and to what extent they should collaborate and join in M&A activities. According to Bugeja and da Silva Rosa (2006), the introduction of the Australian Takeovers Panel and implementation of the Eggleston principles in 1968 were significant changes in facilitation and regulation M&A activities in Australia. The general aim was to enhance takeovers and M&A taking place in a competitive, efficient and informed market. Therefore, shareholders and directors should know the identity of bidders; have reasonable time and sufficient information to consider the proposed bid; and have a fair and equal opportunity to take part in any benefits of M&A (Nottage 2007).

The data analysis in this research revealed that most respondents consider that competition and consumer law and regulations restrict relationships among logistics companies in Australia. The following example extract indicates this view regarding collaboration between companies. Similar views were expressed by most LSPs interviewed, who were cautious when discussing the role of government authorities and laws such as anti-competition law, and horizontal collaboration. Participant No. 18 from an international freight forwarding company spoke about his experiences worldwide. He explained:

The other thing is from the ACCC involvement as well in terms of inclusion of rates and services can also be frowned upon and there's laws against that to protect the consumer as well. So again, it's one of those items where if it's grey you will be in trouble if it gets misunderstood.

Participant No. 31, a manager of enforcement coordination in ACCC, said that the objective of the ACCC is to promote competition and fair trade in Australian markets. It primarily conducts initial competition assessments, or cartel assessments, following allegations of anti-competitive conduct that may substantially contravene the *Competition and Consumer Act 2010*. In practice, the ACCC governs and prevents M&A activities that reduce competition among organisations in Australian markets, to support consumers and businesses (ACCC 2017). This issue is reflected in the explanation of Participant No. 31 from the ACCC. He stated:

Australia prohibits any anti-competitive conduct whether that's collusive agreements or misuse of marketing power or some sort of exclusive dealing, and also prohibits mergers and acquisitions that result in lessening of competition.

The ACCC respondents spoke about legal concerns around competition law and collaboration activities among businesses in Australia. Participant No. 31 explained that competition law is generally talks about the prohibitions. The prohibition of anti-competitive conduct includes cartel activity, misuse of market power, exclusive dealing arrangements, resale and price maintenance and M&A that result in a substantial lessening of competition. The ACCC representative's view was cautious about different types of relationships among business entities. For example, when it comes to different types and models of collaboration, he explained that:

We don't like collaboration models. That's probably the simple answer. Collaboration models are like a type of cartel arrangement; it might not be an agreement with all the competitors there, the legal agreement we need, but it's our understanding at the top level that leads to an increasing price because that's what we often see in collaboration models such as a hub and spoke environment. It's not that the allocation of best pricing model or anything like that, it's often a higher price model.

Horizontal collaboration, or concerted practices as stated by Cruijssen (2006), is also not supported by the ACCC as a collaboration type that can add value to customers. It is evident that in the ACCC's view, horizontal collaboration is problematic and classified among the cases that finally increase prices for customers. Participant No. 31 explained:

The other thing which is worth noting—and this exists more in Europe than in Australia at the moment, but that type of arrangement can also be viewed as a facilitated practice or a concerted practice. That's a concept that's not currently under Australia's legal framework; it's something the government is considering; developing a law that would prohibit a

concerted or facilitating practice that results in a substantial lessening of competition. And it's probably something that might happen in the next month or so.

He outlined another example of concerted practices or horizontal collaboration:

I can't think of any good example of concerted or facilitating practice off the top of my head but the US government ran a case that involved a concerted or facilitating practice in relation to an airline booking service, and it was there in the 80s or early 90s. And essentially it was that everyone fed their material into a central control system and then it would match things out and speak things out, but what actually happened through that control centre is that it led to a softening of competition and a situation where prices actually increased rather than responded in a competitive manner. And I think that is why those types of arrangement are a bit problematic.

Horizontal collaboration is also not a priority for government authorities such as NTC Australia. The focus of government authorities such as state and local governments, as explained by the representatives interviewed, is on major problems such as congestion in transport systems, rather than efficiency in the logistics chain. One of the managers of NTC Australia (Participant No. 28) discussed this issue and explained their priority for projects compared with horizontal collaboration:

And for the government to be involved, there has to be a clear problem in their responsibility. This will provide a solution to them. Now, potentially, just looking in Melbourne you have a problem with the eighth largest economy in the country, which is the Dandenong region and the only way the city gets the product to and from Australia is across one road and one bridge. That's a problem. If horizontal sharing collaboration is going to lead to a reduction in the pressure of vehicle and congestion on that road, that's a really strong reason for the state government to be interested and to know how they encourage that collaboration to happen and make sure that's one of the outcomes it delivers. In the absence of something like that, as a motivator and driver, I think you're going to find the market, the industry is out for yourself.

Regulatory authorities' views have a significant effect on how logistics firms define their relationships with other similar companies. Most of the LSP representatives expressed concern that collaboration might be seen as 'colluding and fixing prices (Participants No. 11, 20), or as mentioned by participant no. 26 'controlling or maintaining prices when businesses get together', a clear reason why LSPs in Australia are careful when considering collaboration with other LSPs in the Australian logistics context.

7.2.4 Understanding and Appreciation of Horizontal Collaboration

Another impediment to collaboration in the logistics industry in Australia was identified by some respondents who mentioned that the logistics industry is not sufficiently mature to collaborate (Participant No 3, 20, 26). The following quote from another logistics industry manager (Participant No. 26) explains what is meant by an immature industry:

I think Australian logistics is very immature, commercially immature. It doesn't know how to have these conversations with customers or with other parties. So that's why they fall back on subcontracting, you don't need to have the conversation, and it is what it is.

Interviewees further explained and clarified that an immature industry from their point of view means that: Firstly, there are personalities and egos inside logistics firms (Participant No. 2, 30). Moreover, some logistician does not appreciate horizontal collaboration (Participant No. 14). Also, some logistics managers do not understand what business value horizontal collaboration can create for logistics firms or even what horizontal collaboration should be. As discussed in Section 6.4, some LSP managers mentioned certain types of vertical collaboration with other LSPs and perceived this as horizontal collaboration (Participant No. 2, 7, 9, 17). Thus, there is not enough appreciation of horizontal collaboration in some LSP managers. The following quote from Participant No. 8 illustrates this point:

What you generally will notice is while managers of logistics companies think the relationships between logistics firms look like a horizontal relationship, it is really a vertical relationship between buyers and suppliers.

Managers of logistics companies and logisticians as individuals often are the source of relationships between firms through direct connections, during which both commercial and social communication takes place. Enduring collaboration most often develops social bonds (Tidström 2006) grounded in trust, openness and confidence (Lambert, Emmelhainz & Gardner 1996). Individual character traits such as motivation, values, knowledge and, most importantly, understanding and appreciation are of great significance when companies are considering participating in a partnership (Tidström 2006). As Prajogoa and Olhager (2012) stated, collaboration requires strong support from partners, and on their terms.

Long-term relationships are vital for creating partnerships between companies (Prajogoa & Olhager 2012); therefore, individuals should meet and exchange concerns over a long period, during which companies benefit from the creation and development of commitment and trust

with their partners. Nonetheless, the data analysis here showed that managers of different companies do not interact well with each other. Respondent No 30 explained this point, saying:

Relationships and personalities play a big part in partner selection and finding the right one for the collaboration because behind every organisation there's a person and if the people get along, the rest will happen. The infrastructure and capability would be built for the integration, but if the people and relationship don't happen, it doesn't.

The one and a half years of interview with various logisticians in the logistics industry revealed that managers switch jobs from other business areas to the logistics field as well as among logistics companies. For example, Participant No. 6 mentioned that a person from the retail industry took over his previous position at the senior management level of a company.

SEEK Research (2017) reported that 47% of Australians consider applying for another job somewhere else. Australians establish their careers by moving between companies (38%) or switching to a different company in a similar role (24%). Switching jobs every few years is the new norm (Forbes 2017). Accordingly, the participant Australian managers of logistics companies were also moving from job to job. Individuals are at the heart of relationships between companies and they usually need time to develop these relationships. In light of this, more research is needed in the Australian logistics industry to clarify how logisticians can create and manage relationships between businesses or govern and support cooperation among LSPs.

The logistics managers interviewed could not see how collaboration could generate business value. This further impedes cooperation among LSPs. Participant No. 26 explained this issue:

I don't think that most people see the value in collaborating; they only see the value in getting the maximum return they can and reducing their own risk at losing the work ... I just think collaboration's negotiations are very difficult for most of these managers to do and they don't want to go away and say to their boss I didn't get a great deal. So, they almost don't do anything because it's easier than having the conversation in my opinion.

Another issue that contributes to explaining why Some logisticians refer that the overall maturity level of the logistics industry needs to progress is the level of authority of managers to make decisions about collaboration. Managers in large companies such as Toll, Linfox and Australia Post do not have complete authority and power to make decisions about partnerships and must work with affiliated companies (Participant No. 2). Also, if they wish to cooperate

with a large company they have to deal with its upper management, which makes the process potentially complicated. For example, Participant No. 14 explained:

In my opinion, one of the most significant things is the level of authority, government sign off and hierarchy. The flatter the structure, the easier the collaboration.

Participant No. 30, who had switched jobs from a public T1 to a private T1 logistics company explained his experiences dealing with the different levels of authority in private and public companies:

Within my previous company [public] the vertical integration regarding competitors or suppliers was more difficult. Because there was a lot more compliance and levels of sign off required to be able to work with—here, because we’re a privately-owned business, we have the ability to get a decision a lot quicker ... So private business versus a publicly listed company. That’s harder because there are many levels of sign off. In a public company, you need authority and authority and authority, where here you can walk into the owner’s office and say let’s make a decision. When you’re dealing with Toll, which has the same levels of sign off, two gorillas in a cage it is hard to work with.

These interview extracts indicate that logisticians’ and LSP managers’ level of authority, understanding and appreciation of collaboration has a significant effect on LSPs relationships, through which companies can benefit from the emergence and evolution of commitment and cooperation among partners.

The impediments to horizontal collaboration in the Australian logistics context, identified in the interviews in this research, are summarised in Table 7.1.

Table 7.1: Impediments to horizontal collaboration in Australia

Impediments to horizontal collaboration in Australia
Partner selection
Requires knowledge of partners
Requires level of standards of partners
Requires structure and investment for partnerships
Partner's capability
Partnership process
Internal integration; integration of both companies is difficult
Complexities of integration of the culture of people and level of effort of two companies
Change in expectations and culture of the company
Partnership requires knowledge management
Partnership takes effort and courage and requires agreements and contracts
Training needed to facilitate partner selection
Threat from building up business partners to a level where they become competitors
Coordination and ICT
Requires strategising, planning and managing performance between one and another
Information sharing; divulging information to other LSPs is a risk and threat
Requires system integration
Requires technology integration
Determining and dividing gains
Determining gains from cooperation and dividing them fairly among participants
Price negotiation and bargaining power of participants
Benefit sharing between partners is difficult
Other impediments in Australia
1. Nature and structure of logistics industry and attitude of large LSPs generates forces that impede collaboration among LSPs
2. Fear of M&A as seen throughout the history of collaboration
3. Role of government authorities such as NTC Australia and ACCC
4. good understanding and having appreciation of horizontal collaboration

7.3 Conclusion

The organisation of the Australian logistics industry, opportunities and drivers, and collaboration structure were identified in the first two data chapters as creating insufficient impetus for emerging and sustainable long-term horizontal collaboration among logistics entities. Thus, some obstacles inhibit collaboration between LSPs in Australia, which was the subject of this chapter. The primary objective of this chapter was to gather practitioner perspectives on impediments in the Australian logistics industry.

This chapter reviewed the general collaboration impediments mentioned by respondents and stakeholders from the Australian logistics industry. These impediments were categorised into four groups: partner selection, partnership process, determining and dividing the gains, and coordination and ICT. The data analysis showed that these impediments were frequently identified by the interviewees, who highlighted them as barriers to horizontal collaboration among LSP entities in the Australian logistics context.

The interview data revealed that within the transport and logistics industry of Australia, there are other significant impediments that contribute to collaboration. Among the significant impediments discussed in detail in this chapter were the nature and structure of the logistics industry; the attitude of large LSPs; the fear of M&A; and the role of government authorities. The most significant effect of these impediments to collaboration is that LSPs are reluctant or unable to build long-term successful horizontal collaborations with others in the Australian logistics industry.

The findings of three data chapters can be summarised as follows:

- Similar to other studies, this study found that the dominant type of collaboration among Australian LSPs is vertical collaboration. The data showed us that the extent of direct involvement in developing horizontal collaboration activities in the Australian logistics context remains largely at ‘arm’s length’ and LSPs enter only operational relationships. The interview data did however show that LSPs in Australia believe that there is great potential for the growth of horizontal collaboration in the future.
- Reviewing the data about any form of horizontal collaboration among LSPs in Australia showed that logistics companies which started to collaborate limit themselves to operational and transactional agreements. Tier one and two logistics companies tend to control the other related LSPs through a managed service or a subcontracting relationship. The few LSPs which are sharing some resources limit themselves to sharing physical facilities and equipment, rather than sharing information.
- Potential opportunities and drivers of horizontal collaboration were found to be reducing costs, improving productivity and market positioning, building better capability and capacity, and providing better customer service. These opportunities were found to be inadequate to be able to cope with the impediments to adoption of horizontal collaboration and from long-lasting horizontal collaboration among LSPs in Australia.

The next, final chapter evaluates the findings of the three data chapters in the context of the conceptual framework proposed in Section 2.8. The chapter develops a set of conclusions about the nature, structure, and drivers and impediments to collaboration and validates the proposed model of horizontal collaboration among LSPs outlined in Section 3.7 in the Australian logistics context.

Chapter 8: Discussion and Conclusions

8.1 Introduction

The purpose of this study was to investigate horizontal collaboration among LSPs in Australia. The study examined the extent to which horizontal collaboration exists and is being adopted and how that horizontal collaboration among LSPs in Australia takes form.

In the Australian transport and logistics context, the study aimed to:

1. examine the nature and structure of current collaboration among industry operators;
2. investigate the existence and feasibility of horizontal collaboration; and
3. investigate opportunities and impediments for this kind of collaboration.

To address these aims it was necessary to address three key research questions:

- In the Australian transport and logistics context, what is the dominant form of industry organisational collaboration?
- To what extent does horizontal collaboration exist and is being practised; and what form does horizontal collaboration take among LSPs in Australia?
- What are the major opportunities and impediments to horizontal collaboration and how might it take form (begin, develop and sustain) in the context of the Australian logistics sector?

A qualitative methodology involving semi-structured interviews with logistics managers from Australian LSPs and representatives of industry professional associations were used to collect data. Key informants from the management level were interviewed and their insights studied and examined to understand the specific structure of collaboration in the logistics industry in Australia. This research examined the nature and structure, and drivers and barriers of cooperation among LSPs in the Australian logistics industry.

The findings of this study were influential in addressing the principal research questions. The next sections discuss the key findings in detail and how they contribute to answering those research questions.

8.2 Collaboration among LSPs in the Australian Logistics Context

Given the market relevance of horizontal collaborations among LSPs (Schmoltzi & Wallenburg 2011), an in-depth understanding of major characteristics and the cooperation landscape is crucial. In this regard, this study contributes a comprehensive overview of the Australian logistics industry and its stakeholders (i.e. logistics service users and LSPs), and explains logistics market segments while capturing the full diversity of logistics activities and services in the Australian logistics context. This study extends previous research that was more concentrated on specific elements of the logistics industry. The Australian transport and logistics industry has been described as highly competitive (Pateman, Cahoon & Chen 2016) and this was reinforced by most respondents in this study. In addition, a report on road and rail freight transport in Australia (Magner 2017; McGregor 2017a) concluded that the transport and logistics industry is a highly competitive and crowded sector in which companies operate with low profit margins. Competition in the Australian logistics context is fierce and the increased cost of operation for LSPs caused by rising fuel costs and changed customer expectations regarding the quality of the services exacerbate low profit margins (Magner 2017). The respondents in this study described the logistics industry as a high turnover, low profit margin industry (Participant No. 2, 10, 11,) in which, ‘unfortunately when you collaborate horizontally in markets, there’s margin in margin so there’s doubling of margin. So, your partner has to have their own piece and so do we’ (Participant No. 12). The characteristics of the logistics industry in Australia make it cost sensitive and logistics companies are concerned that they may not make money under ‘margin pressure’ (Participant No. 12).

At a time when economies are struggling with rising business costs, growing environmental concerns and increasing global competitive pressure, exploring ways of doing business more efficiently and cost effectively is essential. These conditions have increased challenges for LSPs globally. Studies in Europe have shown that LSPs find collaboration a feasible way of reaction to these challenges. They cooperate either vertically with suppliers and customers or horizontally with their complementors or competitors (Cruijssen 2007; Schmoltzi & Wallenburg 2011). Studies have also shown that vertical collaboration is more common in practice and easier to implement than horizontal collaboration (Defryn 2017; Renko 2011). To answer the first research question, this study examined different types of collaboration among LSPs in the Australian logistics context. In line with previous researches, this study shows that the dominant type of collaboration among Australian LSPs is vertical collaboration.

The idea of horizontal collaboration has been explored and experimented in certain contexts over the past three decades, but in practice has not been widely implemented in many countries (Cruijssen 2007). LSPs have chosen to cooperate with other logistics entities in supply chains. Studies have shown that horizontal cooperation has increased substantially and during the last decade (Cruijssen 2007), horizontal cooperation has been found to be stable and successful. For example, Schmoltzi and Wallenburg (2011) found that around 60% of logistics entities at the time were involved in at least one horizontal cooperation with other LSPs. In contrast, this study found that although LSPs in Australia consider horizontal collaboration a promising concept that might greatly enhance logistics efficiency and productivity as well as encouraging environmentally friendly operations (Participant No. 4, 6, 7), they were/are reluctant or unable to implement horizontal collaboration (Participant No. 26, 33). The study also revealed that relationships between LSPs tend to be at an early stage (Participant No. 8, 13, 14). LSPs mostly choose to interact in operational, transactional and arm's length relationships. However, they anticipate great potential for the growth of horizontal collaboration in the future (Participant No. 1, 4, 6).

The next section answers the second research question of the study and explains how LSPs interact together and provides an overview about the structure of collaboration among LSPs in Australia.

8.3 The Structure of LSP Collaboration in Australia

Based on the analytical model of Klint and Sjöberg (2003), this study analysed and examined structural characteristics that describe LSP collaborations in the Australian logistics context. The eight structural factors of the model were combined and addressed as five distinct dimensions: contractual, organisational, geographical, service and resource scope. Klint and Sjöberg (2003) also argued that each of these five structural elements determines cooperative conduct and partnership relationships.

In terms of the formality of relationships and contractual scope, this study revealed that LSP cooperation in the Australian logistics context is predominantly based on operational service agreements (Participant No. 2, 3, 16, 17). The study found that logistics companies limit themselves to operational and transactional agreements. Companies tend to control related LSPs through a managed service or subcontracting relationship (Magner 2017; Participant No. 3, 25, 26). Tier 1 and Tier 2 LSPs were shown to take over the duties and leadership of the

contract from large logistics users and manage the chain by using multiple small and medium logistics companies or owner drivers. Logistics companies want to be ‘the only contract door and have all the other parties working for them’. This type of agreement does not promote and support horizontal collaboration among LSPs in Australia. This is in contrast to studies that identified stable long-term horizontal relationships operating predominantly under alternative agreements such as minority stakes and joint venture agreements (Schmoltzi & Wallenburg 2011).

With reference to the organisational scope of relationships, this study revealed that the current structure of the Australian Logistics industry does not provide a systematic approach to collaboration or facilitate communications between companies, and that planning is necessary for a continued commitment to collaboration. The current organisation of collaboration in the Australian Logistics industry is one on one between companies, or bilateral relationships. Large logistics companies accept full responsibility for the performance of work about their customers. The views of LSP practitioners regarding relationships among LSPs show that the current organisational structure does not promote and encourage logistics entities to share their capacities and capabilities and develop horizontal collaboration. This is in contrast with other studies in Europe that have described horizontal cooperation as multilateral and covering a wide range of constellations (Frieze 1998; Gong et al. 2007; Park & Russo 1996; Schmoltzi & Wallenburg 2011).

Data regarding geographical scope indicate that LSPs consider some geographical areas in which horizontal collaboration might be successfully implemented and employed to realise its benefits. However, they do not collaborate to service different geographical areas nationally or at the international level. This contrasts with other research findings that geographical coverage is considered a competitive strategy to penetrate new markets via national or intercontinental coverage (Saxton 1997; Van de Ven & Walker 1984; Oxley & Sampson 2004).

With regard to service scope, previous studies have pointed out that horizontal cooperation predominantly occurs in road service activities (De Kok, Van Dalen & van Hillegersberg 2015; Leitner et al. 2011). In line with these findings, LSPs in the Australian logistics context consider rail and road activities to have the highest potential for collaboration horizontally.

In Chapter 2 the theoretical application of Resource Dependency Theory were discussed. RDT, it was noted concentrates on coordination and cooperation among supply chain players to

generate shared benefits (Paulraj and Chen 2007; Dyer 2000; Dyer & Singh 1998; Kanter 1994). The findings of the study regarding resource scope highlight that logistics companies consider the resources and capacity of other LSPs as a prominent driver, and access to appropriate complementary resources is important for improving the efficiency of their services. The LSP participants explained how complementary resources help to improve their capacity and capability of service and help gain operational advantages and network access in the logistics industry. However, acknowledging the benefits of complementary resources and sharing and pooling of resources does not mean that horizontal collaboration occurs among logistics companies in the Australian logistics context. This is in contrast with the findings of other studies (Gong et al. 2007; Garcí'a-Canal et al. 2003) that have described how collaboration builds on a practical combination of symmetrical and complementary resource sharing.

The next section provides an overview and answers that part of the third research question of the study about the opportunities and drivers of collaboration among LSPs in Australia.

8.4 The Drivers of LSP Horizontal Collaboration in Australia

The empirical data collected during this study highlight collaboration drivers in different areas, similar to those identified in the existing literature (Table 2.1). Cost reduction was the most cited there (Cruijssen, Dullaert & Hein 2007; Min et al. 2006; Todeva & Knoke 2005) and by interviewees in this research. This study found that cost reduction is the most significant driver for LSPs to engage in collaborative initiatives. Capability and capacity improvement in market position, customer service and productivity were also identified by the participants in this study. The study identified that LSPs in Australia consider additional drivers such as strategic or social drivers: for example, collaboration with universities and R&D groups, elimination of waste and savings on resources such as petrol and labour. Together these collaborative initiatives create a source of power for the industry, which Participant No. 4 described as 'Gives you the opportunity to raise your voice and to get things done in front of governments'.

The results of this study extend the findings of other studies. For example, Cruijssen, Cools and Dullaert (2007a) examined opportunities to encourage LSPs in Belgium to engage in horizontal partnerships. Further, Schmoltzi and Wallenburg (2011) showed that almost 60% of LSPs in Germany engage in at least one horizontal partnership. These studies identified cost reduction and productivity as the most significant drivers of cooperation among LSPs. Similarly, the current investigation of factors motivating collaboration decisions in the Australian logistics

context found that cost reduction, and capability and capacity improvement are the most significant drivers.

Having presented the drivers, the next section provides an overview of the relevant impediments to horizontal collaboration (third research question of the study) among LSPs in the Australian logistics context.

8.5 The Impediments to LSP Horizontal Collaboration in Australia

As stated by Cruijssen, Dullaert & Hein (2007), studies in the last decade have not concentrated on problems in forming a collaboration. Rather, researchers have focused on success stories, benefits and advantages of collaboration, and much has been written regarding opportunities versus drawbacks of collaboration. Zineldin and Bredenl w (2003), for instance, argued that 70% of all strategic alliances entered into fail for one reason or another. Despite this finding, they stated that if researchers could identify barriers and reasons for partnership failure, this would provide a better understanding of how to manage and avoid impediments to cooperation in similar conditions. Similar to previous studies, this thesis investigated and examined impediments to collaboration decisions in the Australian logistics context and found that these are related to partner selection, negotiation, determining and dividing gains, and coordination and ICT. The knowledge required about partners, the level of standards partners need to meet, the structure and investment required for partnerships and partner capabilities are among the barriers mentioned by study participants regarding partner selection.

The interviewees also recognised impediments and obstacles that represent core difficulties in collaboration among LSPs in the logistics industry in Australia. Interviewees declared concern regarding the following impediments:

1. The nature and structure of the logistics industry and attitude of large LSPs that generates forces that impede collaboration among LSPs
2. Fear of M&A as seen throughout the history of collaboration
3. Role of government authorities such as NTC Australia and ACCC, and
4. Good understanding and having appreciation of horizontal collaboration.

These new insights regarding factors that impede successful collaboration extend previous findings such as those from the literature review on impediments of collaboration by Cruijssen, Dullaert and Hein (2007).

Also, Cruijssen, Cools and Dullaert (2007) assessed impediments to horizontal collaboration in Belgium. They reported that finding a trustworthy party to work with and building a fair distribution mechanism for the benefits of cooperation were the impediments that their respondents agreed with most. In contrast, the current study of factors discouraging collaboration decisions in Australian transport and logistics found that in this context, M&A, global forces, market segments and structure, T1 LSPs and large logistics users shape the market and work as significant barriers to collaboration among LSPs.

In Australia, the evidence is that although LSPs think that horizontal collaboration may greatly enhance logistics efficiency and productivity, they are reluctant or unable to implement it. This study argues that, in general, existing impediments outweigh possible opportunities for collaboration among logistics companies. The findings of this study will provide stakeholders in the industry with a better understanding of the potential benefits and key impediments to adoption of horizontal cooperation. This will place the industry in a better position to make effective decisions regarding business interactions in relation to the various challenges ahead.

The contributions of this study in extending the existing research literature on collaboration are summarised in Table 8.1.

Table 8.1: A summary of the comparable research findings in the literature review and data analysis

Themes	Literature	Key conclusions from this research
Dominant type of collaboration Abundant literature	Cruijssen 2007; Deepen et al. 2008; Knemeyer et al. 2003; Lambert, Emmelhainz & Gardner 1996; 1999; Renko 2011; Stefansson 2006	Vertical collaboration is dominant mode of collaboration among LSPs in Australia Horizontal collaboration is not practised as a feasible way of coping with changes and challenges in the Australian logistics context; little/no operational horizontal collaboration among LSPs in Australia

Themes	Literature	Key conclusions from this research
Opportunities Reducing costs, creating capability and capacity, productivity, market position and customer service	Cruijssen et al. 2006; Esper & Williams 2005; Nooteboom 2004; Parkhe 1993; Simatupang & Sridharan 2002a; Todeva & Knoke 2005; Zineldin 2004	Findings extend current knowledge on opportunities for horizontal cooperation and provide further evidence from the Australian logistics industry
Impediments Partners, partnership process, determining and dividing gains, and coordination and ICT	Barratt 2004; Contractor & Lorange 1988; Cruijssen et al. 2006; Gibson et al. 2002; Mentzer et al. 2000; Zineldin & Bredenl�w 2003	Findings extend current knowledge on impediments to horizontal cooperation by providing evidences from the Australian logistics context
Impediments in Australia 1. Nature and structure of the logistics industry and attitude of large LSPs generating forces impeding collaboration among LSPs 2. Fear of M&A 3. Role of government authorities such as NTC Australia and ACCC 4. Good understanding and having appreciation of horizontal collaboration		Findings extend current knowledge on impediments to horizontal cooperation and provide further evidence from the Australian logistics industry

Table 8.1 offers a description of the additional knowledge gained from this research about the extent of collaboration and the paucity of adoption of horizontal collaboration by LSPs in Australia. What is also important to do is to use these results to answer the third research question of the study and propose a model of horizontal collaboration in logistics and show how the knowledge uncovered in that context interrelates.

8.6 Proposed Model of Horizontal Collaboration among Logistics Companies in Australia

One of the aims of this study was to propose a theoretical model for understanding the development and practical application of horizontal collaboration among LSPs in Australia. To

this end, the study reviewed existing models on horizontal logistics collaboration (see Section 3.6). This analysis facilitated proposal of a comprehensive horizontal collaboration model and evaluation of its applicability in the Australian logistics context.

Different phases and features of the collaboration model were validated in this study, primarily using the relevant literature as a data source and including relevant key thematic questions and statements in the semi-structured interview guide to support the definition of broad areas of the collaboration model. Similar to Naesens, Pintelon and Taillieu (2007), this methodology resulted in the creation of a stepwise implementation and preservation framework for horizontal collaboration in business logistics relationships.

Figure 8.1 presents a proposed evolutionary model for horizontal collaboration among LSPs in the Australian logistics context based on this research. Consistent with Bowersox et al. (1995) and Lambert, Emmelhainz & Gardner (1996), in this model the logistics relationships are described as a spectrum or continuous scale that contains single transactions or arm's length relationships as the starting point and integrated horizontal logistics collaboration involving numerous complex interactions at the other end. This model utilises trust (Cheng et al. 2008) and the extent of cooperation as its main two dimensions, in which three stages of horizontal collaboration among logistics firms are established, developed and sustained.

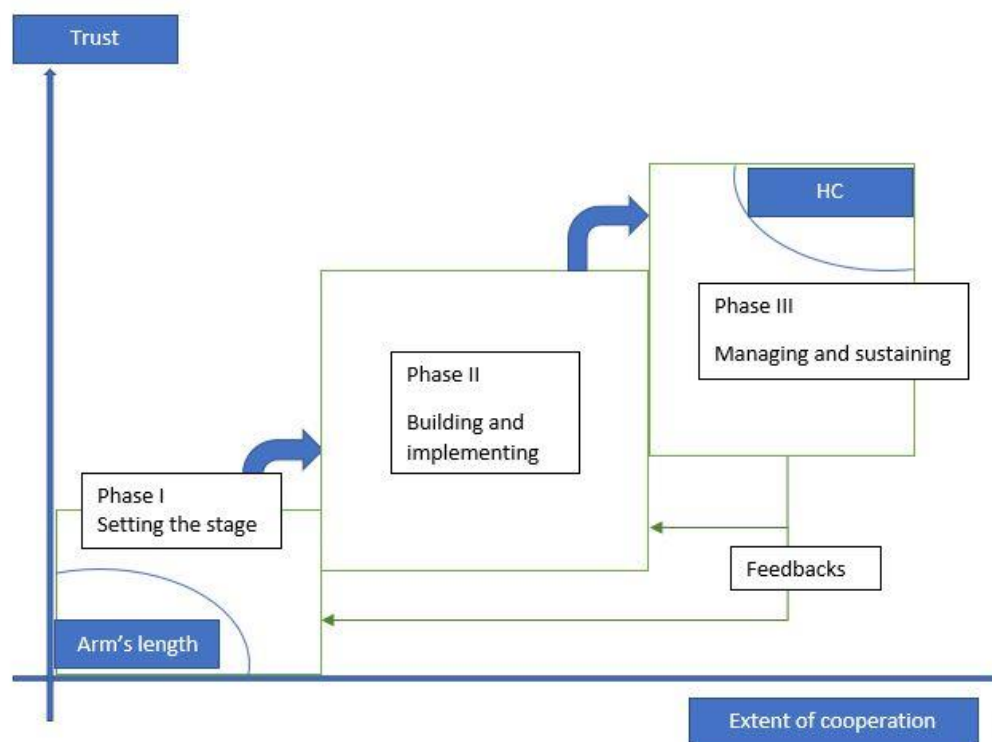


Figure 8.1: Proposed model for horizontal collaboration among LSPs in Australia

Three phases are considered in this model: Setting the stage; building and implementing; and managing and sustaining the horizontal collaboration. Each phase contains different criteria, reflecting conditions for the creation of an efficient horizontal collaboration. Table 8.2 describes various stages of the collaboration model, corresponding factors, relevant literature and relevant thematic questions in the semi-structured interview guide of the study. The next section describes each stage and the related elements of the collaboration model in the Australian logistics context.

Table 8.2: Various stages of the horizontal collaboration (HC) model, corresponding factors, and relevant thematic questions in the semi-structured interview guide

Model phases	Corresponding factors in the model	Key thematic questions for validation
Phase 1: Setting the stage	Opportunities, objectives and intensity of collaboration (operational, tactical, strategic)	Potential opportunities and future of HC in Australia, objectives of HC, structure of relationships and level of collaboration (operational, tactical, strategic)
Phase 2: Building and implementing collaboration	Actors, factors (collaboration structure, drivers and impediments), resources, context and control mechanism (information sharing, gain sharing)	Important stakeholders for HC in the Australian logistics context, potential drivers and existing impediments, how different tiers of LSPs work together, how to sustain HC between LSPs and benefit sharing
Phase 3: Managing and sustaining the collaboration	Management and control, evaluation and feedback	How to support and sustain HC among LSPs, and how different tiers of LSPs work together

8.6.1 Phase 1: Setting the Stage

The first phase, ‘setting the stage’ paves the way and establishes the required conditions under which horizontal collaboration could take form, as well as how they evolve and grow during the time. In supply chains where competition and cooperation coexist, trust is considered a factor that reflects the level of collaboration: that is, the higher the level of trust between partners the more intense the cooperation (Cheng et al. 2008). Moreover, it is broadly

acknowledged that trust is developed as a result of constant interaction and reciprocal knowledge that takes form and evolves on a time horizon basis (Pomponi et al. 2013; Sasaki & Marsh 2012). Consequently, the first stage is important for partners to accumulate relevant experience in collaborative activities to enhance mutual trust.

At this stage, the company establishes its objectives for collaboration. Together, three dimensions define how and to what extent LSPs engage in horizontal relationships: opportunities; objectives; and the three steps of extent of collaboration development (operational, tactical, strategic) identified by Lambert, Margaret & Gardner (1999). This stage paves the way for partners to realise what they can expect from the collaboration. In other words, they are seeking to answer the following questions: what are the potential opportunities that come from this specific cooperation in the logistics industry (opportunities); what are the objectives and how can they be delivered by horizontal collaboration; and what level of collaboration are they planning to reach—operational, tactical or strategic?

In this research, analysis of the data showed that potential or positive opportunities were validated by most participants; they clearly saw the benefits of horizontal collaboration in the Australian logistics context. According to the interview data, collaboration with other LSPs holds specific promise in the Australian logistics context and enhances market position and competitive advantage. Data analysis revealed that collaboration offers many promising opportunities for LSPs in Australia (Section 6.7). For instance, it may provide a tool for companies to improve their service range (Participant No. 26); or expand their available fleet and geographic coverage (Participant No. 25); and therefore, increase their customer reach in the vast Australian continent (Participant No. 11).

For the objectives of collaboration in the model, they were validated by interviewees who confirmed that each LSP had different objectives and expected various benefits out of their objectives from partnerships. This is consistent with the findings of Defryn and Sörensen (2018) that even when each partner has multiple and potentially conflicting objectives, horizontal logistics collaboration may be advantageous for all partners. The third dimension, extent of cooperation, was validated by finding that most collaborations and horizontal relationships tend to be in their early stages in the Australian context, involving operational, transactional and arm's length interactions. Nonetheless, the research identified great potential for the growth of horizontal collaboration in the future.

The first stage of the model is consistent with other models (Cruijssen 2012; Naesens, Gelders & Pintelon 2009; Tuten & Urban 2001) in which potential partners in practice have positive expectations about the opportunities and benefits of collaboration and satisfying the objectives of their collaboration. Moreover, as stated by Tuten and Urban (2001), positive expected benefits (resource sharing, and expected cost reduction through improved efficiency in transaction costs) are the reason to forge partnerships. Upon completion of the first stage—when the objectives are clear, opportunities are positive, and outcomes are promising—logistics firms might anticipate that collaboration can evolve towards the second stage: ‘building and implementation of collaboration’.

8.6.2 Phase 2: Building and Implementation of Collaboration

This stage covers building and implementing horizontal collaboration among LSPs in Australia. In the research framework in Section 2.8, Wood and Gray (1991) named the stage in which collaboration process takes place as the ‘black box’ of collaboration. They argued that the interactive process of collaboration and its components are not clear in the literature, which offers limited understanding. Therefore, to understand collaboration, scholars should examine a dynamic process consisting of the three essential areas of antecedents, process and outcomes of collaboration.

The main results for implementing collaboration among Australian LSPs identified in the interviews with stakeholders regarding horizontal collaboration in the Australian logistics context were primarily based on two primary factors: the control mechanisms and elements of collaboration models. The data suggested that the participants believed there are four key elements in the collaboration model: actors, factors, resources and context. (Figure 8.2).

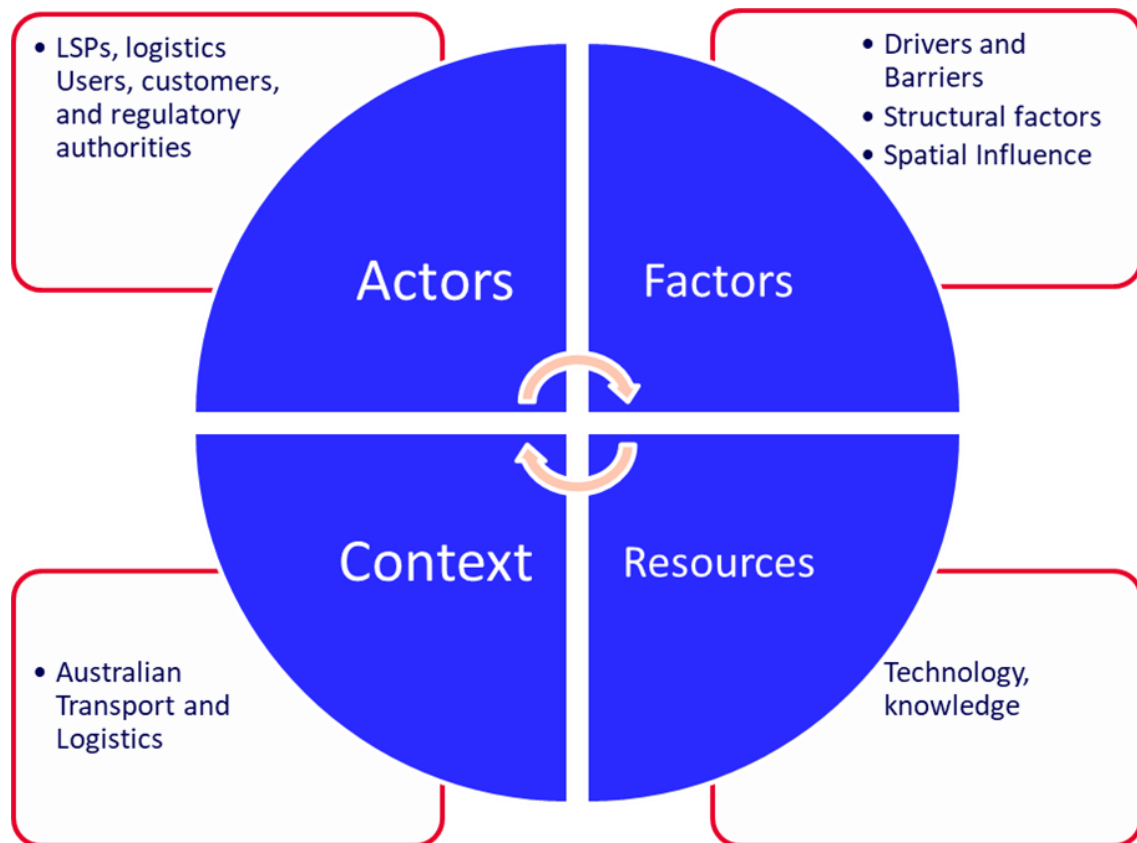


Figure 8.2: Key elements and the concept of a control mechanism in Phase 2

In building and implementing the cooperation stage, actors play a significant role in the success or failure of collaboration. Their actions and roles determine the establishment and development of collaboration over time. The data analysis also revealed that stakeholders at this stage are LSPs, logistics users, customers and regulatory authorities, and that stakeholders choose a ‘hands-on’ approach to governance and control in relationships. The LSP representatives highlighted that the responsibility and leadership of a cooperation are important. Most participants noted concern about who would take responsibility and lead the collaboration. The original research framework (Figure 2.13) argues that governance mechanisms, mutuality and reciprocity are among the most important dimensions facilitating and supporting development of cooperation inside the collaboration ‘black box’. As a consequence, during this stage a framework of governance mechanisms, clear responsibilities, the role of every partner and basic rules around what is required and what is not, must be defined and agreed by collaborating parties. The data analysis showed that relationships between T1 firms/very large LSPs and other tiers of LSPs are essentially power relationships and that such power is unevenly distributed. For example, Participant No. 25 stated, ‘It’s very difficult to talk to them [very large companies], they won’t listen to you. They are kind of special’.

Logistics users and customers form the other significant group of actors in the partnership model. The analysis of the data here suggested that some large users of logistics services, such as Coles and Woolworths, have changed the logistics market in Australia in favour of very large logistics providers (Participant No. 26) to ensure the large user's ability to manage both risk and responsibility. These large users hold the power and can influence the supply chain in Australia based on their demands. They choose to work with a few large T1 LSPs rather than many SMEs and owner drivers because they achieve better visibility, service and support from those large service providers (Participant No. 1). The data analysis also revealed that some customers influence how LSPs work together (Participant No. 8). Some customers collaborate with freight forwarders and distribution centres and select transport providers on the basis of having a long-term relationship with them or believing that working with them will provide better value for money, quality of service and reasonable price (Participant No. 16).

Government authorities such as the NTC and the ACCC are policy makers that create regulatory frameworks that influence and determine relationships among stakeholders in a collaboration and may help or hinder collaboration activities in Australia. The interview data showed that most LSP representatives were concerned about the Australian *Competition and Consumer Act 2010*, regulations regarding anti-competitive legislation and the role of the ACCC in relationships among LSPs in Australia (Participant No. 3, 10, 14, 18, 19, 20, 30, 33). Thus, without the support of significant policy makers and authorities, the model may not be applied, and collaboration may not be established among LSPs in the Australian logistics context.

The other significant elements of this stage is the collaboration context and important factors. Chapter 5 talked about Australian logistics context and Chapters 6 and seven detailed significant factors for collaboration among LSPs in Australia. Two key variables were shown to influence the ability of managers to realise their horizontal collaboration ambitions: environmental driving forces and impeding forces. Driving forces such as cost reduction and improved productivity; improved market position; improved customer service; and resource sharing motivate managers to proceed and practise collaboration. However, impediments such as inter-organisational trust, power relations, and organisational, technological and operational compatibility forms the decisions of managers in the process of a partnership. The role of management is crucial at this stage. Managers use the motivation gained from the first phase to practise a collaborative culture and undertake particular initiatives to cope with impediments. As a result, driving forces overcome resisting forces, prospering collaboration.

The responses from the interviewees in this research highlight that in their opinion, the management of collaborative activities should carefully consider an effective governance mechanism and implement various components of a collaboration in a way in which every element is in the right place to appropriately manage, control and determine the practical work of the components and ensure a successful collaboration mechanism. Management components that might support the implementation and operation of a successful collaboration were also highlighted in studies such as that of Lambert, Emmelhainz and Gardner (1996) and Verstrepen et al. (2006), and include joint planning and operating control communication, risk/reward sharing, trust and commitment, contract style, ICT, and investment and outcomes.

Based on the interview data, the proposed collaboration model covers most of the abovementioned dimensions, which were thus included in the second stage of collaboration among LSPs in Australia. These dimensions were validated by asking respondents what would be the most efficient way to structure and control collaboration among the four groups of stakeholders seeking an active role in the governance mechanism and control of collaborations in the Australian logistics market. The data analysis showed that one possible way to achieve this would be to adopt a technology platform and a neutral party as the convener of the collaboration, as also argued by Wood and Gray (1991).

As technology is growing day by day, it has come to assist many industries including logistics. Online marketplaces such as Ali Baba, Amazon and Temando work not only as demand generators but also as delivery providers (Participant No. 8). They have the tools required to enhance advertising, recognise the right customers, track activity across supply channels and measure and control price, which is an important factor for a customer. The control platform might also be a cross-chain control centre (4C). These have received growing attention in Europe (De Kok, Van Dalen & van Hillegersberg 2015). The term 4C was coined by Van Laarhoven (2008) who highlighted the need for a control centre that manages multiple supply chains. Later, De Kok (2015, p. 6) defined a 4C legal entity as one that, ‘performs supply chain management (SCM) or supply chain execution activities, granted this responsibility by more than one legally independent partner in one or more supply chains’. This definition states that a 4C takes the lead and provides services to collaborating partners responsible for activities in the supply chain. Similar to 4C, the management and control mechanism in the proposed model is a technology platform backed by stakeholders that acts as a front office for different service

providers, utilising synergies and service opportunities that arise from partners' information and shared resources.

The Dutch Institute for Advanced Logistics (Dinalog) introduced 4C in its research agenda. The results of their pilot study of horizontal collaboration among three LSPs in FMCG showed that this type of collaboration results in significant cost savings (−4.8%) and reduced empty mileage (−15.2%) and overall distance (−4.7%) (Dinalog 4C4More 2015). As De Kok, Van Dalen and van Hillegersberg (2015) stated, this was a successful project. However, the implementation of collaboration at a large scale is hindered by several factors including the lack of an effective governance mechanism, potentially incompatible objectives, and limited interest in sharing information and developing a sharing mechanism (De Kok, Van Dalen & van Hillegersberg (2015)).

4PL companies were suggested by Participant No. 26 as neutral entities who might take over the responsibility and leadership of the control centre. He discussed the idea of a trusted independent party who could take the lead:

You need an independent party to join collaborating parties. So, we can create collaboration as a 4PL because we're independent so people are not afraid of us and will let me in their warehouses and let me look at their cross-docks. So, we [4PL] can create it [the collaboration model] because we're trusted. We have no assets, and our commercial benefit is for the customers not to our benefit, which is we make our money from our own intellectual property. So, that's what I would say, and I think that's true, having worked for so many places now I have so much better access and understanding, and I understand all my old competitors much better because I am not a threat.

This thesis does not intend to go into detail about different aspects of a technology platform and control mechanism that might bring stakeholders together into a collaboration in Australia. Future researches should focus on this area and investigate control mechanisms for collaboration parties in logistics networks in the Australian logistics context. A technology platform to facilitate collaboration among logistics stakeholders may be considered the equivalent of Uber in urban transport. Participant No. 8 said that, 'The whole notion of what's happening with Uber is the same as you will see happening in the freight industry'.

The other important aspect of building and implementing partnerships is the issue of determining gains/benefits likely to be created from the cooperation and dividing these fairly

among participants in the cooperation. As shown in Chapter 7, this issue was often mentioned as an impediment to collaboration efforts (e.g. Participant No. 1, 4, 5, 10). This is reflected in the following transcript of Participant No. 10 discussing the collaboration model:

The best structure might be that you arrive at a model where it's a cooperation of shareholders effectively and that way because you have grown the value going in, then you can take the collective value created afterwards and distribute it among the shareholders, based on what their value going in was. That way there's a profit motive; obviously there's more of a profit for the person that has higher value going in but you have to find some way to align the values going forward to an efficient outcome without sort of falling back to the old model of I'm successful and I deserve more than that.

Some studies have considered the question of how total cost or savings from partnerships should be distributed among collaborative parties. For example, Frisk et al. (2010) studied eight forest transportation companies involved in a collaboration in Sweden. The authors proposed several sharing mechanisms based on economic models, such as Shapley value, separable and non-separable costs, shadow prices and volume weights. They also proposed a new distribution method that considers the aim of equal profit to the extent possible among partners. Regardless of the type of distribution, it is essential that partners communicate and agree on a mechanism of allocation of the gains among themselves.

8.6.3 Phase 3: Managing and Sustaining Horizontal Collaboration

The model proposed here argues that the final stage of the successful building and maintenance of a horizontal logistics collaboration lies in the control and sustaining of the relationship. The important dimensions to consider are management and control; and evaluation and feedback.

At this stage, multiple departments and functions within a firm are involved in the collaboration. Partners exchange a substantial degree of information. The model should provide a clear means for dealing with problems, conflicts and tensions that may cause the collaboration to fail. Partners should agree on methods that reduce and manage the frequency of conflict (Lambert, Emmelhainz & Gardner 1996). A great extent of cooperation requires appropriate communication between partners (Ellram 1995) to avoid partnership failure. Organising productive, smart, practical and regular face-to-face meetings is an excellent method for coordination among partners and helps the partnership continue with a smooth relationship and in the right direction (Cruijsen 2012; Lambert, Emmelhainz & Gardner 1996).

Performance review and continuous feedback to different parts of the collaboration model may be of assistance to solve problems and direct partners back to the path to success. Evaluating how a collaboration evolves concerning the elements of trust, power relations and shared risk/rewards are essential in this phase. Parties must establish appropriate key performance indicators for monitoring data to track how well the partnership is performing (Cai et al. 2008).

In this phase, establishing a mechanism for evaluation of performance and provision of feedback regarding both success and failure in response to different factors during each of the three phases may help LSPs to manage, control and move towards sustaining the partnership. For example, positive outcomes for each partner and the collaboration as a whole should be evaluated, and feedback gathered for the relevant components. Drivers should be reviewed and impediments examined to confirm that opportunities are in place and new impediments do not outweigh the benefit of the partnership. This study argues that actors' roles, particularly specifically customers' satisfaction, should be evaluated to ensure that the partnership moves smoothly towards its planned objectives. Resources required for the collaboration should be considered to determine whether the partnership should invest in new resources or plan to enter new markets. Every change in ownership of stakeholders, management of entities or operational activities indicates the need for a re-evaluation of drivers and barriers.

The data show that horizontal collaboration among LSPs is in its infancy and mostly involves operational transactions. Moreover, horizontal collaboration efforts between LSPs often begin but do not continue to develop and are terminated for many reasons. As a result, it is difficult to find a high level of support in the data for the different phases, specifically for managing and sustaining the horizontal logistics collaboration phase. The first major direction for future research is thus to study elements of this proposed model of collaboration and identify cases in which the different phases of the collaboration model can be applied and studied. After several years, more information would be available, and conclusions could be drawn about how different elements might work in practice to support the appropriateness of the proposed framework.

8.7 Implications for Theory

Based on CT, and similar to Wood and Gray (1991) and Thomson and Perry (2006), an interactive process of horizontal collaboration was proposed to assist the study in analysing, developing and validating the constructs of CT, RDT, TCE and GT. These theories are

complementary to explaining developments in horizontal collaboration among LSPs. By considering logistics collaboration as a dynamic process of antecedents–process–outcome, in-depth analysis has been conducted to extend and contribute to relevant theory. In terms of the theories examined in this study, the research findings contribute to CT, RDT, TCE and GT.

By investigating the process of collaboration, this study contributes to understanding the construct and process of collaboration and sheds light on the black box of collaboration investigated by Wood and Gray (1991, p. 143). This study considered governance mechanisms, administration and organisational autonomy by defining a control mechanism in Phase 2 of the proposed horizontal logistics collaboration model that develops and validates the type of relationships among LSPs in the Australian logistics context. The research framework demonstrates a significant effect of theory on the process of collaboration (Figure 8.3 below).

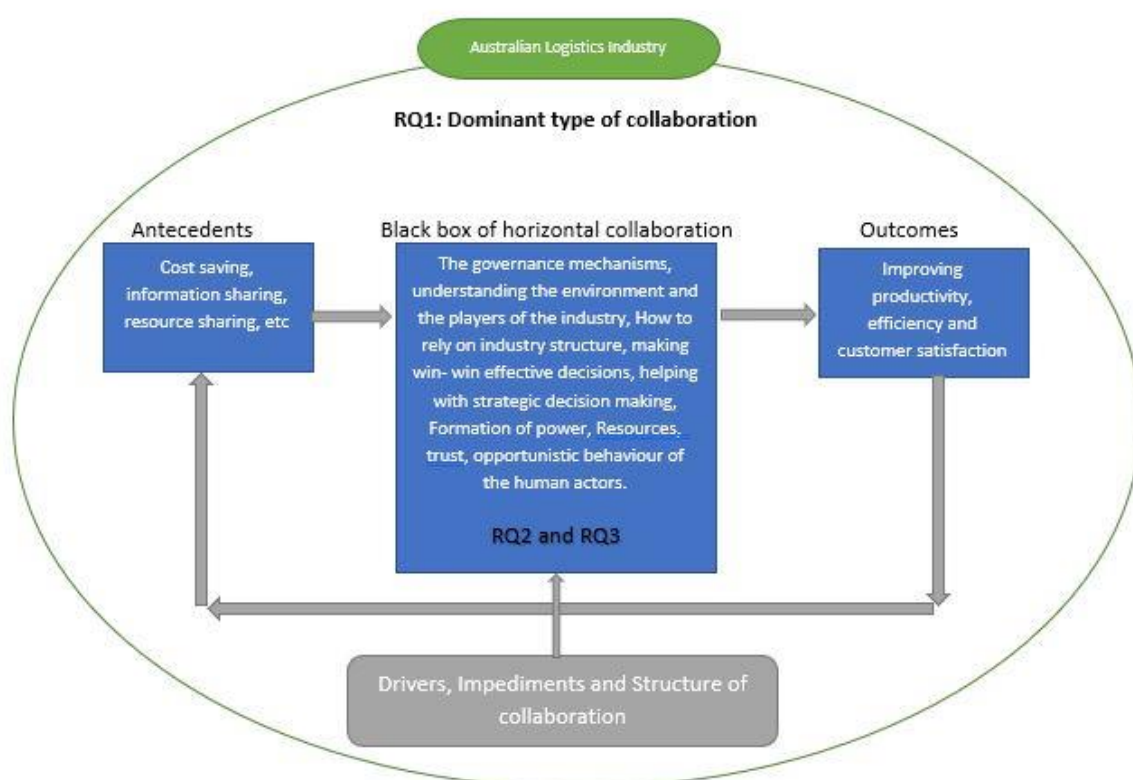


Figure 8.3: Research framework of the study and the effect of theory on the collaboration process

Cost management is the centre of attention of TCE. This study contributes to TCE by demonstrating that horizontal collaboration enables partners to pursue their different

objectives—cost management and reduction being the most cited aims of partners in the Australian logistics context.

This research contributes to RDT and helps supply chain researchers understand how horizontal collaboration initiatives rely on the industry structure and where supply chain members can use their abilities to influence other parties (Pomponi, Fraticchi & Tafuri 2015). Power relations among different tiers of LSPs, market segments and resources; industry structure; and how to rely on industry structure have been investigated to contribute and extend knowledge on application of RDT in business logistics relationships.

This research contributes to GT also by investigating and forming an understanding significant players in the logistics industry. This study investigated logistics users and their important role in shaping the structure of relationships among logistics providers. The data analysis suggested that some large users of logistics services, such as Coles and Woolworths, have reformed the market in favour of T1 logistics providers (Participant No. 26) to ensure their ability to manage both risk and responsibility.

8.8 Limitations of the Study and Future Research

Research resources are not unlimited. All research projects must be planned and executed in accordance with available resources. Research requirements may be categorised as finance, data access and equipment. Conducting research requires money, which may be for travel, expenditure, data collection or help during different phases of the research, such as data analysis. In addition to limitations of time, money and personnel, a researcher's task is handicapped by the extent to which their own knowledge and experience in the area are imperfect, and certain practical and ethical considerations constrain them in designing and executing their research plans.

From the perspective of this researcher, a real challenge in this study was the shortage of primary data and access to necessary information from logistics companies inside Australia. This is because logistics experts are typically busy and have little time to respond to researchers, especially academic researchers from universities. Through the support of the logistics association e.g. Supply Chain and Logistics Association of Australia, Asia Pacific Logistics Federation, and logistics experts from within companies, this study managed to access logisticians from different logistics companies involved in different logistics activities.

This study focused on ongoing relationships and cooperation already in place between LSPs at the time. This study thus excluded cooperation activities that had already been terminated. Research on failed and terminated cooperation among LSPs in Australia would be beneficial to expand knowledge on collaboration failure and the scope of analysis.

Collaboration is a dynamic process and is not fixed in time (Audy et al. 2010). The environment and other parameters in a collaboration change constantly during building and sustaining partnerships among LSPs in Australia. Drivers and objectives of horizontal collaboration change continuously during the partnership process; customer expectations are rapidly evolving and new rules, regulations and actors are entering the Australian logistics context. This suggests that future research might focus on addressing questions such as how stakeholders in a horizontal collaboration should consider this dynamic change up front; and how an efficient evaluation and control mechanism might be developed to review various parameters regarding collaboration in Australian logistics context.

In spite of these limitations, this study provides important insight into horizontal logistics collaboration. This work, along with other studies, shapes and contributes to a strong emerging research stream that will improve understanding of the model of horizontal collaboration and horizontal relationship initiatives.

This study suggests areas for future studies on the model of horizontal logistics collaboration to examine questions outlined here regarding how the control mechanism centre in the collaboration model might implement various components of collaboration in a way that every element is in the right place to appropriately manage, control and determine the practical work of the components, and ensure a successful collaboration. This control centre will enable conflict resolution and communication behaviour of the partners as suggested by Mohr and Spekman (1994).

Future researches should provide insights into the quotes from logisticians, who called the Australian logistics industry immature and investigate how overall industry maturity level can be progressed. Besides, as mentioned by some respondents in their interviews, what is the impact of having egos in the logistics companies? Using different methods of data analysis, such as the Delphi method allows for multiple rounds of data collection and examination until a high level of consensus is achieved.

Further investigation and experimentation are needed to assess whether the nature of logistics industry effects on the collaboration between stakeholders and Logistics service providers or not?

Future researches could focus and investigate how Horizontal and vertical collaboration can combine together as network collaboration.

8.9 Conclusion

Given the relative importance of horizontal collaboration attributed to potential improved business performance among LSPs, a thorough and in-depth understanding of key characteristics and significant factors in different supply chains is vital. The study found that horizontal collaboration is not being adopted by LSPs as the primary type of relationship to interact with each other in Australia. Their focus is the use of both vertical and lateral collaboration models, with vertical collaboration as the dominant type. The study also shows that the extent of direct involvement in developing horizontal collaboration activities in the Australian logistics context is very limited and LSPs only enter operational relationships. The participants, whilst they acknowledge and anticipate that the level of horizontal collaboration will grow in the future. There is clear enthusiasm and interest in the thinking of the logistics industry about horizontal collaboration, its possibilities, potential drivers, structures and the areas where this type of collaboration could be implemented and employed in Australia.

This study contributes the first comprehensive examination of the opportunities, structure and impediments to horizontal logistics collaboration in the Australian logistics context. This study found that cost reduction is the most significant driver for logistics companies to join in collaborative initiatives. Customer service and productivity and capability and capacity improvement in market position were also recognised as collaboration opportunities by the participants in this study. Together collaborative opportunities were noted by the LSPs as a means to develop a source of power within the logistics industry in Australia.

This study also showed that the adoption of horizontal collaboration in the Australian Logistics industry is impeded by difficulties with partner selection; problems with the partnership process and how economic benefits are determined; and uncertainty about how to overcome difficulties with both business coordination and with information and communication technology. The research also identified that collaboration adoption is significantly negatively affected by the nature and structure of the Australian Logistics industry itself, by the existing attitude of large

and dominant LSPs, by fear of mergers and acquisitions in the industry and by the controlling role of government regulatory authorities and by laws and regulations in the Australian commercial context. The most significant effect of these impediments on adoption of horizontal collaboration is that LSPs are reluctant or have been unable to build long-term successful horizontal collaborations with others in the Australian logistics industry.

This research considered the full diversity among logistics firms and logistics activities in Australia and proposed the first comprehensive horizontal logistics collaboration model. The elements of the model were derived from and are validated in the data collected and analysed in this research, based in the Australian logistics context. This model (Figure 8.4) proposes an efficient way that form and control collaboration using stakeholders of the Australian logistics context.

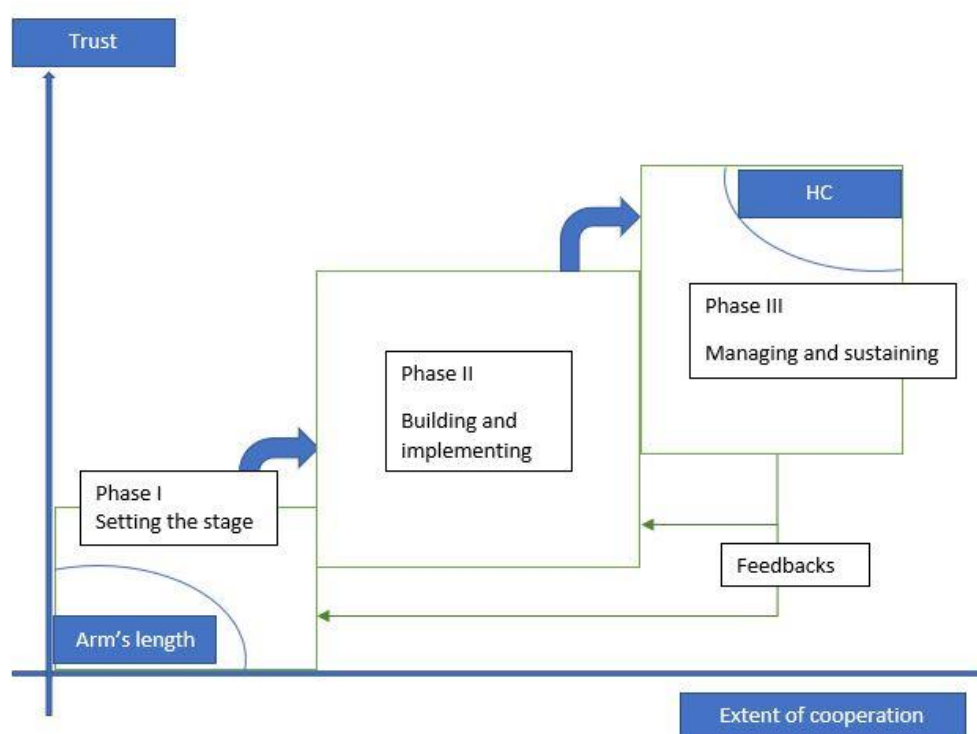


Figure 8.4: Model of horizontal collaboration development among LSPs in Australia

In the first phase, ‘setting the stage’, LSPs establish the required conditions under which mutual trust among partners evolve during the time and horizontal collaboration could take form.

At this stage, the proposed evolutionary model assumes an incremental perspective which features how to interact to meet potential opportunities and the coherent aims. LSPs develop

mutual trust alongside their relationship's construction planned to reach operational, tactical or strategic extent of cooperation.

Phase 2, 'Building and Implementation' and phase 3 'Managing and Sustaining' Horizontal Collaboration are stages of successful making and maintaining a horizontal logistics relationship in Australia. The role of management is crucial at these stages. Managers use the motivation gained from the first phase and support growth of the collaboration using the management components identified by some authors such as Emmelhainz and Gardner (1996) and Verstrepen et al. (2006), to practise a collaborative culture and undertake particular initiatives to cope with distinguished impediments. As a result, driving forces overcome impeding forces, flourishing collaboration. Logistics managers facilitate employing management components such as joint planning and operating control communication, risk/reward sharing, trust and commitment, contract style, ICT, and investment and outcomes to cope with impediments and maintain the growth of the horizontal collaboration.

The proposed technology-based control mechanism which links four groups of stakeholders under the management of a 4PL neutral convener eliminate or reduce identified impediments such as fear of mergers and acquisition and power relations between different tiers of logistics companies in Australia. This is because each stakeholder sends the data to the platform and data do not share between them. The control mechanism handle received data in a secure and confidential way. This process assures partners and regulatory authorities that control mechanism contributes to partner selection and perform fair allocation of benefits and costs. This platform can facilitate access to data for government authorities such as NTC Australia and ACCC, thus strengthens the horizontal logistics relationships and LSPs concern about collusion are more likely to be resolved or decreased in the Australian logistics context.

This collaboration model introduces a strategic decisional framework for the building and implementation of the horizontal logistics collaboration with a specific focus on resolving impediments in the Australian logistics context and adds knowledge to contribute to the concern of 'a major theoretical and practical shortcoming' argued by Naesens, Gelders & Pintelon (2009, p. 550).

This thesis focused on understanding the key elements of horizontal cooperation initiatives and designing and implementing horizontal collaboration among logistics parties. It has then both

contributed to and extended the literature focused on individual variables and facets of collaboration.

REFERENCES

- Abbasi, M & Nilsson, F 2016, 'Developing environmentally sustainable logistics', *Transportation Research Part D: Transport & Environment*, vol. 46, pp. 273-283.
- Accenture 2002, '*European CPFR Insights*', ECR Europe, Brussels.
- Adenso-Díaz, B, Lozano, S, Garcia-Carbajal, S & Smith-Miles K 2014, Assessing partnership savings in horizontal cooperation by planning linked deliveries, *Transportation Research Part A: Policy & Practice*, vol. 66, pp. 268-279.
- Aertsen, F 1993, 'Contracting-out the physical distribution function: a trade-off between asset specificity and performance measurement', *International Journal of Physical Distribution & Logistics Management*, vol. 23, no. 1, pp. 23-29.
- Amer, L & Eltawil, A 2014, ' Collaborative sustainable supply chain network design: state of the art and solution framework', *Proceedings of the 44th International Conference on Computers & Industrial Engineering*, Istanbul, Turkey, pp. 479–493.
- Anderson, J C & Narus, J A 1991, 'Partnering as a Focused Market Strategy', *California Management Review*, vol. 33, no. 3, pp. 95-113.
- Anderson, E 1985, 'The Salesperson as Outside Agent of Employers: A Transaction Cost Analysis', *Marketing Science*, vol. 4 , pp. 234–45.
- Armstrong, JS & Clark, T 1997, ' Review of Nalebuff and Brandenburger, Co-opetition', *Journal of Marketing*, vol. 61, no. 2, pp. 92-95.
- Arumugam, V, Antony, J & Douglas, A 2012, 'Observation: A Lean tool for improving the effectiveness of Lean Six Sigma', *The Total Quality Management Journal*, vol. 24, no. 3, pp. 275-287.
- Arskey, H & Knight, P 1999, *Interviewing for Social Scientists*, London: Sage
- Audy, J-F, Lehoux, N, D'Amours, S & Rönnqvist, M 2010, 'A framework for an efficient implementation of logistics collaborations', *International Transactions in Operational Research*, vol. 19, pp. 633-657.
- Australian Logistics Acquisition Investments Pty Ltd, Available from:<
<https://www.bloomberg.com/profile/company/1433781D:AU>>.[2 July 2019].
- Australian Logistics Council 2014, *Annual report 2013-2014*, Available from:
<http://austlogistics.com.au/wp-content/uploads/2014/03/ALC-Annual-Report.pdf> >
[19 June 2019].

- Australian Trucking Association 2016, '*Description of truck configurations*', Available from: <<https://www.truck.net.au/sites/default/files/TAPs%20-%20description%20of%20truck%20configuration%20September%202016.pdf>>. [29 June 2019].
- Bahinipati, BK, Kanda, A & Deshmukh, S G 2009, 'Horizontal collaboration in semiconductor manufacturing industry supply chain: an evaluation of collaboration intensity index', *Computers and Industrial Engineering*, vol. 57, no. 3, pp. 880-895.
- Bahrami, K 2003, *Horizontale Transportlogistik-Kooperationen: Synergiepotenzial für Hersteller kurzlebiger Konsumgüter [German]*, Deutscher Universitäts-Verlag, Wiesbaden Köln.
- Ballot, E, Fontane, F 2010, 'Reducing transportation CO2 emissions through pooling of supply networks: perspectives from a case study in French retail chains', *Production Planning and Control*, vol. 21, no. 6, pp. 640-650.
- Ballou, RH 2007, 'The evolution and future of logistics and supply chain management', *European Business Review*, vol. 19, pp. 332-348.
- Barnard, C 1938, '*The functions of the executives*', Harvard University Press, Cambridge.
- Barney, JB 1991, 'Firm resources and sustained competitive advantage', *Journal of Management*, vol.17, pp. 99-120.
- Bartlett. C & Ghoshal, S 2000,'Managing across Boundaries: The Collaborative Challenge', *Cross-Border Management*, pp. 403-502.
- Barratt, M 2004, 'Understanding the meaning of collaboration in the supply chain', *Supply Chain Management*, vol. 9, pp. 30-42.
- Barrat, M A & Green, M 2001, 'The cultural shift: the need for a collaborative culture', *Conference proceedings of supply chain knowledge*, Cranfield School of Management, Cranfield, pp. 1- 13.
- Barringer, BR & Harrison, JS 2000, 'Walking a Tightrope: Creating Value Through Interorganizational Relationships', *Journal of Management*, vol. 26, no. 3, pp. 367-403.
- Bedwell, WL, Wildman, JL, Diazgranados, D, Salazar, M, Kramer, WS & Salas, E 2012, 'Collaboration at work: an integrative multilevel conceptualization', *Human Resource Management Review*, vol. 22, pp. 128-145.
- Bengtsson, M, Eriksson, J & Wincent J 2010', 'Co-opetition dynamics an outline for further inquiry', *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*, vol. 20, no. 2, pp. 194-214.

- Bengtsson, M. & Kock, S 1999, 'Cooperation and competition in relationships between competitors in business networks', *Journal of Business & Industrial Marketing*, vol. 14, pp. 178-194.
- Bengtsson, M & Kok, S 2000, 'Coopetition in business networks to cooperate and compete simultaneously', *Industrial Marketing Management*, vol. 29, pp. 16.
- Bengtsson, M & Kock, S 2014, 'Coopetition Quo Vadis? Past accomplishments and future challenges', *Industrial Marketing Management*, vol. 43, no. 2, pp. 180-188.
- Berglund, M, Van Laarhoven, P, Sharman, G & Wandel, S 1999, 'Third party logistics: is there a future?', *International Journal of Logistics Management*, vol.10, no.1, pp. 59-70.
- Best, JW & Kahn, JV 1998, '*Research in education*', Allyn and Bacon, Boston.
- Bititci, U S, Martinez, V, Albores, P & Parung, J 2004, 'Creating and Managing Value in Collaborative Networks', *International Journal of Physical Distribution & Logistics Management* , vol.34, no. 3/4, pp. 251-268.
- Blaikie, N 1993, '*Approaches to Social Enquiry*', Polity Press, Cambridge.
- Bleeke, J & Ernst, D 1995, 'Is your strategic alliance really a sale?', *Harvard Business Review* , vol. 73, pp. 97-105.
- Bluestar Global Logistics 2017, Available from:< <http://www.bluestarlogistics.com.au/>>. [17 September 2017].
- Boateng, W 2012, 'Evaluating the Efficacy of Focus Group Discussion (FGD) in Qualitative Social Research', *International Journal of Business and Social Science*, vol. 3, no. 7, pp. 54- 57.
- Bogdan, R & Biklen, SK 1992, '*Qualitative Research for Education: An Introduction to Theory and Methods*', : Allwyn and Bacon, London.
- Bonacich, E & Wilson, JB 2008, '*Getting the goods : ports, labour, and the logistics revolution*', Cornell University Press, Ithaca.
- Bonel, E & Rocco, E 2007, 'Cooperating to Survive; Surviving Coopetition', *International Studies of Management*, vol. 37, no. 2, pp. 70-96.
- Borsodi, R 1929, '*The Distribution Age*', D. Appleton & Co, New York.
- Bowersox, D J 1990, 'The strategic benefits of logistics alliances', *Harvard Business Review*, vol.68, no. 4, pp. 36-43.
- Bourlakis, C & Bourlakis, M 2005, 'Information technology safeguards, logistics asset specificity and fourth party logistics network creation in the food retail chain', *Journal of Business and Industrial Marketing*, vol. 20, no. 2, pp. 88-98.

- Bowersox, D J, Closs, D J & Stank, T P 2000, 'Ten-mega trends that will revolutionize supply chain logistics', *Journal of Business Logistics*, vol. 21, no. 2, pp. 1-16.
- Bowersox, DJ, Mentzer, JT & Speh, TW 1995, 'Logistics leverage', *Journal of Business Strategies*, vol. 12, no. 2, pp. 36-49.
- Brandenburger, A M & Nalebuff, B J 1996, '*Co-opetition*'. Doubleday, New York.
- Brandenburger A M & Nalebuff, B J 1997, 'Co-opetition' *Journal of Marketing*, vol. 61, no.2, pp. 1-92.
- BransTrans 2019, Available from:< <https://www.branstrans.com.au/>>. [1 July 2019].
- Bryman, A 2001, '*Social Research Methods*', Oxford University Press, Oxford.
- Casey, K. 1993, *I Answer With My Life: Life Histories of Women Teachers Working For Social Change*, Routledge, New York.
- Bugeja, M & Rosa Da Silva, R 2006, 'Raising the takeover threshold in Australia: issues and evidence', *The Australasian Journal of Applied Finance*, no. 1, pp. 33-38
- Bumstead, J & Cannons, K 2002, 'From 4PL to managed supply chain operations', *Focus*, May, pp. 18–25.
- Bureau of Infrastructure, Transport and Regional Economics 2014, Freightline 1 – Australian freight transport overview, Available from < https://www.bitre.gov.au/publications/2014/files/Freightline_01.pdf>. [3 July 2019].
- Burgio-Ficca, C 2017, '*IBISWorld Industry Report I5309, General Warehousing and Cold Storage in Australia*', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- Cai, J, Liu, X, Xiao, Z & Liu, J 2009, 'Improving supply chain performance management: A systematic approach to analysing iterative KPI accomplishment', *Decision Support Systems*, vol. 46, no. 2, pp. 512-521.
- Cao, M & Zhang, Q 2011, 'Supply chain collaboration: Impact on collaborative advantage and firm performance', *Journal of Operations Management*, vol.29, no. 3, pp. 163-180.
- Carbone, V & Stone, MA 2005, 'Growth and relational strategies used by the European logistics service providers: Rationale and outcomes', *Transportation Research Part E: Logistics and Transportation Review*, vol. 41, no. 6, pp. 495-510.
- Caputo, M & Mininno, V 1996, 'Internal, vertical and horizontal logistics integration in Italian grocery distribution', *International Journal of Physical Distribution & Logistics Management*, vol. 26, pp. 64-90.
- Ceniga, P & Sukalova, V 2015, Future of logistics management in the process of globalization, *Procedia Economics & Finance*, vol. 26, pp. 160-166.

- Cesari, G, Lucchetti, R & Moretti, S 2017, 'Generalized additive games', *International Journal of Game Theory*, vol. 46, no. 4, pp. 919-939.
- Chen, KH & Su, CT 2010, 'Activity assigning of fourth party logistics by particle swarm optimization-based pre-emptive fuzzy integer goal programming', *Expert Systems with Applications*, no.37, pp. 3630-3637.
- Cheng, JH, Yeh, CH & Tu, CW 2008, 'Trust and knowledge sharing in green supply chains', *Supply Chain Management: An International Journal*, vol. 13, no. 4, pp. 283-295.
- Cherington P T 1976, *Advertising as a Business Force: A Compilation of Experiences*, Ayer, Manchester.
- Chin, KS, Chan, B L & Lam, P K 2008, 'Identifying and prioritizing critical success factors for coopetition strategy', *Industrial Management & Data Systems*, vol. 108, no. 4, pp. 437-454.
- Christopher, M 2011, *Logistics and Supply Chain Management*, Pearson Education, Harlow.
- Clausen, U, De Bock, J & Lu, M 2016, 'Logistics Trends, Challenges, and Needs for Further Research and Innovation', in *Sustainable Logistics and Supply Chains Innovations and Integral Approaches*, Springer International Publishing, Switzerland, pp. 1-13.
- Clift, R T, Veal, ML, Holland, P, Johnson, M & McCarthy, J 1995, *Collaborative Leadership and Shared Decision Making: Teachers, Principals, and University Professors*, Teachers College Press, New York.
- Cohen, L, Manion, L & Morrison, K 2007, *Research Methods in Education*, Routledge, London.
- Contractor, F & Lorange, P 1988, 'Competition vs. Cooperation; A benefit/cost framework for choosing between fully-owned investments and cooperative relationships', *Management International Review*, vol.28, pp. 5-18.
- Cooper, C, Dewe, P & O'Driscoll, M 2001, *Organizational Stress: A Review and Critique of Theory, Research, and Application*, Sage, California.
- Cooper, DR & Schindler, PS 2011, *Business Research Methods*, McGraw-Hill, New York.
- Coyle, J J, Langley, CJ, Novack, R A & Gibson, BJ 2013, *Supply chain management : a logistics perspective*, South-Western Cengage, Mason, OH .
- Cravens, D W, Shipp, H & Cravens KS 1993, 'Analysis of Co-operative Interorganizational Relationships, Strategic Alliance Formation, and Strategic Alliance Effectiveness', *Journal of Strategic Marketing*, vol. 1, no. 1, pp. 55-70.
- Creswell, J W 2003, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, Sage, London.

- Creswell, J W 2018, *Qualitative Inquiry and Research Design Choosing Among Five Approaches*, Sage, London.
- Cresswell, J W & Plano Clark, V L 2011, *Designing and conducting mixed method research*, Sage, Thousand Oaks, CA.
- Cross, R, Borgatti, SP & Parker, A 2002, 'Making invisible work visible', *California Management Review*, vol. 44, pp. 25-46.
- Crosby, B C & Bryson, J M 2005, *Leadership for the Common Good: Tackling Public Problems in a Shared Power World*, Jossey-Bass, San Francisco.
- Cruijssen, F, Cools, M & Dullaert, W 2007, 'Horizontal cooperation in logistics: opportunities and impediments', *Transportation Research Part E: Logistics & Transportation Review*, vol. 43, pp. 129-142.
- Cruijssen, F, Dullaert, W & Joro, T 2010, 'Freight transportation efficiency through horizontal cooperation in Flanders', *International Journal of Logistics Research & Applications*, vol. 13, pp. 161-178.
- Cruijssen, FCAM 2006, *Horizontal cooperation in transport and logistics*, Ph.D thesis, Tilburg University.
- Cruijssen, F, Dullaert, W & Hein, F 2007, 'Horizontal cooperation in transport and logistics: a literature review', *Transportation Journal*, vol. 46, pp. 18.
- Czaron, W, Mucha-Kus, K, Rogalski, M 2014, 'Coopetition research landscape a systematic literature review 1997-2010', *Journal of Economics & Management*, vol. 17, pp. 121-150.
- Dacin, M T, Hitt, MA & Levitas, E 1997 'Selecting Partners for Successful International Alliances: Examination of U.S. and Korean Firms', *Journal of World Business*, vol.32, pp. 3-16.
- Davenport, TH 2005, 'The coming commoditization of processes', *Harvard business review*, vol. 83, no. 6, pp.100-108.
- de Kok, T, van Dalen, D, Van Hillersberg, J 2015, *Cross-chain collaboration in the fast moving consumer goods supply chain*, Eindhoven University of Technology, Eindhoven.
- Defryn, C 2017, *Models for operational optimisation in a horizontal logistic cooperation*, Ph.D thesis, University of Antwerp.
- Defryn, C & Sørensen K 2018, 'Multi-objective optimisation models for the travelling salesman problem with horizontal cooperation', *European Journal of Operational Research*, vol. 267, pp. 891-903.

- Deepen, JM, Goldsby, TJ, Knemeyer, AM & Wallenburg, CM 2008, 'Beyond expectations: an examination of logistics outsourcing goal achievement and goal exceedance', *Journal of Business Logistics*, vol. 29, no. 2, pp. 75-105.
- Denzin, N and Lincoln, Y 1998, *The Landscape of Qualitative Research: Theories and Issues*, Sage, Thousand Oaks.
- Doherty, S & Hoyle, S 2009, 'Supply Chain Decarbonization: The Role of Logistics and Transport in Reducing Supply Chain Carbon Emissions', *World Economic Forum*.
- Dorn, S, Schweiger, B & Albers, S 2016, Levels, phases and themes of coopetition: a systematic literature review and research agenda, *European Management Journal*, vol. 34, pp. 484-500.
- Drucker, PF 1954, *The Practice of Management*, Harper and Row, New York.
- Duffy, R & Fearne, A 2004, 'The impact of supply chain partnerships on supplier performance', *International Journal of Logistics Management*, vol. 15, no. 1, pp. 57-71.
- Dufwenberg, M 2011, 'Game theory', *Wiley Interdisciplinary Reviews: Cognitive Science*, vol.2, no. 2, pp. 167-173.
- Dussauge, P, Garrette, B 1997, 'Anticipating the Evolutions and Outcomes of Strategic Alliances between Rival Firms', *International Studies of Management & Organization*, vol. 27, no. 4, pp.104-126.
- Dyer, J & Singh 1998, 'The relational view: Cooperative strategy and sources of interorganizational competitive advantage', *The Academy of Management Review*, vol.23, no.4, pp. 660-679.
- Eisenhardt, KM & Martin, J A 2000, 'Dynamic Capabilities: What Are They?', *Strategic Management Journal*, vol.21, pp. 1105-1121.
- Elg, U & Johansson, U 1996, 'Networking when National Boundaries Dissolve - The Swedish Food Sector', *European Journal of Marketing*, vol. 30, pp. 61-74.
- Ellram, L 1995, 'Total cost of ownership: An analysis approach for purchasing', *International Journal of Physical Distribution & Logistics Management*, vol. 25, pp.4-23.
- Erdmann, M 1999, '*Konsolidierungspotentiale von Speditionskooperationen: eine simulationsgestützte Analyse* (Consolidation potential of freight forwarding cooperations: a simulation-based analysis), [German] Deutscher Universitäts-Verlag, Wiesbaden Köln.
- Esterberg, K 2002, *Qualitative methods in social research*, McGraw Hill, Boston.
- European Union (2001), *Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements*, European Commission Notice 2001/C 3/02.

- Emmens B 2016, *Conscious Collaboration, Re-Thinking the Way We Work Together, For Good*, Macmillan, London.
- Eriksson, P E 2008, 'Achieving suitable coopetition in buyer supplier relationships: the case of AstraZeneca', *Journal of Business-to-Business Marketing*, vol.15, no. 4, pp. 425-454.
- Fan, T, Vigeant-Langlois, L, Geissler, C, Bosler, B & Wilmking, J 2001, 'Evolution of global airline strategic alliance and consolidation in the twenty-first century', *Journal of Air Transport Management*, vol. 7, no. 6, pp. 349-60.
- Farzanfar, R 2005, *Using Qualitative Research Methods to Evaluate Automated Health Promotion/Disease Prevention Technologies: A Procedures' Manual*, Boston University, Robert Wood Johnson Foundation.
- Fawcett, SE, Fawcett, AM, Watson, BJ & Mangan, GM 2012, 'Peeking inside the black box: toward an understanding of supply chain collaboration dynamics', *Journal of Supply Chain Management*, vol.48, pp. 44-72.
- Fawcett, S E & Magnan, GM 2002, 'The rhetoric and reality of supply chain integration', *International Journal of Physical Distribution & Logistics Management*, vol. 32, no. 5, pp. 339-361.
- Fawcett, SE, Magnan, GM & Fawcett, AM 2010, 'Mitigating resisting forces to achieve the collaboration-enabled supply chain', *Benchmarking: An International Journal*, vol. 17, pp. 269-293.
- Fawcett, SE, Magnan, GM & McCarter, MW 2008, 'Benefits, barriers, and bridges to effective supply chain management', *Supply Chain Management*, vol. 13, pp. 35-48.
- Fielding, N & Thomas, H 2001, 'Qualitative Interviewing', in *Researching Social Life*, Sage, London, pp. 123 – 144.
- Fischer, C 2013, 'Trust and communication in European agri-food chains', *Supply Chain Management: An International Journal*, vol. 18, no. 2, pp. 208-218.
- Fontana, A & Frey, J H 1998, *Interviewing: The Art of Science*, Sage, London.
- Frankel, R, Whipple, J S & Frayer, DJ 1996, 'Formal versus informal contracts: achieving alliance success', *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 3, pp. 47-63.
- Frisk, M, Joˆrnsten, K, Goˆthe-Lundgren, M & Roˆnnqvist, M 2010, 'Cost allocation in collaborative forest transportation', *European Journal of Operational Research*, vol. 205, pp. 448–458.
- Gadde, L-E, Huemer, L & Haˆkansson, H 2003, 'Strategizing in industrial networks', *Industrial Marketing Management*, vol. 32, no. 5, pp. 357-64.

- Gallant, M H, Beaulieu, M C & Carnevale, F A 2002, 'Partnership: An analysis of the concept within the nurse–client relationship', *Journal of Advanced Nursing*, vol.40, no.2, pp. 149–157.
- García-Canal, E, Valde´s-Llaneza, A & Arin˜o, A 2003, 'Effectiveness of dyadic and multi-party joint ventures', *Organization Studies*, vol. 24, no. 5, pp. 743-70.
- Geertz, C 1973, *The interpretation of cultures : selected essays* , Basic books, New York.
- Ghobadi, S & D'Ambra, J 2012, 'Coopetitive relationships in cross-functional software development teams: how to model and measure?', *Journal of Systems and Software*, vol. 85, no. 5, pp. 1096-1104.
- Gibbs, G 2007, *Analyzing Qualitative Data: Sage Qualitative Research Kit*, Sage, London.
- Gibson, B, Rutner, S & Keller, S 2002, 'Shipper- carrier partnership issues, ranking and satisfaction', *International Journal of Physical Distribution and logistics Management*, vol.32, no.8, pp. 669-681.
- Glaister, KW & Buckley, PJ 1996, 'Strategic motives for international alliance formation', *Journal of Management Studies*, vol. 33, no. 3, pp. 301-32.
- Glisson, LM & Cunningham, WA 1996, 'Airline industry strategic alliances: marketing and policy implications, *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 3, pp. 26-34.
- Gnyawali, D R & Madhavan, R 2001, 'Cooperative networks and competitive cooperative networks dynamics: a structural embeddedness perspective', *Academy of Management Review*, vol. 26, no. 3, pp.431-445.
- Gnyawali, D R, He, J & Madhavan, R 2006, 'Impact of co-opetition on firm competitive behavior: an empirical examination', *Journal of Management*, vol.32, no. 4, pp. 507-530.
- Gnyawali, DR & Park, B J 2011, Co-opetition between giants: collaboration with competitors for technological innovation, *Research Policy*, vol. 40, pp. 650-663.
- Gnyawali, DR & Byung-Jin, R 2009, Coopetition and technological innovation in small and medium sized enterprises: a multilevel conceptual model, *Journal of Small Business Management*, vol. 47, p. 23.
- Golicic, S, Foggin, J & Mentzer, J 2003, 'Relationship magnitude and its role in interorganizational relationship structure', *Journal of Business Logistics*, vol. 24, no.1, pp. 57-75.

- Gong, Y, Shenkar, O, Luo, Y & Nyaw, M K 2007, 'Do multiple parents help or hinder international joint venture performance? The mediating roles of contract completeness and partner cooperation', *Strategic Management Journal*, vol. 28, no. 10, pp. 1021-34.
- Gray, B 1989, *Collaborating: Finding Common Ground for Multiparty Problems*, Jossey-Bass, San Francisco.
- Griffith, DA, Hu, MY & Chen, H 1998, 'Formation and performance of multi-partner joint ventures: a Sino-foreign illustration', *International Marketing Review*, vol. 15, no. 3, pp. 171-87.
- Groothedde, B 2005, *Collaborative logistics and transportation networks, A modelling approach to hub network design*, Ph.D thesis, Delft University of Technology.
- Guba, E & Linclon, Y 1985, *Naturalistic Inquiry*, Sage, Newbury Park, CA.
- Gulati, R 1998, 'Alliances and networks', *Strategic Management Journal*, vol.19, pp. 293-317.
- Gulati, R 2007, *Managing Network Resources: Alliances, Affiliations and Other Relational Assets*, Oxford University Press, Oxford.
- Gulati, R 2010, *Reorganize for Resilience: Putting Customers at the Center of Your Organization*, Harvard Business School Press, Brighton.
- Gulati, R & Singh, H 1998, 'The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances', *Administrative Science Quarterly*, vol. 43, no. 4, pp. 781-814.
- Gulati, R, Wohlgezogen, F & Zhelyazkov, P 2012, 'The two facets of collaboration: cooperation and coordination in strategic alliances', *Academy of Management Annals*, vol. 6, pp. 531-583.
- Gunnarsson, C & Jonsson, S 2003, 'Charge the relationship and gain loyalty effects: Turning the supply link alert to IT opportunities', *European Journal of Operational Research*, vol. 144, pp. 257-269.
- Gunasekaran, A & Ngai, E 2004, 'Information systems in supply chain integration and management', *European Journal of Operational Research*, vol.139, no. 2, pp. 269-295.
- Gustavsen, B & Hofmaier, B 1997, *Natverk som utvecklingsstrategi (Networks as Development strategy)*, SNS, Stockholm.
- Hageback, C & Segerstedt, A 2004, 'The need for co-distribution in rural areas – a study of Pajala in Sweden', *International Journal of Production Economics*, vol. 89, no. 2, pp.153–163.

- Haägg, I & Johanson, J 1982, *Foäretag i Naätverk. Ny syn på konkurrenskraft (Companies in Networks. A New View of Competitive Power)* , Studieförbundet Näringsliv och Samhälle, Stockholm.
- Halldorsson, A, Kotzab, H, Mikkola, J H & Skjøtt-Larsen, T 2007, 'Complementary theories to supply chain management' , *Supply Chain Management: An International Journal*, vol. 12, no.4, pp. 284-296.
- Hansen, M T & Nohria, N 2004, 'How to build collaborative advantage', *MIT Sloan Management Review*, vol. 46, no.1, pp. 22-30.
- Hammant, J 2011, 'Collaboration: Heard it All Before?', *Logistics & Transport Focus*, vol.13, no. 7, pp. 32-34.
- Hammersley, M 2013, *What is Qualitative Research?*, Bloomsbury Academic, London.
- Helfat, C E & Peteraf, M A 2003, 'The dynamic resource- based view: capability lifecycles', *Strategic Management Journal*, vol.24, no.10, pp. 997-1010.
- Hennink, M, Hutter, I & Bailey, A 2011, 'Qualitative research methods', *Critical Public Health*, vol. 22, no. 1, pp. 111–112.
- Hennart, J F. 1993, 'Explaining the swollen middle: Why most transactions are a mix of market and hierarchy', *Organization Science*, vol.4, no. 4, pp. 529-547.
- Hertz, S & Alfredsson, M 2003, 'Strategic development of third-party logistics providers', *Industrial Marketing Management*, vol. 32, no. 2, pp. 139-49.
- Ho, W, Xu, X & Dey, P K 2010, 'Multi-Criteria Decision-Making Approaches for Supplier Evaluation and Selection: A Literature Review', *European Journal of Operational Research* , vol. 202, no. 1, pp. 16-24.
- Holstein, J A & Gubrium, J F 2003, *Inside Interviewing: New Lenses, New Concerns*, Sage, Thousand Oaks, CA.
- Hopf, C 2004, 'Qualitative Interviews: An Overview' in *A Companion to Qualitative Research*, Sage, London, pp. 203 – 208.
- Horvath, L 2001, 'Collaboration: the key to value creation in supply chain management', *Supply Chain Management: An International Journal*, vol. 6, no. 5, pp. 205- 207.
- Hudnurkar, M, Jakhar, S & Rathod, U 2013, 'Factors affecting collaboration in supply chain: a literature review', *Procedia-Social & Behavioral Sciences*, vol. 133, pp. 189-202.
- Ireland, RD & Webb, J W 2007, 'A multi-theoretic perspective on trust and power in strategic supply chains', *Journal of Operations Management*, vol.25, no.2, pp. 482-497.

- Jain, V, Wadhwa, S & Deshmukh, S G 2009, 'Revisiting information systems to support a dynamic supply chain: issues and perspectives', *Production Planning & Control*, vol. 20, no. 1, pp. 17–29.
- Jap, SD 1999, 'Pie-expansion efforts: collaboration processes in buyer-supplier relationships', *Journal of Marketing Research*, vol. 36, no. 4, pp. 461-475.
- Jin Y & Hong, P 2007, 'Coordinating global inter-firm product development', *Journal of Enterprise Information Management*, vol.20, no. 5, pp. 544-561.
- K&S Corporation Limited, Available from:< <http://www.ksgroup.com.au/>>. [2 July 2019].
- Kähkönen, A K 2014, 'The influence of power position on the depth of collaboration', *Supply Chain Management: An International Journal*, vol. 19, no. 1, pp. 17-30.
- Kale, P, Singh, H &Perlmutter, H 2000, 'Learning and protection of proprietary assets in strategic alliances: building relational capital', *Strategic Management Journal*, vol. 21, no. 3, pp. 217-237.
- Kanter, R 1994, 'Collaborative advantage: The art of alliances', *Harvard Business Review*, vol. 72, pp. 96-108.
- Karagiannidis, S 2010, *Mergers and Acquisitions in Australia: Reasons and Timing*, Ph.D thesis, Victoria University.
- Kenis, P & Knoke, D 2002, 'How organizational field networks shape interorganizational tie-formation rates', *Academy of Management Review*, vol.27, pp.275–293.
- Kent, J & Flint, D 1997, ' Perspectives on the evolution of logistics thought', *Journal of Business Logistics*, vol.18, no. 2, pp.15-29.
- Ketchen, D J, Snow, C C & Hoover, V L 2004, 'Research on competitive dynamics: recent accomplishments and future challenges', *Journal of Management*, vol.30, no. 6, pp. 779-804.
- Keyton, J, Ford, D J & Smith, F I 2008, 'A mesolevel communicative model of collaboration', *Communication Theory*, vol. 18, no. 3, pp. 376–406.
- Khan, KB & Mentzer, JT 1996, 'Logistics and inter-departmental integration', *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 8, pp. 6-19.
- Khemani, R S & Shapiro, D M 1993, 'An Empirical Analysis of Canadian Merger Policy', *The Journal of Industrial Economics*, vol.41, no. 2, pp.161-177.
- Kittel, C, Haugstetter, H A 2011, 'Increasing options for the movement of non-bulk freight through port collaboration in Australia: an innovative application of the 323 Theory of Constraints Thinking Processes Framework', *Proceedings of the The International Association of Maritime Economists (IAME)*, Santiago de Chile, Chile.

- Klein, B, Crawford, R & Alchian, A 1978, 'Vertical integration, appropriable rents, and the competitive contracting process', *Journal of Law and Economics*, vol.21, pp. 297-326.
- Klint, MB & Sjöberg, U 2003, 'Towards a comprehensive SCP-model for analysing strategic networks/alliances', *International Journal of Physical Distribution & Logistics Management*, vol. 33, pp. 408-426.
- Knemeyer, AM & Murphy, PR 2005, 'Exploring the potential impact of relationship characteristics and customer attributes on the outcomes of 3PL arrangements', *Transportation Journal*, vol. 44, no. 1, pp. 5-19
- Knemeyer, AM, Corsi, TM, Murphy & PR 2003, 'Logistics outsourcing relationships: Customer perspectives'. *Journal of Business Logistics*, vol. 24, no. 1, pp. 77–109.
- Kogut, B 1988, 'Joint Ventures: Theoretical and Empirical Perspectives', *Strategic Management Journal*, vol. 9, no. 4, pp. 319-332.
- Konczak, LJ 2001, 'The process of business/environmental collaborations: partnering for sustainability', *Personnel Psychology*, vol. 54 , pp. 515-8.
- Kotler, P 1997, *Marketing Management*, Prentice-Hall, Englewood Cliffs, NJ.
- Krajewska, MA & Kopfer, H 2006, Collaborating freight forwarding enterprises, *OR Spectrum*, vol. 28, pp. 301-317.
- Krajewska, MA, Kopfer, H, Laporte, G, Ropke, S & Zaccour, G 2007, 'Horizontal cooperation among freight carriers: request allocation and profit sharing', *Journal of the Operational Research Society*, vol. 59, no.11, pp. 1483–1491.
- Krause, D, Luzzini, D, Lawson, B 2018, 'Building the Case for A Single Key Informant in Supply Chain Management Survey Research', *Journal of Supply Chain Management*, vol. 54, no. 1, pp.42-50.
- Kumar, N, Anderson, J & Stern, L 1993, 'Conducting Interorganizational Research Using Key Informants', *Academy of Management Journal*, vol.36, no.6, pp.1633–1641.
- Kumar, S& Chia, A 2012, 'Commercial logistics vs. military logistics: A conceptual analysis', in *Cases on Supply Chain and Distribution Management: Issues and Principles*, Business Science Reference (an imprint of IGI Global), USA, pp.290-329
- Lado, A A, Boyd, N G & Hanlon, S C 1997, 'Competition, cooperation, and the search for economic rents: a syncretic model', *The Academy of Management Review*, vol.22, no. 1, pp.110-141.
- LaLonde, B J & Dawson, LM 1969, 'Pioneers in distribution', *Transportation & Distribution Management*, pp. 58-60.

- Lambert, DM, Emmelhainz, MA & Gardner, JT 1996, 'Developing and implementing supply chain partnerships', *International Journal of Logistics Management*, vol. 7, pp. 1-18.
- Lambert, DM, Margaret, E & Gardner, JT 1999, 'Building successful logistic partnership', *Journal of Business Logistics*, vol. 20, pp. 165-181.
- Lau, H& Goh, Y 2004, 'An intelligent brokering system to support multi-agent Web-based 4th-party logistics', *Proceedings of the 14th IEEE international conference on tools with artificial intelligence*, Detroit, pp.154–161.
- Lee, H & Whang 2000, 'Information sharing in a supply chain', *International Journal of Technology Management*, vol. 20, no.3/4, pp. 373-387.
- Lemoine, W & Dagnæs, L 2003, 'Globalisation strategies and business organisation of a network of logistics service providers', *International Journal of Physical Distribution & Logistics Management*, vol. 33. no. 3, pp. 209-28.
- Lehoux, N, Audy, J F, D'amours, S & Ronnqvist, M 2009, '*Leveraging Knowledge for Innovation in Collaborative Networks*', Springer, Boston.
- Leitner, R, Meizer, F, Prochazka, M & Sihn, W 2011, 'Structural concepts for horizontal cooperation to increase efficiency in logistics', *CIRP Journal of Manufacturing Science & Technology*, vol. 4, pp. 332-337.
- Lewis, I & Talalayersky, A 2000, 'Third party logistics: leveraging information technology', *Journal of Business Logistics*, vol. 21, no. 2, pp. 173-85.
- Lewis, I & Vellenga, D 2000, 'The ocean shipping reform act of 1998', *Transportation Journal*, vol. 39, pp. 27-34.
- Li, X, Ying, W, Liu, W, Chen, J & Huang, B 2003, 'The decision optimization model of 4PL, Systems, Man and Cybernetics', *IEEE International Conference*, vol.2, no.5-8, pp.1241-1245.
- Lieb, RC 1992, 'The use of third-party logistics services by large American manufacturers', *Journal of Business Logistics*, vol. 13, no. 2, pp. 29-42.
- Linfox 2019, Available from: < <https://www.linfox.com/>>.[2 July 2019].
- Liu, P, Wu, Y& Xu N 2010, 'Allocating collaborative profit in less-than-truckload carrier alliance', *Journal of Service science and Management*, vol. 3, pp. 143–149.
- Lui, S S, Wong, Y Y & Liu, W 2008, 'Asset specificity roles in interfirm cooperation: Reducing opportunistic behavior or increasing cooperative behavior?', *Journal of Business Research*, vol. 62, no. 11, pp.1214-1219

- Liu, Y, Luo, Y, Yang, P & Maksimov, V 2014, 'Typology and effects of co-opetition in buyer-supplier relationships: evidence from the Chinese home appliance industry', *Management and Organization Review*, vol.10, no. 3, pp. 439-465.
- Longworth, J 2013, *Country mindless Rural Railway Closure: Destabilizing a social exchange relationship between country and city in New South Wales*, Ph.D thesis, Charles Sturt University.
- Ludvigsen, J 2000, 'The International Networking between European Logistical Operators', Economic Research Institute, Stockholm.
- Luo, Y 2007, 'A coopetition perspective of global competition', *Journal of World Business*, vol. 42, pp. 129-144.
- Magner, L 2016a, 'IBISWorld Industry Report I4720, Rail Passenger Transport in Australia', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- Magner, L 2016b, 'IBISWorld Industry Report I5101, Postal Services in Australia', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- Magner, L 2017, 'IBISWorld Industry Report I4610, Road Freight Transport in Australia', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- Mahoney, J & Pandian, JR 1992, 'The resource-based view within the conversation of strategic management', *Strategic Management Journal*, vol.13, pp. 363-380.
- Maltz, AB & Ellram, LM 1997, 'Total cost of relationship: an analytical framework for the logistics outsourcing decision', *Journal of Business Logistics*, vol. 18, no. 1, pp. 45-66.
- Mangan, J & Lalwani, C 2016, *Global logistics and supply chain management*, Wiley, Chichester, West Sussex.
- Mankin, D& Cohen, S G 2004, *Business without boundaries*, Jossey-Bass, San Francisco.
- Manthou, V, Vlachopoulou, M & Folinas, D 2004, 'Virtual e-Chain (VeC) model for supply chain collaboration', *International Journal of Production Economics*, vol.87, pp. 241-250.
- Marasco, A 2008, 'Third-party logistics: a literature review', *International Journal of Production Economics*, vol. 113, pp. 127-147.
- Marshall, C & Rossman, G 1989, *Designing Qualitative Research*, Sage, London.
- Marttiin, P, Lehto, J A & Nyman, G 2002, 'Understanding and evaluating collaborative work in multi-site software projects – A framework proposal and preliminary results', *Proceedings of the 35th Hawaii Conference on System Sciences*, IEEE Computer Society Press, Hawaii.

- Mason, R, Doukidis, GI, Lalwani, C & Boughton, R 2007, 'Combining vertical and horizontal collaboration for transport optimisation', *Supply Chain Management*, vol. 12, pp.187-199.
- Mason-Jones, R & Towill D R 1997, 'Information enrichment: Designing the supply chain for competitive advantage', *Supply Chain Management: An International Journal*, vol. 2, no. 4, pp. 137-148.
- Mattsson, SA 2002, *Logistik i försörjningskedjor*, Studentlitteratur, Lund.
- Maxwell, J A 2006, *Qualitative Research Design: An Interactive Approach*, Sage, Thousand Oaks, CA.
- McGregor, W 2017a, 'IBISWorld Industry Report I4710, Rail Freight Transport in Australia', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- McGregor, W 2017b, 'IBISWorld Industry Report I5212b, Port Operators in Australia', Available from: < <https://www.ibisworld.com.au/> >. [28 July 2018].
- McLaren, T, Head, M & Yuan, Y 2002, 'Supply chain collaboration alternatives: understanding the expected costs and benefits', *Internet Research*, vol.12, no. 4, pp. 348-364.
- McCaffrey, D P, Faerman, SR & Hart, D W 1995, 'The Appeal and Difficulties of Participative Systems', *Organization Science*, vol. 6, no. 6, pp.603-627.
- Mckinsey, G 2010, *Identifying and Assessing Horizontal Collaboration Partnerships*, Eye For Transport Conference, Brussels.
- McWilliams, A, Smart, DL 1993, Efficiency v. structure-conduct-performance: implications for strategy research and practice, *Journal of Management*, vol. 19, no.1, pp. 63-78.
- Mentzer, J, Min, S & Bobbitt, LM 2004, 'Toward a unified theory of logistics', *International Journal of Physical Distribution & Logistics Management*, vol. 34, pp. 606-627.
- Mentzer, J, Foggin, J & Golicic, S 2000, 'Collaboration - The enablers, impediments, and Benefits', *Supply Chain Management*, vol. 4, no.5, pp. 52-58.
- Merriam, S 1988, *Qualitative Research and Case Study Applications in Education*, Jossey-Bass, San Francisco.
- Midoro, R & Pitto, A 2000, 'A critical evaluation of strategic alliances in liner shipping', *Maritime Policy & Management*, vol. 27, no. 1, pp. 31-40.
- Miles, M & Huberman, AM 1994, *Qualitative Data Analysis*, Sage, London.
- Min, S, Roath, AS, Daugherty, PJ, Genchev, SE, Chen, H, Arndt, AD & Glenn Richey, R 2005, 'Supply chain collaboration: what's happening?', *International Journal of Logistics Management*, vol. 16, pp. 237-256.

- Mohr, J & Spekman, R 1994, 'Characteristics of partnership success: partnership attributes, communication behaviour, and conflict resolution techniques', *Strategic Management Journal*, vol. 15, no. 2, pp. 135-52.
- Moore, KR 1998, 'Trust and relationship commitment in logistics alliances: a buyer perspective', *International Journal of Purchasing & Materials Management*, vol. 34, no. 1, pp. 24-37.
- Morgan, RM & Hunt, SD 1994, 'The commitment-trust theory of relationship marketing', *Journal of Marketing*, vol. 58, no. 3, pp. 20-38.
- Moutaoukil, A, Derrouiche, A & Neubert, G 2012, 'Pooling Supply Chain: Literature Review of Collaborative Strategies', *International Federation for Information Processing*, vol. 380, pp. 513–525.
- Mukhopadhyay, S & Setaputra, R 2006, 'The role of 4PL as the reverse logistics integrator: Optimal pricing and return policies', *International Journal of Physical Distribution & Logistics Management*, vol.36, no.9, pp.716-729.
- Murphy, PR & Poist, RF 1998, 'Third-party logistics usage: an assessment of propositions based on previous research', *Transportation Journal*, vol. 37, no. 4, pp. 26-35.
- Naesens, K, Pintelon, L & Taillieu, T 2007, 'A Framework for Implementing and Sustaining Trust in Horizontal Partnerships', *Supply Chain Forum: An International Journal*, vol. 8, no. 1, pp. 32-44
- Naesens, K, Gelders, L & Pintelon, L 2009, 'A swift response framework for measuring the strategic fit for a horizontal collaborative initiative', *International Journal of Production Economics*, vol. 121, pp. 550-561.
- Danesh, N, Ahmadi Nasab, S & Choon Ling, K 2012, 'The study of customer satisfaction, customer trust and switching barriers on customer retention in Malaysia hypermarkets', *International Journal of Business and Management*, vol. 7, no. 7, pp.141-150.
- Neuman, W 2003, *Social Research Methods: Qualitative and Quantitative Approaches*, Allyn and Bacon, Boston.
- von Neumann, J & Morgenstern, O 1944, *Theory of Games and Economic Behaviour*, Princeton University Press, Princeton.
- Nijkamp, P 1995, 'From missing networks to interoperable networks: the need for European cooperation in the railway sector', *Transport Policy*, vol. 2, no. 3, pp. 159-67.
- Nooteboom, B 2004, *Inter-Firm Collaboration, Learning and Networks: An Integrated Approach*, Routledge, London.

- Nottage, L 2007, 'Corporate Governance and M&A in Australia: An Overview for Assessing Japan and the Americanisation Thesis', *Proceedings of the corporate governance symposium*, Doshisha University Law Faculty, Kyoto, pp. 1-33.
- Nyaga, G, Whipple, J & Lynch 2010, 'Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ?', *Journal of Operations Management*, vol. 28, no. 2, pp. 101-114.
- Ohnell, S & Woxenius, J 2003, 'An industry analysis of express freight from a European railway perspective', *International Journal of Physical Distribution & Logistics Management*, vol. 33, no. 8, pp. 735-751.
- Ostrom, E 1990, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University, Cambridge.
- Oum, TH, Park, JH, Kim, K & Yu, C 2004, 'The effect of horizontal alliances on firm productivity and profitability: evidence from the global airline industry', *Journal of Business Research*, vol. 57, no. 8, pp. 844-853.
- Oum, TH, Park, JH & Zhang, A 2000, *Globalisation and Strategic Alliances: the Case of the Airline Industry*. Elsevier Science, London.
- Oxley, JE & Sampson, RC 2004, 'The scope and governance of international R&D alliances', *Strategic Management Journal*, vol. 25, no. 8/9, pp. 723-749.
- Papadopoulou, C & Macbeth, DK 1998, 'Third Party Logistics Evolution: Lessons from the Past', *Paper presented at the Logistics & Supply Chain Management Conference*, pp. 1-10, Available from: < http://web.mit.edu/supplychain/www/sp-iscm/repository/papadop_doc_.pdf >. [24 June 2019].
- Park, S H & Russo, MV 1996, 'When competition eclipses cooperation: an event history analysis of joint venture failure', *Management Science*, vol. 42, no. 6, pp. 875-890.
- Park, J 1997, 'The effects of airline alliances on markets and economic welfare' , *Transportation Research Part E*, vol. 33, pp.181-195.
- Park, S H & Ungson, GR 2001, 'Inter-firm rivalry and managerial complexity: a conceptual framework of alliance failure', *Organization Science*, vol. 12, no.1, pp. 37-53.
- Parkhe, A 1991, 'Interfirm Diversity, Organizational Learning, and Longevity in Global Strategic Alliances', *Journal of International Business Studies*, vol.22, no. 4, pp. 579-601.
- Parkhe, A 1993, 'Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation ', *The Academy of management Journal*, vol.36, no. 4, pp. 794-829.

- Palinkas, LA, Horwitz, SM, Green, CA, Wisdom, JP, Duan, N & Hoagwood, K 2013, 'Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research', *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 42, no. 5, pp 533-544.
- Pateman, H, Cahoon, S & Chen, S-L 2016, 'The role and value of collaboration in the logistics industry: an empirical study in Australia', *Asian Journal of Shipping & Logistics*, vol. 32, pp. 33-40.
- Patton, M Q 2002, *Qualitative research and evaluation methods*, Sage, Thousand Oaks, CA.
- Paulraj, A & Chen, I J 2007, 'Environmental uncertainty and strategic supply management: a resource dependence perspective and performance implications', *Journal of Supply Chain Management*, vol. 43, no. 3, pp. 29-42.
- Pena, N A & Fernandez de Arroyabe J C 2002, *Business cooperation from theory to practice*, Palgrave Macmillan, London.
- Perks, H 2000, 'Marketing information exchange mechanisms in collaborative new product development', *Industrial Marketing Management*, vol. 29, no. 2, pp. 179-189.
- Pfeffer, J & Nowak, P 1976, 'Joint venture and interorganizational interdependence'. *Administrative Science Quarterly*, vol.21, pp. 398-418.
- Pfeffer, J & Salancik, G 1978, *The External Control of Organizations: A Resource Dependence Perspective*, Harper & Row Publishers, New York.
- Pieters, R, Glockner, H H, Omta, O & Weijers, S 2012, Dutch logistics service providers and sustainable physical distribution: searching for focus, *International Food Agribusiness Management Review*, vol. 15, pp.107-126
- Piplani, R, Pokharel, S & Tan, A 2004, 'Perspectives on the use of information technology at third party logistics service providers in Singapore', *Asia Pacific Journal of Marketing and Logistics*, vol. 16, no. 1, pp. 27-41.
- Pitney, W A & Parker, J 2009, *Qualitative research in physical activity and the health professions*, Auckland, Human Kinetics, New Zealand.
- Pomponi, F, Fratocchi, L & Tafuri, S R 2014, 'Trust development and horizontal collaboration in logistics: a theory based evolutionary framework', *Supply Chain Management*, vol. 20, pp. 83-97.
- Pomponi, F, Fratocchi, L, Tafuri, S R & Palumbo, M 2013, 'Horizontal collaboration in logistics: a comprehensive framework', *Research in Logistics & Production*, vol. 3, no. 4, pp. 243-254.

- Popkewitz, T S, Tabachnick, B R & Zeichner, K 1979, 'Dulling the Senses: Research in Teacher Education', *Journal of Teacher Education*, vol. 30, no. 5, pp. 52-60.
- Porter, M E 1990, *The Competitive Advantages of Nations*, Macmillan, London.
- Porter, M E 2004, *Competitive Advantages*, Macmillan, London.
- Prajogo, D I & Olhager, J 2012, 'Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration', *International Journal of Production Economics*, vol. 135, no. 1, pp. 514 - 522.
- Razzaque, MA & Sheng, CC 1998, 'Outsourcing of logistics functions: a literature survey', *International Journal of Physical Distribution & Logistics Management*, vol. 28, no. 2, pp. 89-107.
- Renko 2011, 'Vertical Collaboration in the Supply Chain', Available from <<http://www.intechopen.com/books/supply-chain-management-new-perspectives/vertical-collaboration-in-the-supply-chain>>. [28 June 2019].
- Rindfleisch, A, Heide, JB, 'Transaction Cost Analysis: Past, Present, and Future Applications', *Journal of Marketing*, vol. 61, no. 4, pp. 30-54.
- Rinehart, L M, Eckert, J A, Handfield, R B, Page, T J & Atkin, T 2002, 'An assessment of supplier-customer relationships' *Journal of Business Logistics*, vol. 25, no. 1, pp.25-62.
- Ritter, T, Wilkinson, IF & Johnston, WJ 2004, 'Managing in complex business networks', *Industrial Marketing Management*, vol. 33, pp. 175-183.
- Rodrigue, JP, Comtois, C & Slack, B 2009, *The Geography of Transport Systems*, Routledge, New York.
- Rogers, D L & Whetten, D 1982, *Interorganizational Coordination: Theory, Research, and Implementation*, State University Press, Ames.
- Ropolyi, L 2015, 'Representations and Inhomogeneous Beings', *Interdisciplinary Description of Complex Systems*, vol. 13, no. 4, pp. 540-547.
- Ross, WT & Robertson, DC 2007, 'Compound Relationships between Firms', *Journal of Marketing*, vol. 71, no. 3, pp. 108-123.
- Rubin de Celis, JC & Lipinski, J 2007, 'R&D alliances and the effect of experience on innovation: a focus on the semiconductor industry', *Journal of Leadership & Organizational Studies*, vol. 14, no. 1, pp. 26-37.
- Rusko, R 2011, 'Exploring the concept of coopetition: A typology for the strategic moves of the Finnish forest industry', *Industrial Marketing Management*, vol. 40, pp. 311-320.
- Sabath, R & Fontanella, J 2002, 'The unfulfilled promise of supply chain collaboration', *Supply Chain Management Review*, vol. July/August, pp. 24-29.

- Saglietto, L 2013, 'Towards a Classification of Fourth Party Logistics (4PL)', *Universal Journal of Industrial and Business Management*, vol.1, no. 3, pp.104-116.
- Sandberg, E 2005, *Logistics collaboration in supply chains: a survey of Swedish manufacturing companies*, Ph.D thesis, Linköping University, Linköping.
- Sandberg, E 2007, 'Logistics collaboration in supply chains: practice vs. theory', *International Journal of Logistics Management*, vol. 18, pp. 274-293.
- Sasaki, M & Marsh, ERM 2012, *Trust Comparative Perspectives*, Leiden The Netherlands, Brill.
- Saunders, M, Lewis, P & Thornhill, A 2007, *Research methods for business students*, Pearson Education, Harlow.
- Saunders, M, Lewis, P & Thornhill, A 2009, *Research methods for business students*, Pearson Education, Harlow.
- Sauvage, T 2003, 'The relationship between technology and logistics third party providers', *International Journal of Physical Distribution & Logistics Management*, vol. 33, no. 3, pp. 236-253.
- Saxenian, A & Dabby, N 2004, 'Creating and Sustaining Regional Collaboration in Silicon Valley? The Case of Joint Venture: Silicon Valley', UC Berkeley: Institute of Urban and Regional Development, Available from: <
<https://escholarship.org/uc/item/87d05794> >. [26 June 2019].
- Saxton, T 1997, 'The effects of partner and relationship characteristics on alliance outcomes', *Academy of Management Journal*, vol. 40, no. 2, pp. 443-461.
- Sawhney, M 2002, 'Don't just relate – collaborate', *MIT Sloan Management Review*, vol. 43 no. 3, pp. 1-96.
- Scott, RW 1987, *The subject is organizations*, Englewood Cliffs, Prentice Hall, New Jersey.
- Schmoltzi, C & Marcus Wallenburg, C 2012, 'Horizontal cooperations between logistics service providers: motives, structure, performance', *International Journal of Physical Distribution & Logistics Management*, vol. 41, pp. 552-575.
- SCT Logistics, Specialized Container Transport Logistics, Available from: <
<https://www.sctlogistics.com.au/> >.[2 July 2019].
- Selviaridis, K & Spring, M 2007, 'Third party logistics: a literature review and research agenda', *International Journal of Logistics Management*, vol. 18, pp. 125-150.
- Seppanen, R, Blomqvist, K & Sundqvist, S 2007, 'Measuring inter-organisational trust – a critical review of the empirical research in 1990-2003', *Industrial Marketing Management*, vol. 36, no. 2, pp. 249-265.

- Sheffi, Y 1990, 'Third party logistics: present and future prospects', *Journal of Business Logistics*, vol. 11, no. 2, pp. 27-39.
- Shepperd, E & Seidman, D 2001, 'Ocean shipping alliances: the wave of the future?', *International Journal of Maritime Economics*, vol. 3, pp. 351-367.
- Sherman, RJ 1998, 'Collaborative planning, forecasting and replenishment (CPFR): realizing the promise of efficient consumer response through collaborative technology', *Journal of Marketing Theory and Practice*, vol. 6, no. 4, pp. 6-9.
- Shibin, KT, Dubey, R, Gunasekaran, A, Hazen, B, Roubaud, D, Gupta, S & Foropon, C 2017, 'Examining sustainable supply chain management of SMEs using resource based view and institutional theory', *Annals of Operations Research*, pp.1-26.
- Silk Contract Logistics 2017, Available from:< <http://www.silklogistics.com.au/>>. [2 February 2017].
- Simchi-Levi, D, Kaminsky, P & Simchi-Levi, E 2000, *Designing and Managing the Supply Chain: Concepts, Strategies, and Cases*, McGraw-Hill, New York.
- Simatupang, TM, Sridharan, R 2002a, 'The collaborative supply chain', *International Journal of Logistics Management*, vol. 13, pp. 15-30.
- Simatupang, TM, Sridharan, R 2002b, 'The collaborative supply chain: a scheme for information sharing and incentive alignment', *International Journal of Logistics Management*, vol. 13, no. 2, pp. 289-308.
- Simatupang, TM & Sridharan, R 2004, 'A Benchmarking scheme for supply chain collaboration', *Benchmarking: An international journal*, vol.11, no. 1, pp. 9-30.
- Simatupang, TM, Sridharan, R 2005, 'Supply chain discontent', *Business Process Management Journal*, vol. 11, no. 4, pp. 349-369.
- Simatupang, T M , Wright, A C & Sridharan, R 2002, 'The knowledge of coordination for supply chain integration', *Business Process Management Journal*, vol. 8, no. 3, pp. 289–308.
- Singh, K & Mitchell, W 2005, 'Growth dynamics: the bidirectional relationship between interfirm collaboration and business sales in entrant and incumbent alliances', *Strategic Management Journal*, vol. 26, no. 6, pp. 497-522.
- Sink, HL, Langley, CJ & Gibson, BJ 1996, 'Buyer observations of the US third party logistics market', *International Journal of Physical Distribution & Logistics Management*, vol. 26, no. 3, pp. 38-46.
- Skjoett-Larsen, T 2000, 'Third party logistics – from an interorganisational point of view', *International Journal of Physical Distribution & Logistics Management*, vol. 30, no. 2, pp. 112-127.

- Slack, B, Comtois, C & McCalla, R 2002, 'Strategic alliances in the container shipping industry: a global perspective', *Maritime Policy & Management*, vol. 29, no. 1, pp. 65-76.
- Soosay, CA & Hyland, P 2015, A decade of supply chain collaboration and directions for future research, *Supply Chain Management*, vol. 20, pp. 613-630.
- Spekman, RE, Isabella, L, Macavoy, T & Forbes, T 1996, 'Creating strategic alliances that endure', *Long-Range Planning*, vol. 29, no. 3, pp. 346-57.
- Spekman, RE, Kamauff, JW & Myhr, N 1998, 'An empirical investigation into supply chain management: a perspective on partnerships', *Supply Chain Management*, vol. 3, pp. 53-67.
- Stank, TP, Keller, SB & Daugherty, PJ 2001, 'Supply chain collaboration and logistical service performance', *Journal of Business Logistics*, vol. 22, no. 1, pp. 29-47.
- Stefansson, G 2002, 'Business-to-business data sharing: A source for integration of supply chains', *International Journal of Production Economics*, vol. 75 , no. 2, pp. 135-146.
- Stefansson, G 2006, 'Collaborative logistics management and the role of third-party service providers', *International Journal of Physical Distribution & Logistics Management*, vol 36, pp. 76–92.
- Stein, H D 2010, 'Literature overview on the field of co-opetition, *Business: Theory and Practice*, vol. 11, no. 3, pp.256-265.
- Stem, L & Heskett, J 1969, *Conflict management in interorganizational relations: A conceptual framework, Distribution channels Behavioral dimensions*, Houghton Mifflin Company, Boston.
- Stephens, C 2006, *Enablers and inhibitors to horizontal collaboration between competitors: an investigation in UK retail supply chains*, Ph.D thesis, Cranfield University, Bedfordshire.
- Stern, AJ & Hicks, T 2000, *The Process of Business/Environmental Collaborations: Partnering for Sustainability*, Quorum, Westport, CT.
- Stevens, GC 1990, 'Successful supply-chain management', *Management Decision*, vol. 28 no. 8, pp. 25-30.
- Stock, J & Boyer, S 2009,' Developing a consensus definition of supply chain management: a qualitative study', *International Journal of Physical Distribution and Logistics Management*, vol.39, no. 8, pp. 690-711.
- Storer, M & Hyland, P 2011, 'Reconfiguration or innovation in supply chains?' *International Journal of Technology Management*, vol.56, No.2/3/4, pp. 188-207.

- Strategic toolkit, Available from: <<https://strategictoolkits.com/strategic-concepts/commoditisation/>>. [24 June 2019].
- Sumantri, Y 2012, *An analysis of the logistics service provider (LSP) industry in a developing country: a focus on Indonesia*, Ph.D thesis, University of Wollongong, Wollongong.
- Sundaramurthy, C & Lewis, M 2003, 'Control and collaboration: Paradoxes of governance', *Academy of Management Review*, vol.28, pp. 397- 415.
- Tan, W, Yang, F, Chen, R & Zhao, X 2007, 'A system architecture to SOA-based 4PL using RDF', *Proceedings of the IEEE International Conference on Automation and Logistics*, pp. 866-870.
- Tang, M & Gattorna, J 2003, 'Developing an aligned supply chain operating strategy', in *Supply Chain Management Handbook*, Gower, London, pp. 25-36.
- Tarrant, N 2016, '*IBISWorld Industry Report I5220, Airport Operations in Australia*', Available from: <<https://www.ibisworld.com.au/>>. [28 July 2018].
- Tate, K 1996, 'The elements of a successful logistics partnership', *International Journal of Physical Distribution & Logistics Management*, vol. 26, pp. 7-13.
- Teng, B S & Das, TK 2008, 'Governance structure choice in strategic alliances: the roles of alliance objectives, alliance management experience, and international partners', *Management Decision*, vol. 46, no. 5, pp. 725-742.
- The Department of Infrastructure, Regional Development and Cities 2018, '*Freight and Supply Chains*, Government of Australia. Available from: <<https://www.infrastructure.gov.au/transport/freight/index.aspx>>. [28 June 2019].
- Thorelli, H 1986, 'Networks: between markets and hierarchies', *Strategic Management Journal*, vol. 7, pp. 37-51.
- Thomson, AM 2001, *Collaboration meaning and measurement*, Ph.D thesis, Indiana University.
- Thomson, AM & Perry, JL 2006, 'Collaboration Processes: Inside the Black Box', *Public Administration Review*, vol. 66, pp. 20-32.
- Tidström, A 2006, *Conflicts when competitors cooperate*, Ph.D thesis, Swedish School of Economics and Business Administration, Helsinki.
- Todeva, E & Knoke, D 2005, 'Strategic alliances and models of collaboration', *Management Decision*, vol. 43, no. 1, pp. 123-148.
- Toll ASX Report 2015, Available from: <<https://www.asx.com.au/asxpdf/20150402/pdf/42xpyzfstgf63z.pdf>>.[1 July 2019].
- Toll Group , Available from:< <https://www.tollgroup.com/>>. [2 August 2019].

- Tsang, EWK 1998, 'Motives for strategic alliance: a resource-based perspective', *Scandinavian Journal of Management*, vol. 14, no. 3, pp. 207-221.
- Torugsa, A 2011, 'Patterns of collaboration for innovation amongst innovating firms in Tasmania', *Tasmanian Innovation Census Working Paper Series TIC/0511*, Hobart, Tasmania.
- Tsai, W 2002, 'Social structure of coopetition within a multiunit organization: coordination, competition, and intraorganizational knowledge sharing', *Organization Science*, vol. 13, no. 2, pp. 179-190.
- Tuten, TL & Urban, D J 2001, 'An Expanded Model of Business-to-Business Partnership Formation and Success', *Industrial Marketing Management*, vol. 30, no. 2, pp. 149-164.
- Van de Ven, AH & Walker, G 1984, 'The dynamics of interorganizational coordination', *Administrative Science Quarterly*, vol. 29, no. 4, pp. 598-621.
- Vangen, S & Huxham, C 2003, 'Nurturing collaborative relations Building trust in interorganizational collaboration', *The Journal of Applied Behavioural Science*, vol. 39, no. 1, pp. 5-31.
- Van Laarhoven, C 2008, *Logistiek en supply chains: Visie en ambitie voor Nederland*, TU Delft, Delft.
- Van Laarhoven, P, Berglund, M & Peters, M 2000, 'Third party logistics in Europe – five years later', *International Journal of Physical Distribution & Logistics Management*, vol. 30, no. 5, pp. 425-42.
- Verdonck, L, Caris, AN, Ramaekers, K & Janssens, G K 2013, 'Collaborative Logistics from the Perspective of Road Transportation Companies', *Transport Reviews*, vol.33, no. 6, pp.700-719.
- Verstrepen, S, Cools, M, Cruijssen, F & Dullaert, W 2006, 'A framework for horizontal cooperation in logistics', *Proceedings of the ILS Conference*, Lyon, France.
- Von der Gracht, HA, Darkow, I L 2013, 'The future role of logistics for global wealth scenarios and discontinuities until 2025', *Foresight*, vol.15, no. 5, pp. 405-419.
- Walden, GR 2006, 'Focus group interviewing in the library literature: A selective annotated bibliography 1996-2005', *Reference Services Review*, vol. 34, no. 2, pp.222-241.
- Wallenburg, C M & Raue, J S 2011, 'Conflict and its Governance in Horizontal Cooperations of Logistics Service Providers', *International Journal of Physical Distribution & Logistics Management*, vol. 41, no. 4, pp. 385-400.
- Walley, K 2007, 'Coopetition: an introduction to the subject and an agenda for research', *International Studies of Management & Organization*, vol.37, no. 2, pp.11-31.

- Wildavsky, A 1986, 'On Collaboration', *Political Science and Politics*, vol. 19, pp. 237-248.
- Wilhelm, MM 2011, 'Managing coopetition through horizontal supply chain relations: linking dyadic and network levels of analysis', *Journal of Operations Management*, vol. 29, pp. 663-676.
- Wilhelm, M & Kohlbacher, F 2011, 'Co-opetition and knowledge co-creation in Japanese supplier-networks: the case of Toyota', *Asian Business & Management*, vol. 10, no. 1, pp. 66-86.
- Williams, T 2005, Cooperation by design: structure and cooperation in interorganizational networks, *Journal of Business Research*, vol. 58, pp. 223-231.
- Williamson, O E 1975; '*Market and Hierarchies: Analysis and Antitrust Implications*', New York, Free Press.
- Williamson, O E 1985, '*The Economic Institutions of Capitalism*', Free Press, New York.
- Williamson, O E 2008, 'Outsourcing: transaction cost economics and supply chain management', *Journal of Supply Chain Management*, vol. 44, no. 2, pp. 5-16.
- Wood, DJ & Gray, B 1991, 'Toward a comprehensive theory of collaboration', *Journal of Applied Behavioural Science*, vol. 27, no.2, pp. 139-162.
- Xtreme Freight 2019, Available From:< <https://xtremefreight.com.au/>>. [1 July 2019]
- Yami, S, Castaldo, S, Dagnino, G B, Le Roy, F & Czakon W 2010, *Coopetition strategies: towards a new form of inter-organizational dynamics?*, Elgar, Cheltenham, Northampton.
- Yao, J 2010, 'Decision optimization analysis on supply chain resource integration in fourth party logistics', *Journal of Manufacturing Systems*, no.29, pp.121-129.
- Zerbini, F & Castaldo, S 2007, 'Stay in or get out the Janus? The maintenance of multiplex relationships between buyers and sellers', *Industrial Marketing Management*, vol. 36, no. 7, pp. 941-954.
- Zeng, M 2003, 'Managing the cooperative dilemma of joint ventures: the role of structural factors', *Journal of International Management*, vol. 9, no. 2, pp. 95-113.
- Zineldin, M 2004, 'Co-opetition: the organisation of the future', *Marketing Intelligence & Planning*, vol. 22, pp. 780-790.
- Zineldin, M & Bredenl w, T 2003, 'Strategic alliance: Synergies and challenges-A case of strategic outsourcing relationship', *International Journal of Physical Distribution and Logistics Management*, vol.33, no. 5, pp. 449-464.
- Zinn, W & Parasuraman, A 1997, 'Scope and intensity of logistics-based strategic alliances', *Industrial Marketing Management*, vol. 26, no. 2, pp. 137-147.

APPENDICES

Appendix A: Interview Guide

Interview Guide

1. Biographical information:

1.1. Personal information:

Name: Position:

Years of service in organization:

Years of service in industry:

1.2. Organization information:

Name: Type:

Structure: Size: No of employees:

Branches:

Facilities and equipment:

2. Dominant type of organizational cooperation in the industry: General cooperation

What type of cooperation did you see in the industry?

3. Type of inter-organizational cooperation:

What types of inter-organizational cooperation do you have with other organizations?

What types of inter-organizational cooperation do you see between other organizations?

4. Horizontal collaboration in the logistics industry:

Nature: Type:

Advantages: Challenges:

Opportunities: Objectives:

4.1. Type and structure of the cooperation

What type of horizontal collaboration do you have with other companies?

Level of collaboration (operational, tactical, strategic)

Please specify structure of this horizontal cooperation in below areas:

Contractual scope

What type of cooperation agreement do you have with other companies? For example: verbal, written (equity involvement, joint venture ...)

Organizational scope

How many companies are involved in the cooperation and what is the nature of this collaboration?

Service scope

What is the service scope of cooperation? Road, rail, sea, air, intermodal transport or value-added services.

Geographical scope

Do you cooperate nationally, regional or nationwide or international scope, continental or intercontinental?

Resource scope

Do you use complimentary or similar resources in your partnership?

Potential drivers and opportunities to horizontal collaboration:

What types of the following drivers do you expect for horizontal collaboration in transport and logistics?

Potential drivers: costs and productivity, customer service and market position

Barriers to horizontal collaboration:

What types of barriers do you expect for horizontal collaboration in transport and logistics?

Impediments: partner selection, determining and dividing the gains, negotiation and coordination and ICT.

Horizontal collaboration in practice

What types of the following horizontal collaboration exist in the transport and logistics industry in Australia?

Lobbying group	Maintenance group
Purchasing group	Chartering
Warehouse sharing	Freight sharing
Knowledge centre	Road assistance
Co-branding	Tender group
Asset pooling	Intermodal group
Shared cross-dock	

Model of horizontal logistics collaboration

Which model do you think will work here in Australia?

How to sustain HC between LSPs,

Other important info that you think is better to share?

What is your forecast for the future of HC here in Australia?

Appendix B: Letter of Consent to Participate in the PhD Study



INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

Project Title: *“Horizontal collaborations between logistics service providers (LSP) in Australia: Examining the structure, opportunities and impediments.”*

Mr Saeid Ahmadi Nasab (saeid.ahmadinasab@rmit.edu.au), PhD student in School of Business IT and Logistics, RMIT University, under the academic supervision of Dr Victor Oyara Gekara (victor.gekara@rmit.edu.au), and Dr Ahmad Abareshi (ahmad.abareshi@rmit.edu.au), School of Business IT and Logistics, RMIT University.

Dear,

You are invited to participate in a research project being conducted by RMIT University. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. If you have any questions about the project, please ask one of the investigators.

Who is involved in this research project? Why is it being conducted?

- This research is being undertaken by Saeid Ahmadi Nasab with Dr Victor Oyara Gekara and Dr Ahmad Abareshi supervising the research
- This research is a PhD research project in Supply Chain and Logistics. This is a requirement of the Doctor of Philosophy degree in Supply Chain and Logistics
- This research has been approved by the RMIT Human Research Ethics Committee

Why have you been approached?

My thesis aims to provide a comprehensive overview of the structure, opportunities and impediments of horizontal collaboration between logistics service providers within the transport and logistics sector in Australia. You have been approached because you hold management position in a logistics company and have a valuable knowledge regarding cooperation between logistics service providers.

What is the project about? What are the questions being addressed?

- The main objective of this thesis is to discover unforeseen areas of the horizontal collaboration between logistics service providers in Australia. Firstly to develop understanding of the distinctive type and structure of logistics cooperation. Secondly to examine opportunities and the impediments of horizontal collaboration within the transport and logistics sector in Australia, and finally developing a framework for enhancing such cooperation.
- This research will require your participation in an interview, which is expected to last between 45 minutes to 1 hour. The research planned to interview with 19 persons from logistics authorities and companies.

If I agree to participate, what will I be required to do?

Your participation will require you to answer a list of interview questions that have been approved by RMIT Human Research Ethics Committee. These questions will be related to type and structure of the cooperation and drivers and impediments for horizontal collaboration in transport and logistics. Your identity will remain confidential.

What are the possible risks or disadvantages?

- There should be no real risk in regards to your participation in this interview.

What are the benefits associated with participation?

It is anticipated that findings of the research present some insights and feedback for the logistics management in drafting managerial strategies and also effective organizational structure on how to use horizontal collaboration as the efficient practical way. Findings of the research will suggest guidelines for the relevant logistics and transport authorities and also the policy makers in drafting policies to facilitate the cooperation between logistics companies, to help them to reduce the barriers of the horizontal collaboration, and to enhance the level of overall cooperation.

What will happen to the information I provide?

The information and findings from this research project will be used to complete a thesis, an internal School of Business IT and Logistics report and publications in academic journals in the future. The findings will be made available to you upon request. You will not be identified in the findings as a coding approach will be applied to the data. Your participation is completely voluntary and you are free to withdraw your involvement in the research project and asked that any unprocessed or processed information that you supplied to be destroyed.

What are my rights as a participant?

- The right to withdraw from participation at any time
- The right to request that any recording cease
- The right to have any unprocessed data withdrawn and destroyed, provided it can be reliably identified, and provided that so doing does not increase the risk for the participant
- The right to have any questions answered at any time.

Whom should I contact if I have any questions?

Saeid Ahmadi Nasab, E: saeid.ahmadinasab@rmit.edu.au, P:99251160

Dr Victor Oyara Gekara, E:victor.gekara@rmit.edu.au, P: 99255550

and Dr Ahmad Abareshi, E: ahmad.abareshi@rmit.edu.au, P: 99255918

Yours sincerely,

Saeid Ahmadi Nasab, PhD student, School of Business IT and Logistics, RMIT University

Dr Victor Oyara Gekara, School of Business IT and Logistics, RMIT University

Dr Ahmad Abareshi, School of Business IT and Logistics, RMIT University

If you have any concerns about your participation in this project, which you do not wish to discuss with the researchers, then you can contact the Ethics Officer, Research Integrity, Governance and Systems, RMIT University, GPO Box 2476V VIC 3001. Tel: (03) 9925 2251 or email human.ethics@rmit.edu.au

Consent

1. I have had the project explained to me, and I have read the information sheet
2. I agree to participate in the research project as described
3. I agree to be interviewed by the researchers and also allow my voice to be recorded using a digital audio recorder.
4. I acknowledge that:
 - (a) I understand that my participation is voluntary and that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied (unless follow-up is needed for safety).
 - (b) The project is for the purpose of research. It may not be of direct benefit to me.
 - (c) The privacy of the personal information I provide will be safeguarded and only disclosed where I have consented to the disclosure or as required by law.
 - (d) The security of the research data will be protected during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to the School of Business IT and Logistics, RMIT University and also to participants whom elect to receive a copy of the research. Any information which will identify me will not be used.

Participant's Consent

Participant:

Date:

(Signature)

Appendix C: Letter of Invitation to PhD Study



Invitation to Participate in a PhD Research Interview

Dear

This letter is to request your kind participation in short research interview as part of an important PhD research, which investigates the nature and structures for horizontal business cooperation in the Australian transport and logistics industry. It examines how logistics service providers can and do cooperate and compete (Co-opetition) at the same time and same level of the supply chain. This study is developed and conducted by Mr Saeid Nasab and jointly supervised by Drs Victor Gekara and Ahmad Abareshi of the School of Business IT and Logistics at RMIT University.

This study is designed to develop knowledge and in-depth understanding of the distinctive type and structure of logistics cooperation and to suggest ways in which this type of cooperation could be used to enhance the quality and profitability of business interaction. It will thus focus on the opportunities, possibilities, challenges and impediments to this kind of cooperation in the Australian context.

You have been approached to participate because of your extensive experience in the industry and the associated knowledge and expertise. We also recognise the importance of your company in the industry and would therefore like to understand how you tap into different kinds of cooperation structures in order to enhance your competitiveness and commercial success.

Your participation will therefore be of very great value to this PhD study and will influence the quality of the final product, so that it is of benefit to industry stakeholders. As a research team we will benefit greatly from your knowledge and experience.

Our study is conducted under the RMIT research ethics principles and we can assure you that all information you provide will be treated with utmost respect and confidentiality.

Please refer to the attached PhD information sheet for a detailed description of the study.

Sincerely

Saeid A Nasab

Ph: + 61 3 9925 1160

Email: Saeid.ahmadinasab@rmit.edu.au

Appendix D: PhD Information Letter



PhD Study Information Sheet

Horizontal collaboration between logistics service providers (LSP) in Australia: Examining the structure, opportunities and impediments.

This study is a PhD thesis conducted by School of Business IT and Logistics (BITL) to investigate the nature and structure of horizontal collaboration between companies operating in the transport and logistics industry in Australia. It is aimed that the findings will facilitate the development of a framework for enhancing such cooperation to enhance profitable and productive inter-organisation interaction.

This study is developed in two stages and employs a qualitative methodology:

- (1) An extensive literature review and analysis of horizontal collaboration to identify cooperation structures, opportunities, impediments and patterns.
- (2) Confidential and anonymous interviews with key informants in the transport and logistics industry drawn from logistics service practitioners, logistics associations and logistics authorities of the Australia.

The information and findings from this research project will be used to complete a PhD thesis and will inform publications in academic journals and conference proceedings.

For more information please contact:

Saeid A Nasab

Ph: + 61 3 9925 1160

Email: Saeid.ahmadinasab@rmit.edu.au

Appendix E: Ethics Approval Letter



Business College
Ethics Advisory N
(BCHEAN)

Building 108, Level
239 Bourke Street
Melbourne VIC 3001

GPO Box 2476V
Melbourne VIC 3001
Australia

Tel. +61 3 9925 5555
Fax +61 3 9925 5621

Notice of Approval

Date: 15 July 2014

Project number: 18646

Project title: *Horizontal cooperations between logistics service providers (LSP) in Australia: Examining the structure, opportunities and impediments.*

Risk classification: Low risk

Principal Investigator: Dr Victor Gekara
Student Investigator: Mr Saeid Ahmadi Nasab
Other Investigators: Dr Ahmad Abareshi

Project Approved: From: 15 July 2014 To: 04 December 2015

Terms of approval:

Responsibilities of the principal investigator

It is the responsibility of the principal investigator to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by BCHEAN. Approval is only valid while the investigator holds a position at RMIT University.

1. Amendments

Approval must be sought from BCHEAN to amend any aspect of a project including approved documents. To apply for an amendment submit a request for amendment form to the BCHEAN secretary. This form is available on the Human Research Ethics Committee (HREC) website. Amendments must not be implemented without first gaining approval from BCHEAN.

2. Adverse events

You should notify BCHEAN immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

3. Participant Information and Consent Form (PICF)

The PICF must be distributed to all research participants, where relevant, and the consent form is to be retained and stored by the investigator. The PICF must contain the RMIT University logo and a complaints clause including the above project number.

4. Annual reports

Continued approval of this project is dependent on the submission of an annual report.

5. Final report

A final report must be provided at the conclusion of the project. BCHEAN must be

notified if the project is discontinued before the expected date of completion.

6. Monitoring

Projects may be subject to an audit or any other form of monitoring by BCHEAN at any time.

7. Retention and storage of data

The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Regards,

A/Professor Cathy Brigden

Acting Chairperson RMIT BCHEAN