Competition and Collaboration in the Australian Wood Furniture Industry: A Value Chain Approach

by

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A thesis submitted to the University of Western Sydney in part fulfilment of the requirements for the degree of Doctor of Philosophy

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© Sasha Alexander
To my mother, father, sister and nephew, the future thinker, Alexander Frederick Forsythe Taylor aged 10.

And, to the achievements of my ancestors whose combined intellect, learning and human values act as a life foundation for those of us who have known them and follow.
I would like to thank those who have contributed to the shaping of my character as a person, professional and emerging researcher.

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of the most culturally and economically successful furniture hubs in the world; Denmark, a member of the Scandinavian and Nordic alliance in geography, economy, and many cultural aspects, and to thank the world-renown architect and industrial designer Professor Knud Holscher of the Royal Danish Academy as my mentor during that time, and the influential legacy his own former mentor, the legendary architect and furniture designer, Professor Arne Jacobsen has provided. Both have inspired me in many humanistic and professional endeavours culminating in the exhibition of works and international commercial release through our commercial Swedish furniture client and Knud Holscher Industriel Design at ORGATEC (Cologne, Germany) in cooperation with DEGW (London, England) of the ‘IO’ – intelligent office furniture system which excelled in several technical (patented), environmental (certified), and ergonomic areas (based on international standards and Swedish Furniture Institute directives).

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The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or part, for a degree at this or any other institution.

Sasha Alexander
November 2010
Publications and participation in events

1. Conference proceedings


2. Trade journal

3. International expert panel representation
Furniture Foresight Centre (CEFFOR/Spain) - Expert panel member (Australia) 2008 -2010
4. Conference attendance
5th International CINet Conference (Continuous Innovation Network) incorporating the CINet Doctoral Network Workshop 22-25 September 2004, Sydney, NSW, Australia (Certificate received)

5. Papers in preparation

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The purpose of this study is to identify specific areas for improving the global competitiveness of the Australian wood furniture industry (AWFI) and to examine the most promising mechanisms for collaborative industry value creation within the Australian wood furniture value chain (AWFVC). The research focuses on the drivers for and barriers to value creation in the AWFVC by building on industry and organisational studies in the Australian wood furniture industry, the global furniture sector, Australian forestry research and management, end-consumer value, and through established value chain methodology.

This thesis investigates the consequences of adopting a value chain approach in the identification of drivers for, or barriers to sustainable competitive advantage in the Australian wood furniture industry. Based on the literature, a conceptual model is proposed which provides a framework for the review of wood furniture industry value chains in regard to identifying the processes which contribute value and those which do not optimise value creation for end-consumers in the AWFI. This model seeks to explore from a firm and inter-firm level the influence that end-consumer demand has on the Australian wood furniture value chain; it also examines those firm-level activities which combine to create value for the end-consumer and benefit the competitive advantage of the value chain as a whole.

The study consists of mapping the AWFI and identifies key activities in the value chain, including forestry, milling, furniture manufacturing and furniture retail chain levels in regard to production, , firm-level competencies, and explores the relevancy of furniture value chain activities to end-consumer value. The firm-level study extends to furniture design, distribution and logistics, retail sales and end-consumer requirements particular to the qualities and characteristics of wood as a furniture material, highlighting value chain process inputs from raw material to end-consumer.

Two (2) formulated key research questions and ten (10) operational dimensions examine the relationships in the industry and build upon existing strategy theory. The exploration of the operational dimensions of value in the Australian wood
furniture industry included a three-phase mixed method research design approach encompassing semi-structured industry interviews, industry and end-consumer level questionnaires conducted in several Australian states and three wood furniture value chains across industry levels, ranging from raw wood material to the wood furniture retail environment. The selection and tracking of an Australian wood furniture product, namely a wooden dining chair, is based on it being a recognisable household product of a relatively small number of components and physical size, predominantly wood, and, most importantly, a wood product with a high profile and long-standing in end-consumer use. Furthermore, a chair concisely introduces and reflects the complexity of the Australian forestry and wood products sector, the Australian wood furniture industry, informs the wood furniture value chain and by choosing wood as the predominant material used in construction delimits the immense complexity of value chain study.

This value chain study seeks to present an alternative industry strategy to counter the considerable economic pressure exerted on the Australian wood furniture industry by furniture imports; it will also encourage the sustainable use of forest resources by proposing the next steps in building the competitiveness of the Australian wood furniture industry through a focused, end-consumer oriented value creation industry model approach, and the maximising of forest product value.
Chapter 1
Introduction to the Study

The Australian economy has prospered by building upon its ability to create value through the processing and supply of natural raw materials and the development of consumer products and services for domestic and international markets. The diversity of value creation in the Australian economy is represented through a myriad of commercial activities, ranging from minerals and forestry in the resources sector to products of greater complexity where higher value is added, including domestic and commercial furnishings, scientific equipment, and vehicles in the automotive industry.

Australia has experienced seventeen consecutive years of economic growth which has been the envy of many countries and has placed Australia consistently within the highest ranked developed nations in terms of global competitiveness (DFAT, 2008). During this period of economic expansion, Australia has been recognised as a leading developed nation by the World Economic Forum’s Global Competitive Index (WEF, 2009), which benchmarks across one-hundred and ten indicators the presence of stable government and policy, technological advancement, living standards, and the ability of a nation to compete in global markets. The WEF index placed Australia eighteenth among one-hundred and thirty-four countries in 2008-09, representing an improvement of one position over 2007-08. Despite this, it may be noted that Australia’s place of seventh in 2002 and fourteenth in 2004 (WEF, 2009) suggests that certain developed, competitive nations may have improved policies and actions towards more efficient competitive strategies, or that planning for competitiveness among other competing nations, including Australia, may have been relatively less successful.

The nature of international competition has become more complex during this period and Australian industries have experienced reduced import tariff protection in a bid to encourage competitiveness, a rise in labour costs in comparison to countries with
relatively lower labour structures, cost increases in local materials and other commodities, and consolidation of providers in several global trading sectors.

The negative impact on the competitiveness on high cost countries (HCC) such as Australia, the USA, and the members of the European community and others, from low cost countries (LCC) of manufacture such as China, has transformed global competition and challenged competitors to adapt to new consumer demands (Navarro et al., 2008, p.13).

A firm’s competitive ability to succeed in meeting new consumer demands within an industry sector and the marketplace is based on maintaining consumer interest in the products and services it offers (Woodruff, 1997). The matching and exceeding of competitor production efficiencies through competitive supply chain management is essential, and overall the success of a firm in creating value for the consumer is pivotal to a firm building competitive advantage over rival firms (Barney, 2002).

Value chain methods have gained popularity in the analysis and building of competitive advantage as the efficiency of each process step is assessed in detail from raw materials to the eventual user, whereas the preceding supply chain model focused on activities that take raw materials and sub-assemblies into a manufacturing operation smoothly and economically (Porter, 1985, Barney, 2002).

Maintaining above-average performance or competitive advantage can be linked to the amount of value created or value added above expenditure. This can lead to economic surplus as opposed to deficit when firms or value chains underperform. This suggests that wealth generated primarily from only raw material sales, in contrast to materials converted into commodities of higher added value, promotes a dependency on low price-margined volume sales that may be exposed to vigorous competition.

Conversely, production differentiated by value-adding through cost reduction and product feature enhancement, including technological and quality advances and innovation may increase profit, competitive advantage and independence through the
increased prospect of sustainable growth in export sales and import replacement supporting national interests (Thackara, 1999).

1.1 Competitiveness issues in the Australian furniture industry

The Australian Government under the Competitive Australia program has recognised the potential of several industry sectors including the furnishings industry, and invited this industry to contribute to the drafting of a sector specific Australian Furnishing Industry Action Agenda Plan to enhance competitive advantage of the Australian sector towards 2010 (Commonwealth of Australia, 2000a). A dominant player in the furnishings sector is the furniture industry, of which wood furniture production makes a significant contribution in forest product value-adding (ABS, 2002, BIS, 2004, FIAA, 2009).

The importance of the forest sector, classified as the Forestry, Wood and Paper Industries, has been identified as one of twenty-two Australian sectors that represent an industry group, market or natural resource of national significance (CSIRO, 1999). Efforts directed toward the unifying of key sectors within a conceptual framework suggest that moves towards a cohesive national focus may lead to the need to further improve the understanding of all sectoral inputs with a value system.

The overall value system is a concept that represents all value created by all industries (Porter, 1985). The value system may be identified as all value creation activities or industries in the world, or a country, or even a region, each reducing in complexity depending on the frame created. Each industry is comprised of firms that combine and interact to create value in value chains that in turn contribute to the value system. Particular value chains compete against each other within a market segment and attempt to sustain their competitiveness by formulating strategies that may create competitive advantage. The Australian wood furniture industry is one such segment.

Competitive advantage occurs when one value chain presents superior offerings over another chain within its industry sector. The superior offerings that combine to create
competitive advantage may be made up of particular core competencies that are
leveraged to provide production efficiencies or product differentiation, contributing
to superior performance over rival value chains.

The path toward superior performance may require assessment of market competitors
against one’s own value chain and each value input. Value chain methods have been
effective in several industry studies in contributing micro and macro level
information from which assessments can be made and subsequent value creation
strategies deployed.

A focus on value chain inputs may include the assessment of costs and efficiencies
related to raw material procurement, manufacturing production, energy use in
production, transport logistics, market knowledge, unique product design, and
consumer-led demand for goods and services. This suggests that a more holistic
value management approach is required toward understanding how value is created
throughout the journey from raw material to the final product and how this value
synchronises with end-consumer value demands.

The overall Australian value-creation landscape could therefore be assessed for
potential competitive advantage opportunities. The opportunities could be leveraged
within and between key sectors toward higher profits through smarter value-creation;
reduction of value lost through inefficiency; and importantly, the relevance to end-
consumers in local and global markets could be targeted. The targeting would require
a knowledge base and timely market intelligence.

A unified knowledge base once attained would present a leap forward in strategic
thinking and planning for competitive advantage through sustainable practices; it
could contribute vital intelligence guiding research investment “essential to future
advances and to the successful management of broader economic and environmental
challenges such as the restructuring and sustainability of traditional industries”
(CSIRO, 1999). A focus, in the national interest, on forestry, wood and paper
industries has also resulted in the establishment of the Cooperative Research Centre

Guided by the Australian Furnishing Action Agenda Plan (Commonwealth of Australia, 2000a) and drawing from the conclusions of the Australian Furnishings Industry Report – An Analysis (AEGIS, 2000) it is evident that the furnishings industry requires considerable development to ensure long-term success in the local and global marketplace in order to counteract continuously rising imports and their effect on the local furnishing industry (FIAA, 2009).

A perspective of the opportunities and threats in the furnishings industry and the timber furniture sub-sector can be gained from data presented by the Furnishings Industry Association of Australia (FIAA) document Furniture Trends, an independent quarterly industry economic review. The review has consistently identified a bleak Australian furnishings economic perspective in relation to imports which has changed little to today (FIAA, 2009). National industry benchmarks for turnover and value-added per employee in the total furnishings industry compare unfavourably with other industry sectors such as Textiles, Clothing and Footwear which is also regarded as an industry in decline, with both figures being between 25 and 50% lower than for comparable sectors (ABS, 2009b).

Examination of the detailed breakdown of the eight sub-sectors of the furnishing industry clearly shows the dominant contribution from the wooden furniture sector, with this area contributing 42% of employment, 36% of industry turnover and 35% of total industry value-added, and the number of establishments producing wood furniture has grown steadily over the past several years.

However, this sub-sector has the second lowest figures for turnover, wages and value-added per employee. The industry is highly fragmented, with numerous small firms, and although firms have advantages in flexibility they lack economies of scale, have less access to capital and lower than average management skills. These figures clearly indicate a sector in need of productivity and efficiency improvement throughout the value chain. Increasing production of higher value-added products
through innovation in manufacturing and design, and a focus on collaboration throughout the industry are required to narrow the growing gap between imports and exports and to develop the ability to withstand susceptibility to negative changes in the economy.

Given the preceding discussion, a key challenge for researchers in adopting a value chain approach is to identify the key drivers that influence the creation of economic value in the Australian wood furniture industry. A better understanding is required of the barriers that may preclude advances in economic efficiency that diminish value creation opportunities at both end-consumer level and firm levels, and the way that inter-relationships between all process steps, from raw material to end-consumer, influence the optimisation of economic value across the whole chain.

1.2 Research questions and objectives of the research

Despite several value chain studies having addressed the importance of value creation at the production levels of the chain, the focus on the needs of the end-consumer has been only briefly observed and has been disconnected from the effects of end-consumer demand on production efficiency.

In response to the gaps in the existing value chain literature as it pertains to the Australian timber furniture industry, two broad research questions are considered in this research:

- **What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry?**
  And:
- **How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?**

Given these questions, the major objectives of the research are:

- To develop a framework that identifies the players and activities that may have the greatest impact on value creation and competitive advantage in the Australian wood furniture value chain
To identify the wood furniture attributes having the greatest effect on end-consumer value and to examine their effects on value chain prioritisation of value creation activities

To identify the most promising firm level behaviours that may support the implementation of a value chain approach and the development of greater value for the chain

To discuss the perspectives of Australian wood furniture value chain manufacturers and the wood furniture end-consumer separately, then seek the level of confluence, interdependence or divergence in what may constitute value for suppliers, manufacturers, buyers and end-consumers within the Australian wood furniture value chain.

1.3 Scope of the research

The main objective of this study is to identify specific areas for improving the global competitiveness of the Australian wood furniture industry and to examine the most promising mechanisms for collaboration within value chains in this industry. By building on industry, consumer and organisational studies, and through the value chain approach, the research will focus on the drivers for, and barriers to innovation, productivity improvement, and providing end-consumer value attributes in the Australian wood furniture industry.

The research model includes the factors leading to gains in competitiveness and the consequences of the value chain approach. As most of the research in the Australian furniture sector has focussed on productivity improvement at a manufacturing level, this study extends knowledge by examining value-creating contributions at the various production levels from the forest to the end-consumer in the Australian wood furniture value chain.

The lack of understanding of the motivations of final end-consumer of a wood furniture product other than at the Australian wood furniture retail level of the value chain by most levels of the value chain and the absence of inter-firm understanding of profitability between value chain members suggest that this investigation is timely in planning for future improvements in the Australian wood furniture industry.
Only in the 1990s have detailed analyses of complete value chains been attempted on an empirical basis (Womack and Jones, 1996, Barnes and Kaplinsky, 1999). These analyses exposed fundamental production, storage and delivery inefficiencies across the value chain and identified areas for potential collaboration and productivity and efficiency improvement.

Most empirical value chain studies have identified a single product and traced it back through its supply chain (Barnes and Morris, 1999). These studies have used the term *product pipeline* to describe such a supply chain. Using this technique, researchers are able to quantify the extent to which the value transformation at each firm contributes to the overall competitiveness of the product being considered. By focusing on an individual product, the researcher is better able to assess the ability of its production pipeline to meet its particular market demands and to generate a systemic picture of the competitiveness of the pipeline as a whole.

The synergies or inconsistencies between and within each linkage in the production of the product are clearly highlighted, contributing to a broader level of understanding of how pipeline issues impact on the ability of firms and industries to improve their competitiveness (Barnes and Morris, 1999).

The thesis builds upon extensive firm-level research undertaken on forestry innovation, and market competitiveness. Existing studies of the Australian furniture industry and international wood furniture end-consumer value studies form an excellent base for the value chain methodology proposed for this thesis.

1.4 The Australian wood furniture industry

Currently there is little information related to the attributes that constitute demand for Australian wood furniture from local Australian or global wood furniture end-consumers. Therefore there is limited information addressing the value placed by end-consumers on specific aspects of furniture ownership: branding; design; innovation; quality; and price. The industry has relied on tacit industry knowledge and emerging research from marketing, design and logistics studies, and through initiatives under the Australian Government’s Furnishing Industry Action Agenda
Plan (Commonwealth of Australia, 2000a), CRC in Wood Innovations (CRCWI, 2008), Forest and Wood Products Australia (FWPA, formerly the Forest and Wood Products Research and Development Corporation, FWPRDC) and workshops, seminars and research facilitated by the furnishing industry peak body, the Furnishings Industry Association of Australia (FIAA, BIS, 2004, FIAA, 2009).

As the Australian wood furniture industry (AWFI) is a major sector of the overall Australian furnishing industry, it is expected that the outcomes of this research will contribute significantly in assisting the Australian wood furniture industry to contribute to and extend specific strategies identified in the Australian Commonwealth Government agreed Furnishing Industry Action Agenda Plan (Commonwealth of Australia, 2000a).

Analysis of the Australian wood furniture industry will build upon, and be informed by the reports, *The Australian Furnishings Industry: An Analysis* (AEGIS, 2000), and *Furniture Industry Association of Australia - Timber Policy* (BIS, 2004).

### 1.4.1 The Australian wood furniture industry’s role in the Australian forest sector and the Australian economy

The industry comprises 2850 manufacturers of wood and upholstered furniture (FIAA, 2009) representing 22% of the A$25bn furnishings industry value to the Australian economy (ABS, 2009a). The Australian wood furniture and upholstered seat market is divided between domestic and commercial furniture segments at 70% and 25% respectively (FIAA, 2009, p.17).

The size of the Australian wood furniture industry’s impact in terms of material used in furniture in comparison with the overall material supplied by the forestry sector is small. The yield in value-added per volume to raw material can be seen as significant when compared with value added per volume for materials in paper production industry, and may be further understood when assessing value per wood volume measured by cubic metre (BIS, 2004). Wood furniture value per unit of volume
potentially comes second only to wood yields aligned with high wood quality product applications of comparative detail to that of a wooden musical instrument – piano or violin.

1.4.2 Growth opportunities for the Australian wood furniture industry (AWFI)

Australia’s proportion of total Australian furnishings retail sales has halved since the early 1990s. Local demand in the overall Australian furnishings retail sector has grown from A$2.5bn to A$8.3bn in annual sales, although Australian product sales volume share has remained static at A$2.5bn during this period of great expansion in the Australian market (FIAA, 2009).

The expansion in the market held especially by imported goods has been attributed to low cost products from countries identified as low cost countries (LCCs) competing with Australian products, identified as having been produced within a high cost country (HCC). This alone has been cited by industry as having had the greatest impact on local sales rather than any specific design feature (FIAA, 2009).

In response the Australian furnishing industry, in cooperation with the Australian Federal Government, has developed an industry plan designed to implement targets to 2010. It has focused on workplace management, supply chain management, innovation, regional development, and market development (Commonwealth of Australia, 2000a).

Export opportunities lay in the trends of successful importers into key markets where there was increased interest in the quality of wood, including the United States where Australia ranked outside the top twenty-five global import sources for wood household furniture, representing an opportunity for address (Austrade, 2004).
1.4.3 **Issues in the Australian wood furniture value chain (AWFVC)**

In a study of the Australian furnishing industry, innovation was recognised as the key driver of industry growth requiring appropriate support structures, an ingredient cited as being inadequately developed across the Australian furnishing landscape (AEGIS, 2000). The main area of contention is found in the limited sharing of information within the value chain and focuses on blockages in communication. Successful communication is often associated with high levels of trust and collaboration. Collaboration appears as a central requirement in the management of effective value chains (Ballou, 2007, Horvath, 2001, Min et al., 2005).

Effective value chain management principles can be found in parallels drawn from prior Australian furnishings industry studies and contributions (AEGIS, 2000, Commonwealth of Australia, 2000b, 2001a, 2001b, Ong, 2001, Furntech, 2004, BIS, 2004). The recommendations from *The Australian Furnishing Industry: An Analysis* (AEGIS, 2000, p.63) included the need for:

- Industry policy development to establish linkages to domestic retailers, linkages to commercial furniture specifiers as advocates of trends, and a third linkage to small manufacturers with different needs
- Policy to assist the establishment of geographic co-location, especially of smaller firms, in clusters to enhance competition, collaboration and innovation
- Greater investment in machinery and equipment with associated training, improvements in research and development, and export and local market development, with urgent attention focused toward information flow and technology transfer
- Development of collaboration of interior designers and architects with suppliers, and investment in both furniture and industrial designers
- Industry action “to harness its wealth of tacit knowledge and use it as a base for collective development through grater collaboration and knowledge sharing” (AEGIS, 2000, p.63).
The results of these recommendations are echoed by the Furnishings Industry Association of Australia (FIAA) and the premise of the establishment of the CRC in Wood Innovations and Forest and Wood Products Australia (FWPA) supports the need to focus on the value creation aspects in the industry.

The above-mentioned critical issues to interact with, connect with, communicate with, share, build and leverage the capabilities of the Australian wood industry value chain became the motivation for the present investigation.

1.5 Overview of the methodology and analysis

A major part of this thesis is to develop a conceptual value creation evaluation framework for the Australian wood furniture industry. Therefore, a review of existing literature is undertaken and gaps in the literature are presented. The literature review is followed by a research design incorporating a mixed method approach that combines quantitative and qualitative research followed by analysis.

In particular, the methodology adopted in Phase 1 is a semi-structured face-to-face interview that includes a request for assistance from stakeholder representatives in firms and organisations involved in the supply, manufacture, distribution, and sales of Australian wood furniture inputs and products. The Phase 1 industry interviews contain eight categories and thirty-four questions and are based on an extensive review of the literature based on value chain analysis the concept of value creation.

The methodology for Phase 2 of data collection includes an industry questionnaire of ten categories and one-hundred and thirty questions that seek responses to aspects of competitive advantage, environmental certification and end-consumer requirements in the Australian wood furniture industry value chain at multiple production levels.

The firms approached are notable for the impact they have on the procurement and conversion of raw materials used in the final wood furniture product outcome. The firms approached for the interviews are described as suppliers, manufacturers and buyers.
The final methodological step is Phase Three, a survey of Australian wood furniture end-consumers. An end-consumer questionnaire comprises four categories and forty-two questions. This section contains the sampling frame of end-consumer furniture buyers at furniture retail, with the focus on the attributes of wood and the end-consumer perceptions of quality and value of wood and wood furniture.

As this research focuses on the convergence or divergence of value chain efforts in value creation for the end-consumer, analysis of the relationship between the producers in the value chain and the final end-consumers is significant for the relationship between the economic inputs of the value chain and end-consumer perceptions of value.

1.6 Organisation of the thesis

This thesis is organised into seven chapters. Chapter One has outlined the research questions and objectives of the research. Background information has been provided and several critical Australian wood furniture value chain issues in the industry have been named.

Chapter Two reviews the relevant literature on strategy, value, competitiveness, value chains, the Australian wood furniture industry and explores the relationship between end-consumer value, a construct traditionally found within the field of marketing, and the construct of competitive advantage as represented by the value chain concept. Global furniture markets and the Australian forestry sector are also reviewed and discussed.

Chapter Three introduces the research design; the methodology is discussed, and methods seeking responses to two key research questions and ten operational dimensions are developed to explore value creation and inter-firm relationships. Ethical issues are also discussed in this chapter.

Chapter Four provides an analysis of the exploratory data from the first of three data collection phases (Phase 1) of the research design and contains results of the semi-structured industry interviews.
Chapter Five presents the results of the Industry questionnaire (Phase 2) and End-consumer questionnaire (Phase 3) and discussion findings are undertaken.

Chapter Six presents a discussion of responses to the research questions and operational dimensions of value, the relationship of the value chain production contributions to value, and the perceptions of value for the furniture end-consumer.

Chapter Seven, the final chapter, contains the conclusions and implications of the study for the future of the Australian wood furniture value chain and practice. The limitations of the current study are subsequently reported, followed by the areas for future research. Finally, the conclusions of the current study are presented.

1.7 Justification for the research

This study significantly adds to the body of research in the understanding of linkages, interrelationships and interdependency of stakeholders in the wood furniture value chain, highlighting the need for periodic value chain and industry review in the practice of building sustainable competitive advantage.

1.7.1 Theoretical contributions of the research – End-consumer wood value management model (ECW-VMM)

To date, there have been no empirical studies examining the benefits of adopting a value chain approach in enhancing efficiency in this Australian sector. The contributions to strategic management theory include defining the importance of intangible sources of value and the interdependence to value chain research, firm-level and collective performance, and value chain theory and practice.

1.7.2 Methodological contributions of the research

Evaluating the value chain from an end-consumer perspective in assessing end-consumer need against value chain efficiency presents a unique viewpoint for interpreting the impacts and inter-relationships in an Australian furniture value chain, and informs the Australian wood furniture industry. The methodological contribution of the research is centred on the extension of the value chain approach with end-
consumer orientation. A mixed method approach of exploring both industry and end-consumer responses to value provides new reflection upon the appropriateness of value chain activities to wood furniture end-consumer value and the presents the new avenues for firm-level performance improvement and gains in competitiveness.

1.7.3 Industry and stakeholder implications of the research

The implications of the research study for the industry and stakeholders are considerable. The study contributes by further involving value chain participants in periodic planned discussions which promote collaboration and the sharing of information for the benefit of the whole value chain. The research also highlights the importance of forest level management of wood resources to value outcomes at all levels of the value chain including the end-consumer.

The acknowledgement of the complexity associated with value chain analysis introduced the significance of governance in the decisions to be made on a continuing basis at firm-level and value chain-wide as responses are made to established end-consumer value desired wood furniture attributes via the actions of the value chain. The challenge for the sector is who makes the first steps in discussing value chain potential and what type of incentive will encourage the liaison to continue. The study has provided the foundation for more research in the area of the intangible or less understood qualities of wood as a furniture material which rely on emotional and psychological dimensions, and functional and financial decisions.

The study provides a wider understanding of current performance issues and proposes stronger inter-firm linkages by establishing value chain relations and value chain governance toward performance improvements. The findings provide an indication of which firms should align themselves more closely; invest in mutually advantageous scenarios in building competitiveness through agreed performance measures; and consider further strategic alliances for the creating of new competitive advantage and value for firms through an end-consumer value orientation.
2.1 Introduction

The imperative to improve the competitiveness of the Australian wood furniture industry against the threats of imports remains constant and there are consequences for the industry if little is done to stem the surge in imports. Many Australian furniture producers are vulnerable given their relative size of commonly less than ten employees and low economies of scale in production.

2.1.1 The theoretical basis of the study

This research study is grounded in strategic management theory with support from operations management, interorganisational studies and customer orientation.

The theoretical background of the study is defined around the value chain approach as a central term to explore value creation in the Australian wood furniture industry (AWFI) and the most promising mechanisms for value creation and efficiency improvement in meeting the value demands of Australian wood furniture end-consumers. Building an understanding of what value is, who desires value, how value is recognised and how value requirements are met are important aspects of value creation and business performance.

2.1.2 The Australian wood furniture industry

Record levels of imported furniture products into Australia running at A$2.83bn in 2008/09 suggest that imports dominate the retail landscape and Australian homes (FIAA, 2009, p.25). Imports provoke the highest threat to the smaller furniture producers in competitive terms. The predominant countries supplying imported furniture to the Australian furniture market include China and Malaysia. Although Australian furniture exports were A$137m in 2008/9 of which wood and upholstered furniture accounted for A$63m in 2008/9, the local furniture industry value is
estimated at A$25bn in 2008/9 providing significant revenues to upstream and downstream industries marking its importance to overall Australian productivity (FIAA, 2009, p.3 & 40).

Many furniture manufacturing countries stress that the pressures that influence a loss of competitiveness in the furniture-manufacturing sector in their own countries are largely explained by low wage structures in developing furniture supplier countries such as China, challenging the competitiveness of local furniture manufacturers. Countries have been categorised as either being low cost countries (LCCs) or high cost countries (HCCs) either possessing low or high wage or overhead business structures culminating in either lower or higher cost products (Navarro et al., 2008, p.13). This has positive or negative associations to firm, industry or national level competitiveness dependent on country viewpoint and relative competitive advantage gains under particular trading conditions.

The opportunity exists for the Australian wood furniture industry to supply desirable wood products of world-class but the lack of purpose, direction and cohesion in the Australia wood furniture industry to meet the challenge in supplying new sought-after product exports to the world remains mostly elusive. Despite the momentum of government and collective industry attempts the core delineation of what constitutes value for Australian wood furniture end-consumers has yet to be explored other than cursory comparisons to foreign furniture products from the best performing furniture producer and exporter nations in terms of design and production efficiency. The question is how these competitive pressures on the Australian wood furniture industry are explored, analysed then alleviated and what planning method will assist this exploration and advance change.

The detail in what motivates wood furniture end-consumers to purchase and how relevant and interdependent the activities in the linked wood furniture value chain are in meeting the value demands of the end-consumers may offer the prospect to seek further value in the Australian wood furniture industry. The avenues for exploration include raw material procurement, production efficiency, and enhanced focus on highly desired wood furniture attributes as indicated by end-consumers, in cooperation with marketing wood qualities through appropriate furniture designs.
Clarification is also sought in further understanding inter-firm linkages and interdependency of all stakeholders in the value chain and how it may affect performance of the firm and the collective of value chain contributions and the benefits of alliance.

2.1.3 Chapter organisation

This chapter will review the body of literature in strategic management and the emergent themes from this topic area and aspects of competition and conceptual approaches for assessing competitiveness. Following this, the case for a value chain approach will be developed and an overview of furniture value chain literature in global and Australian contexts will be presented. The role of the wood furniture end-consumer as a source of value will be reviewed and the integration of the value chain approach as a competitive strategy for the Australian wood furniture industry will be developed.

The conclusions of the literature review will be a summation of the knowledge gaps in the literature including performance measurement, communication, end-consumer orientation, and value creation in the Australian wood furniture industry (AWFI).

Following the discussion of conclusions, two research questions are advanced and operational definitions guiding the observation and measurement of the constructs of competitiveness and value in relation to the AWFI are presented.

2.1.4 Research problem relationship frame diagram

The framing of the research area in a relational diagram assists the review of literature plan by situating the discourse in existing strategy research, includes boundary setting for research problem establishment, and confirms the location of the central research questions (Figure 2.1). Several areas of interest have been identified within the literature including strategic management, value, value chains, competitiveness, end-consumers collaboration, innovation, and furniture industries.
2.2. Early studies of strategic management

Strategic management and the concept of strategy have developed over the last three decades through industry practice, academic discourse, and business consultancy. Strategy has been defined as a pattern or plan of an organisation’s integration of goals and actions into a cohesive whole and a well formulated strategy focuses allocation of an organisation’s resources toward seeking a unique and competitive position based on internal competencies and dynamic markets (Mintzberg et al., 1995, p.7).

Arguments for advantages in adopting a strategic approach range from: strategy setting for charting organisational direction, effort focus in the coordination of activities, organisational definition distinguished from others, and consistency through provision of order; to conversely, disadvantages in strategy adoption suggesting that pre-determined courses limited response to changing conditions,
group-oriented thinking limits wider visions, organisational definition narrows rich complexity, and strategies may distort or misrepresent reality (Mintzberg et al., 1998, p.17).

The semantics surrounding the concept and meaning of strategy are varied and have been aligned to different schools of strategic management approach and strategist preference (Mintzberg et al., 1998, French, 2009). One of the dominant schools of influence emerging in the 1980s was stimulated significantly by the work of Porter (1980, Mintzberg et al., 1998, p.82).

Porter approached strategy from an economics-based industrial organisation viewpoint; a field long related to industry behaviour than individual firms, and contrary to the premise that strategies are required to be unique and tailor-made for each organisation as preceded in the development of the strategy concept. The new concept suggested a generic strategy for organisations including cost focus, product differentiation and market scope and a developed set of analytical tools used to match conditions and identify the right relationships. The new competitive strategy approach provided detailed steps to advance competitive and industry analysis based on generic strategy positions and analytical calculation.

The concept of competitive strategy was further advanced by Porter (1985) with the more detailed value chain concept viewing all primary and support activities within firms, and then the totality of the supply or value chain as infrastructure rather than at individual firm level. The development of strategy using analytical techniques has been criticised as not being able develop strategy but contribute useful information into the strategy-making process and that the orientation of value chain analysis more biased toward economic and quantifiable than social and political, or non-quantifiable economic factors (Mintzberg et al., 1998, p.112). The cost leadership strategies are also suggested as dominant in the data in comparison to strategies of quality differentiation and may also lead to biases. Quality differentiation places emphasis on the more consumer-oriented tangible aspects of products and services and may indicate an avenue for further investigation beyond the recognised value chain strategy approach.
The strategic management literature is inconclusive in most fields including furniture industries in satisfying the need for plausible extended strategic approaches to practical problems in providing operationalisation in practice tackling both the interests of value to end-consumers and value to value chains into account from quality-to-end-consumer; and economic reward-to-end-consumer and the value-to-value chain perspectives.

2.3 Competition

Competitive advantage is an essential ingredient for businesses operating and surviving in dynamic markets and is therefore a highly desired attribute for a firm and a value chain. Barney (2002, p.264) describes competitive advantage as “the distinct way the organisation is positioned in the market for it to obtain an advantage over competitors”, evidenced by “the organisation’s ability to generate and maintain sustained levels of profitability over the industry average”.

The advent of an increasingly globalised world economy has had a significant impact on the nature of competition, production and consumer demand. Manufacturers, faced with increased competitive pressure and increasingly discerning consumers, are being forced to restructure both internal and external relationships in order to respond flexibly, innovatively and rapidly to shifting and splintering market demand.

The accelerated path towards globalisation in the manufacturing industry has been marked in many sectors by corporate takeovers which have often provided an opportunity to capture new efficiency and productivity improvement. International experience offers a host of examples of the way manufacturers have successfully restructured to improve their international competitiveness (Piore and Sabel, 1984, Schmitz, 1993, Gereffi, 1996, Schonberger, 1982, 1996).

An important component of restructuring has been recognition that “firms cannot be islands of competitiveness in a sea of inefficiency” (Barnes and Morris, 1999). This recognition has created a major increase in the importance of improving competitiveness. Improving competitiveness requires both intra-firm and inter-firm restructuring and places a major stress on the linkages between enterprises. The focus
has shifted from primarily firm-centred activity to viewing all inter-firm activities as a collaborative process from raw material supply to delivering product and services to end-consumers.

Restructuring takes many different forms. At opposite ends of the restructuring spectrum in linkage relationships are the Japanese large firm and Italian small firm models of flexible production. Both models allow benefits to accrue to firms through improving relationships both along the supply chain with suppliers and customers, and with their competitors.

In Japan firms such as Toyota have been very successful in their introduction of such principles as Just-in-Time production, continuous improvement and supply chain management. In this form of vertical co-operation the key component is the ability to move from ‘arms-length contractual relationships’ between the large assembler and component suppliers towards ‘obligational contractual relationships’ based on co-operation and maintenance of long term supply sources (Gereffi, 1996, Humphrey et al., 1998, Sako, 1992, Womack and Jones, 1996).

In a very different setting, small firms in parts of Italy have successfully broken into the global market through pooling their resources and co-operating around a range of issues. The key component in this form of co-operation is the ability to establish trust among relatively small firms and on this basis create and manage common manufacturing and marketing strategies. The concept of collective efficiency (Schmitz, 1997) explains the benefits accruing to co-operating firms and is now well established with numerous studies of firm clusters reaping the benefits of collective efficiency (Schmitz and Musyck, 1993, Nadvi and Schmitz, 1994, Lorenzon, 1998). Collective efficiency strives to create sufficient incentives for co-operating firms to remain connected though collaborations that lead to new value gains for participating firms which would otherwise not be accomplished without alliance.
2.4 Conceptual approaches for assessing competitiveness

2.4.1. The case for a value chain approach

Collective efficiency is one potential goal of the extended enterprise and ideally a measurable performance outcome especially if collaborations are to continue to be valued and sustained to maintain inter-firm relations and the financial benefits of alliance, and inter-organisational learning. A sustained collective competitive advantage requires a strategic mindset which governs activities and supports organisational agility in responding to market changes. How and why firms could or should be more collaborative in value creation is explored in the literature through a number of conceptual variants; the supply chain, value chain, and extended enterprise approaches.

Concurrent to the ascendancy of the value chain concept contribution by Porter (1985), the literature has also focused on the supply chain and supply chain management (SCM). The SCM concept “extends the view of operations from a single business unit or a company to the whole supply chain” and is “a set of practices aimed at managing and coordinating the supply chain from raw material suppliers to the ultimate customer” (Heikkila, 2002, p.749). The convergence on productivity improvement also led to rethinking manufacturing efficiency in the movement toward lean production and lean thinking in manufacturing (Womack and Jones, 1996). The emergence of lean thinking as a concept also ran parallel to supply chain management and may be viewed as complementing both the supply chain and value chain approaches in the wide focus on activities from raw materials to end-consumers.

The term supply chain may be considered as interchangeable with value chain although supply is more likely to be related to logistics management; it is also common to the value chain approach in identifying primary core competencies and secondary activities. The emerging themes in the literature indicate that the focus should be on value to the end-consumer (Normann and Ramirez, 1994) rather than supply which may be intended more for buyers from suppliers than end-consumers.
Supply chain methodology is closely aligned to the value chain approach as a productivity and value improvement strategy in that supply chain methodology could be extended to include further activities from raw material inputs, across all production steps, marketing and distribution all the way to the end-consumer as the value chain approach intends. Rarely are both value chain and supply chain concepts discussed in the same publication irrespective of any common theme as it appears allegiances to either term are historic. There are exceptions where both terms appear concurrently and work constructively toward a holistic approach to strategy planning and efficiency improvement (Horvath, 2001, Jeong and Hong, 2007, Walters and Rainbird, 2007).

In respect of this study it is of consequence that value is adopted over supply since the resultant outcomes of value are of considerable interest to the sources of value for firms and the relevance of end-consumer oriented value inputs provided by firms in meeting end-consumer value demands. The procuring of end-consumer interest and financial expenditure via sales as value for firms and end-consumers is integral to successful value creation. Value creation sources and end-consumer orientation may therefore influence the emphasis from supply toward value. End-consumer value promotes end-consumer engagement with a value chain’s output through retail sales and provides an indication of the flow of economic value to the value chain from the value proposition’s intended sales target; the end-consumer.

Further discussion in the literature has lead to the transformation of the concept of supply chain to the concept of the extended enterprise which seeks a strategic planning mindset envisioning “seamless delivery, transparency in all aspects of logistics, and permeable boundaries [between firms]” within a framework of trust, collaboration commitment, and process alignments across network members (Davis and Speckman, 2004, p.29 & 50). The extended enterprise concept also shares with the value chain approach the scope of network collaboration from raw material to end-use consumption, and the primary goal in leveraging the skills and capabilities to achieve sustainable competitive advantage by better meeting end-consumer needs than competing networks.
What is not evident in the literature regarding the supply chain, extended enterprise or value chain approaches is the importance of knowing if the ‘right’ product is being delivered to the end-consumer’s satisfaction or is the process improvement strategy to build competitiveness focussed on a flawed or a strong value proposition to the end-consumer. This direct linkage to end-consumer needs is not explicit in the supply chain, extended enterprise or value chain literature. This adds weight to adopting a research methodology to assess competitiveness and the relevance of current firm-level core competencies in responding to end-consumer needs.

In pursuing sustainable competitive advantage, market orientation and a focussed value proposition to the end-consumer of measurable competitiveness is therefore desirable. The proposal to review value creation via a value chain approach as a methodology with which to explore the attributes of extended enterprise competitiveness and supply chain efficiency therefore holds merit. It may be noted that Svensson (2003) argues that it is a supply chain of activities that can be assessed and that a value chain is not present until the value to the end-consumer is factored into an extended analysis.

A value chain approach represents a focus on collective and collaborative processes across a full range of activities required to bring a product or service from conception through the different phases of production involving a combination of physical transformations, the input of various producer services, delivery to final consumers, and final disposal after use (Kaplinsky and Morris, 1999). Kaplinsky and Morris (1999) summarise three main reasons underlying the importance of value chain analysis in an era of rapid globalisation:

- Given the growing division of labour and the global dispersion of the production of components, systemic competitiveness has become increasingly important.
- Production efficiency is a necessary condition for successfully penetrating global markets.
- Entry into global markets which allow for sustained income growth requires an understanding of the dynamic factors within the whole value chain.
The prime objective in seeking to find an appropriate methodology for assessing competitiveness in a particular industry resides in scope of the methodology to explore as many aspects of firm-level, inter-firm level, and industry level competitiveness as required to indicate where value creation occurs; where further value could be captured; and which processes are inefficient and wasteful or counterproductive to the commercial motivations of the involved enterprises.

The value chain approach is criticised for its analytical economic bias destined for calculation rather than being more responsive to realities of the tangible world of making products, making sales or differentiating quality (Mintzberg et al., 1998, p.113 & 115). Therefore the need to engage with the wider dimensions value in the value chain incorporating the dynamics between firms and exploring the nuances of smaller experiences in value chains are required.

In industries which do not have economies of scale, mature local or export markets, these industries may seek alignment toward one or more existing methodologies as a commencement point for assessing competitiveness. Defining what value is, what is valued, and how value is created is pivotal in guiding all participants involved in a new or continuing cooperative alliance.

2.5 Defining value

In order to assess competitiveness there needs to be a focal point from which to gauge the appropriateness and relevancy of contributions toward value or a set of agreed values. Svensson (2003, p.393) concludes from results of a survey of retail executives that there was strong emphasis that “the values of the ultimate consumer should be of everybody’s concern in a supply chain, and that the ultimate consumer is the only one which contributes or attributes value to their firms”.

Pitta and Laric (2004) suggest value as being the worth of product or service, end-consumer benefit being the net of cost and benefit, and value built of time as a product in use. Value is contained in the meeting of consumer demand and in the profits for firms and for collaborative organisations there are internal benefits for
firms and external benefits to end-consumers (Bititci 2004). Therefore a focus on end-consumers can help foster inter-firm relationships towards meeting value demands.

The concept of value creation is central to micro-level and macro-level research in the management and organisation literature but little agreement in what value creation is or how it can be achieved (Lepak et al., 2007) and distinctions are made between value (held by end-consumers) and exchange value (realised on sales) and value creation and value capture (Bowman and Ambrosini, 2009). The activities that capture end-consumer value are described as only able to be identified in retrospect when the activity leads to a sale. The prospect of back-casting rather than forecasting has implications for value creation in how responsive and timely decision making actions are in changing markets.

The creation of value is positioned in a dynamic process that may take several perspectives into account. Value can be held as a series of perceptions in the mind of the end-consumer including psychological dimensions of product ownership (Lindman et al., 2008) of which emotion and product attributes are facets in decision-making (psychological/emotional/functional), or from a firm-level perspective as value organised in competencies and assets and the generation of profits as financial measures of competitive advantages (organisational / financial / competitive). How the concept of value is recognised and then operationalised within organisations is therefore of considerable importance to understanding and building competitiveness strategy theory in this study. The need for an information system which enhances inter-organisational understanding of the opportunities for value improvement and that can track the flow of benefits of cooperation is essential to seeing value in the chain (Ballou, 2007).

Therefore it may be concluded that a focus on the end-consumer value has benefits for firms involved in the process of creating value for end-consumers. Furthermore, the need to forecast how and where end-consumer value will be captured by firms will require the implementation of an information system which can ascertain end-consumer value and monitor the meeting of this value throughout the value creation system.
2.6 Value chains

2.6.1 Introduction

In response to the imperative for assessing the competitiveness of firms, value chain methodology has provided an effective viewpoint in understanding firm-level and industry-level dynamics. Porter (1985, p.36) introduced the *value chain* as a concept enabling strategists to diagnose and enhance aspects of competitiveness and competitive advantage through a focus on primary and secondary activities within firms and firms participating within *value systems*.

Value chains are based on the actions of individual firms providing specific contributions towards products and services. Value systems provide the overall value creation framework encompassing the entire output of products and services where individual value chains compete in the exchange of goods and services while attempting to attain competitive advantage over rivals (Porter, 1985). There is an assumption in Porter’s work that value is created sequentially at firm level with value increasing progressively within subsequent firms until delivery to the customer.

Challenges to Porter’s generic value chain (Porter, 1985) to a wider value chain concept focuses on the key principle that there is an inter-firm “*mutual dependency where the end result is wholly dependent on the preceding activities*”, with all components of the value chain combining to “deliver maximum value at least cost” (McLarty, 2003, p.431).

The effectiveness in providing a holistic view of value is further challenged in the literature (Svensson, 2003, Davis and Speckman, 2004). The consequences of this are that the end-consumer to an extent may appear to hold a lower order in the value creation process and therefore marginalised rather than an acknowledged influential source of value in the generic value chain.

2.6.2 The value chain approach

However, competitive advantage is an essential ingredient for businesses operating and surviving in dynamic markets and is therefore a highly desired attribute for a firm and a value chain. Barney (2002, p.264) describes competitive advantage as “*the**
distinct way the organisation is positioned in the market for it to obtain an advantage over competitors”, evidenced by “the organisation’s ability to generate and maintain sustained levels of profitability over the industry average”. This implies that organisations understand what advantage is held over rivals in a changing marketplace by recognising which market attributes are distinctive and profitable. Therefore a greater understanding of the factors which contribute to maintaining market distinction and sustained levels of profitability require continual exploration and detailed assessment by firms in value chains.

In support of the requirement for detailed analysis, a value chain approach can include mapping all activities from raw material acquisition, and all production level contributions towards ultimate delivery to the end-consumer and “identifies the flow of added value through the value creation processes within both the industry and the firm” (Walters and Rainbird, 2007, p.600).

The value chain concept has been recognised widely by researchers as providing a framework to highlight firm-specific knowledge and identify firm-level competencies through the assessment of firm-level activities. The assessment of firm-level activities can provide a micro-level understanding of value contributed by each activity and in turn each firm’s contribution in a product’s production life cycle, further advancing the understanding and nature of interactions between firms and potentially the effectiveness of each firm and the collective of firms in creating value. A value chain approach becomes an effective tool in focusing attention on process efficiency and a source for productivity improvement.

Interpretation, application and variations upon the value chain approach have been contributed by different researchers in an array of diverse industries indicating the versatility and applicability of the value chain approach as a tool for strategic planning and management of firm-level performance. The review of value chain literature lead by the Porter value chain framework (Porter, 1985) presents a number of contributions inspired by the strategic nature of the value chain approach and interpretations of the value chain concept related to identifying and analysing competitive factors within firms, relationships between firms, and competitiveness across industry sectors, integrating of the concept of value and value creation.
A summary of existing research discourse and critique of value chain approach principles is presented in the following table to indicate how the definition of the topic area has evolved (Table 2.1).

Table 2.1: Value measures in the literature relevant to competitiveness

<table>
<thead>
<tr>
<th>Source</th>
<th>Contribution to strategy and value vocabulary</th>
<th>Generic value chain derivation</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porter (1985)</td>
<td>Value chain concept 5 Forces Model</td>
<td>Earlier version (1980) basis for value chain (VC) concept</td>
<td>Identify primary and support activities and interactions combine to contribute value</td>
</tr>
<tr>
<td>Normann and Ramirez (1994)</td>
<td>Value constellations</td>
<td>Focus on value to end-consumers / Challenges linear format</td>
<td>Non-sequential value creation process</td>
</tr>
<tr>
<td>Womack and Jones (1996)</td>
<td>Value streams; production pipeline</td>
<td>Specify the product’s value to customer then identify product value stream</td>
<td>Firms seen as interlinked &amp; located in Identifying mapping value streams</td>
</tr>
<tr>
<td>Schmitz (1997)</td>
<td>Collective efficiency</td>
<td>Benefit accrual to co-operating firms</td>
<td>Firm clusters and alliances</td>
</tr>
<tr>
<td>Handfield and Nichols (2002)</td>
<td>Integrated value systems</td>
<td>Engage VC concept through value systems</td>
<td>Integration of supply chain activities, process mapping, relationship mapping</td>
</tr>
<tr>
<td>Svensson (2003)</td>
<td>Bi-directional value chain</td>
<td>VC flow from raw material to production to end-consumer and vice-versa</td>
<td>Retail industry base with collaborative sharing in consumer-driven VCs.</td>
</tr>
<tr>
<td>Prahalad and Ramaswamy (2004)</td>
<td>Value creation</td>
<td>End-consumer included in value co-creation model</td>
<td>User-centred approach placing the end-consumer as core of influencer of network collaborations</td>
</tr>
<tr>
<td>Pitta and Laric (2004)</td>
<td>Value networks</td>
<td>Value chain has 2 parts: value delivery system of &amp; production levels; and the end-consumer</td>
<td></td>
</tr>
<tr>
<td>Davis and Spekman (2004)</td>
<td>Extended enterprise</td>
<td>Supply chain orientation with extension to VC+ Knowledge shared across chain</td>
<td>Value driven versus cost-driven Knowledge &amp; learning orientation</td>
</tr>
<tr>
<td>Chan Kim and Mauborgne (2005)</td>
<td>Value innovation</td>
<td>Strategic ‘move’ pathway</td>
<td>Dynamic iterative process seeking uncontested market space</td>
</tr>
<tr>
<td>Michelsen et al. (2006)</td>
<td>Extended supply chain (ESC)</td>
<td>Emphasise the extended supply chain (SC)</td>
<td>Employ life cycle assessment methodology to SC</td>
</tr>
<tr>
<td>Walters and Rainbird (2007)</td>
<td>Cooperative innovation</td>
<td>Firm and end-consumer collaboration toward new value creation</td>
<td>Supply chain and logistics are functions supporting VC activities</td>
</tr>
</tbody>
</table>
A review of the measures of value and how these measures contribute to competitiveness of firms and industries is relevant to this study and is discussed in the following section.

2.6.3 Critiquing the value chain approach

Although the value chain approach can foster investigation contributing to displaying total value across all value activities within value chains, the value to the end-consumer as the ultimate buyer has been criticised in the literature (Svensson, 2003) as being unidirectional and firm-level driven and not as beneficial as engagement with end-consumers through a bi-directional co-creation of value model.

The extension of the value chain model by Pitta and Laric (2004, p.451) in their study of value networks distinguishes the value chain between two components: the value delivery system including the levels of supply and production, and the end-consumer. This distinction supports the importance of the end-consumer and the inter-relationship to overall firm-level competitiveness, therefore building upon the work of Barnes and Morris (1999) in support of value chain approach principles, whom drew positive conclusions from the contribution of identifying value streams and production pipelines from Womack and Jones (1996).

Linear cost building of products and services to create value using a generic value chain approach is viewed as a division of the creation of value conducted by a firm and the intended market rather than “efficiently matching supply from the firm’s value chain with demand from consumers” through a co-creation of value process with end-consumers (Prahalad and Ramaswamy, 2004, p.14). The emergence of new connective tools is facilitating the challenges placed by end-consumers wanting to interact and co-create value.

The extended enterprise framework also suggests limitations to supply chain and value chain concepts and that the extended enterprise concept challenges prior chain theory by moving from stable and static methods to an environment which is recognised as dynamic and changing; the focus from industry-centric to new partnerships and solutions; from leveraging own competencies to leveraging
competencies of all members; from a teaming approach of some aspects of partner-like behaviour to strong collaborative behaviour; cost-driven to value-driven; increasing own profits to increasing profits system-wide; careful sharing of knowledge to shared widely over the system; and from emphasis on work-flows to knowledge and learning (Davis and Spekman, 2004, p.24). The extended enterprise concept infers customer alignment as a process driver providing few details of operationalisation and customer relationship management as a growth area but there is no linkage to value creation or what role the end-consumer may play in advancing the enterprise. For this reason the extended enterprise concept satisfies only part of the requirements in assessing the performance of value creation activities and therefore may need to be further extended itself.

Despite the wide acceptance of the value chain approach in the literature, the approach in identifying value remains only in theory or an expected value. There remains a challenge to confront “the empirical fact that a consumer driven value chain must work back from the ultimate consumer” (Svensson 2003, p394).

Furthermore, Svensson (2003, p.398) states that “despite the fact that many scholars have recognised consumer value as a sound way of approaching the final consumer market, astonishingly it has not influenced the approach of the value chain”.

The value chain concept is supported by its contribution and influence in the strategic management literature as a reference point for discussion on the topic of value and as a commencement point for linear performance analysis. What is not explicit is how the operationalisation of value will be accomplished for industries where the end-consumer has become the dominant influence in a dynamic not linear marketplace.

It is therefore concluded that the value chain concept may the role of foundation framework and the commencement point for further exploratory study toward the dynamics of value creation in industries. It is therefore appropriate that the value chain concept act as the grafting stock upon which the new branches of value creation will be explored and that value chain theory will be moderated by two further theories; the extended enterprise and end-consumer orientation.
2.7. Managing value

2.7.1 Value chain governance

The management of interactions in value chains promoting effective information flows involving multiple levels of a value chain and value chain decision-making relevancy of all inputs toward satisfying end-consumer audiences is a considerable challenge. The myriad of complexities require a disciplined approach and a collective understanding of value creation responsibilities and linkages between value chain actions.

The opportunities that exist in creating new value may reside in the management of combined process and product development where network structure influences outcomes “to create a product-service response that neither partner could create using its own resources” (Walters and Rainbird, 2007, p.595).

Firms operating in dynamic competitive commercial environments must protect their acquired knowledge while maintaining relationships or creating new linkages with suppliers and buyers. Inter-firm relationships can lead to collaborative partnerships which require management structure for alliances to establish expectation guidelines to enhance understanding of inter-firm capabilities, trust, and risk minimisation. This is especially important if the partners of the alliance are small firms with relatively small financial leverage or limited competitive advantage, with reliance often weighted in favour of a much larger supplier or buyer increasing power disparity within an alliance or value chain. This can potentially weaken linkages and inter-firm communication reliability over trust issues. The convenors of collaborations therefore have a difficult task in designing the membership structure for collaboration (Huxham and Vangen, 2005, p.146).

Walters and Rainbird (2007) contend that roles within value chains are dependent on new partnership dynamics, or common to evolving partnerships, and that each contributor to the value chain benefits when each firm contributes a ‘quite distinct element’ to the overall value chain. The distinctions in competencies between firms may also motivate other firms to join the value chain.
This also suggests that the dynamic affecting decision making between firms in the value chain requires identification of nominee members of a value chain to assume value chain coordination, or for firms to contribute a defined co-coordination role through collaborative negotiation with “process innovation a key to successfully coordinating the various partner inputs” (Walters and Rainbird 2007, p.602).

The concept of transaction cost economics (TCE) widens the discussion from the overarching need for collaboration to a detailed economic framework to organise business exchanges (Caglio and Ditillo, 2008, p.29). TCE contends firms should choose in a “mutually exclusive way either to buy externally (the market) or to integrate vertically (the firm) contingent to relative costs of the two options” which are contingent to transaction costs minimisation, how coordination is reached, how motivation is reached through rewards, and short or long term efficiency (Caglio and Ditillo, 2008, p.35-36). In contrast to the literature available on performance measurement within organisations there is less research on the use of inter-firm performance measurement tools.

### 2.7.2 Value chain performance metrics

Value chains may consist of a firm and its suppliers and customers and may extend from the raw material supplier up to the end-consumer in the retail store. Value chains can intertwine, with any one firm being a part of many value chains; these chains exist whether actively managed or not. It is suggested that when inter-firm processes and relationships within the chain are actively managed performance improves for individual firms and the overall chain (DeWitt et al., 2006).

How well value demands are met will be reliant on how performance is measured and if the objectives of the value chain are being accomplished. Performance measurement is seen “as the glue that holds the complex value-creating system together” directing strategic formulation and monitoring strategy implementation (Handfield and Nicols, 2002, p.68). The timeliness and accuracy of performance measures affects both the individual firm and the inter-firm relationships which interact to deliver value. In defining value, emphasis was firmly placed upon the
perceptions of value by the ultimate consumer (end-consumer) and through this the contribution of value is conveyed to firms (Svensson, 2003, p.393).

In assessing competitiveness, benchmarking has been recognised as a valuable performance management and evaluation technique in the “drive to seek enhanced competitive advantage from comparative performance viewpoints on an internal and external basis, at a strategic, operational or business management level” and is seen as a learning process which also provides an enhanced understanding of the business drivers that make a firm successful (Holloway et al., 1995, p.125).

A focus on performance benchmarking can assist the identification and quantification of performance gaps and provide comparison of operational and management processes that provide competitive advantage. The role of any performance measurement technique is to direct the actions and organisational towards changes necessary to achieve competitive advantage.

The benchmarking process is described by the following activities (Holloway et al., 1995, p.132):

- Determine the key performance areas
- Set the key standards and variables to measure
- Identify the most relevant competitors and ‘best-in-class’ companies
- Measure regularly and objectively (quantitative)
- Analyse ‘best-in-class’ performance (qualitative)
- Specify and implement programs and actions to close the gap
- Monitor ongoing performance

The concept of benchmarking was further expanded linking benchmarking and the supply chain to include both inter-functional and partnership perspectives as integrative measures as evidence to all collaboration partners along a framework of performance measures to increase the prospect that a balanced management approach is undertaken: customer perspective, business process perspective, innovation and learning, and financial perspective (Brewer and Speh, 2000).
A review of system dynamics in supply chain management provides insights to performance metrics relevant to managed value chains in focusing standard problems and solutions in regard to demand transparency, collaborative demand planning, pipeline transparency, customer satisfaction, and density of relationships (Otto and Kotzab, 2003). The choice of which performance metrics are employed will be interpreted by the preferences of the practitioner. The particular value chain measures chosen for this study will influence the surveys and subject focus.

It may be concluded that, the relevance of end-consumer value to the value chain will be the financial and non-financial key performance indicators (KPIs) as established through the governance channel of the value chain. The sharing of attributes of value chain efficiency among the value chain members provides an opportunity for all firms to benefit from best practice in production, accounting, information systems and communication. How this occurs will be linked to the level of trust established and the informal and formal agreements that govern profit sharing in the value chain. Value chains have been criticised for their linear economic firm-level oriented approach therefore conversely a dynamic view of the value chain with a higher end-consumer focus may expose linkages to product and service attributes which may further expand understanding in what constitutes financial KPIs in value chains.

Therefore, the measures for value delivery performance should be advanced with end-consumer value orientation as primary value creation alignment source.

2.8 Competitiveness and furniture industries

2.8.1 Introduction

Many furniture manufacturing countries stress that the pressures that influence a loss of competitiveness in the furniture-manufacturing sector in their own countries are largely explained by low wage structures in developing furniture supplier countries such as China, challenging the competitiveness of local furniture manufacturers. Countries have been categorised as either being low cost countries (LCCs) or high cost countries (HCCs) either possessing low or high wage or overhead business structures culminating in either lower or higher cost products (Navarro et al., 2008, p.13). Globalisation and the targeting of external markets have provided
opportunities and threats as high and low incomes compete (Kaplinsky et al., 2008). This has positive or negative associations toward firm, industry or national level competitiveness dependent on country viewpoint and relative competitive advantage gains under particular trading conditions. Kaplinsky et al., (2008) conclude that in order to take advantage of global opportunities and to minimise competitive risks firms need to innovate.

The focus on price does not necessarily take into account the quality of the furniture, its durability, or its intrinsic value to the end-consumer. The dimensions of end-consumer motivation were not discussed in the literature regarding any negative aspects of imports from LCCs which suggests that price may a substantial factor in purchase decisions.

2.8.2 Furniture industry strategy

In response to global competitive threats to the furniture sector in HCCs, furniture industry strategies for improving competitiveness conclude that industry restructuring will be dependent on the strengthening of the wood products industry towards a model of strategic supplier alliances “from the forest to the retailers” (Schuler and Buehlmann, 2003, p.8). This supports the need to seek competitive strategies which utilise holistic supplier alliances in step with a value chain approach.

An interpretation of the value chain approach building upon the work of Porter (1985) represents the wood furniture industry as a complex series of industry specific activities including “the provision of seed inputs, chemicals, equipment and water for the forestry sector…cut logs pass to the sawmill…move to furniture manufacturers…design and branding skills…furniture for recycling” (Kaplinsky and Morris, 2000, p.4).

Barnes and Morris (1999) in applying a value chain approach to both automotive and furniture industry research observe the methodological importance of viewing firms as being interlinked and located in value chains, but suggest that detailed analyses of inter-firm linkages rarely appear in the literature. Firm level focus studies have yet to “quantify the extent to which value adding activities at specific links in particular
value chains contribute to the overall competitiveness of the products being manufactured” (Barnes and Morris, 1999, p.8).

Barnes and Morris (1999) also highlight that in the analysis of the production pipeline Womack and Jones (1996) propose that the first step in analysis is to specify the product’s value to the customer, then identify the value stream of the product. The value stream identifies the processes involved in producing a product’s specific value and those production steps necessary as defined by the final customer. This has implications for the methodology in the research design for this study as the end-consumer as the final customer has a significant effect on the value proposition and value creation within the value chain and is therefore the end-consumer is viewed as a value driver.

The remaining steps after desired end-consumer attributes are defined include the assessment of flow through production, identifying non-value as adding waste, and whether a product is being pulled by the production pipeline or next link in the value chain with “the product ultimately pulled by the demand from the final market” (Barnes and Morris, 1999, p.11).

For the purposes of this study the value chain and the value stream are seen as one with the production pipeline guiding the operationalisation of the value concept.

2.9 Studies in furniture value chains

2.9.1 Introduction

The trend toward furniture studies influenced by the need to search for new value in local and global markets and the recognition that employing a value chain approach can provide a useful procedural auditing tool has increased in recent years as nations negotiate dynamic global markets. Although value and competitiveness is explored in different ways and not solely with a value chain approach, the word value appears to have currency.
2.9.2 Integration of the value chain approach as a competitive advantage strategy

Furniture value chain studies have emanated from, South Africa (Kaplinsky and Morris, 1999), USA (Schuler and Buehlmann, 2003), South Korea (Winter et al., 2003), Russia (Avdasheva, 2006), UNIDO (Kaplinsky et al., 2008), and Indonesia (ACIAR, 2008).

Further studies on value creation in furniture industries include: Sweden (Klevas, 2005), Portugal (Machado and Fernandes, 2004), and USA (Marr et al., 2004, Quesada-Pineda and Gazo, 2007), and Canada (Leslie and Reimer, 2006), Norway (Michelsen et al., 2006), Italy (Lojacono, 2008, Nonino and Panizzolo, 2007).

The Portuguese furniture market was characterised by the existence of small companies which by their nature have small economies of scale and despite the nation’s close proximity to the European market there are no known Portuguese furniture brands of significance (Machado and Fernandes, 2004). A survey of firms and institutions concluded with supportive evidence that more governmental and associative support was required to build collaborative linkages between firms and production scale and there interest in building a unique international brand possessing innovative and well designed products with environmental credentials.

In measuring competitiveness Marr et al., (2004) conducted a longitudinal case study of a “world-leading furniture manufacturing firm” using a value creation mapping approach to visualise the key value drivers and show how interaction between tangible and intangible assets address the “organisation’s objective in creating customer value”. The methodology was applied to a new product development (NPD) process to enhance understanding of how organisational resources are used to create value.

The resultant value map for the furniture company improved the codification of work practices broadening firm-level knowledge of the value creation process. Communications between new product development (NPD) levels within the firm
which had previously been based primarily on tacit knowledge were also improved with the new focus of managers placed on critical resources and their contribution to performance.

The conclusions from the study (Marr *et al*., 2004) called for “research to investigate the further interrelationships between different organisational assets” and “approaches and tools to better understand and visualise organisational value creation” In this case the organisational asset may be viewed as the value chain itself and the inter-relational linkages between firms in the value chain.

Michelsen *et al*., (2006, p.291) emphasise the extended supply chain (ESC) approach in a Norwegian study and include the environmental impact of use and disposal of furniture important in understanding the whole life cycle approach, which ideally should be measured in each segment of the chain. The study focuses on two chairs; Chair A in four variants and one Chair B, both un-upholstered and therefore simpler to calculate the environmental impact with a reduced array of source materials. The chairs were reviewed against nine environmental performance indicators based on suggestions from the World Business Council for Sustainable Development (WBCSD, 2009), including energy consumption, ozone depleting substance emissions, water consumption, heavy metal emissions, life cycle cost and other sub-categories.

Due to the substantial effort on reporting on each chain level, cost, the lack of environmental accounting in some firms or standardisation in reporting life cycle costs the extent of reporting is usually precluded from being conducted at a higher level of detail and a simplified method was adopted in Michelsen *et al*. (2006). The Norwegian study exposes the complexity of value creation in the production pipeline and the resource requirements in completing comprehensive value chain analyses. The benefits in selecting a product of relative simplicity in array of source materials cannot be underestimated and will guide the selection of research design and product type for this study.
Nonino and Panizzolo (2007) use an exploratory case study approach (Yin, 2003) in the Italian modular kitchen industry to study the integration between logistics and production planning with the aim to propose feasible models to enhance operational performance. Multiple sources including semi-structured interviews, questionnaires and observation were used to enhance validity of the research by analysing all relevant variables.

The literature suggests that measurements of both qualitative and quantitative performance characteristics are important in establishing which organisational factors contribute to raising competitiveness and establishing consumer value. Walters and Rainbird (2007) support the need to fill the gap in understanding firm-level performance; “while the value chain is becoming more widely accepted as a planning and management model, much remains to be done concerning performance management and the issues this presents for inter-organisational relationships” (Walters and Rainbird, 2007, p.600).

2.10 Competitiveness and the wood furniture value chain

2.10.1 Introduction

Innovation is important for improving process and the development of new products and is recognised as a driver of change. Tidd et al., (2005, p.5) support a strong correlation between market performance and new products demonstrates that firms which improve their processes and product differentiation often outperform their competitors. A proactive approach to design and innovation with systematic new product development (NPD) and goal orientation enhances NPD performance (Lindman et al., 2008).

2.10.2 Innovation

Building upon the foundation work of Schumpeter earlier in the twentieth century and Porter more recently, innovation is defined in many ways (Cao and Hansen, 2006, p.34). Schumpeter presents five types of innovation including new products, new production methods, new supply sources, new market exploration and new business organisation (Schumpeter, 1934, p.66). Porter (1998) uses innovation as an
important source of competitiveness through new value-adding activities across product, process and marketing implying a holistic and collaborative interdisciplinary approach in the product or service development process at firm or value-chain level may progress further performance benefits.

Managing innovation is a costly and risky undertaking as new products may fail as there is no demand or insufficient demand (Kay, 1995, p.102). Innovation itself may be the distinctive capability which gives rise to competitive advantage but that outcome is rare. A pre-condition to gains in competitive advantages is described is possessing three distinct capabilities, including innovation, organisational architecture and reputation through brand (Kay, 1995, p.112).

Tidd et al., (2005, p.13) acknowledge that products are rarely new and that the process of innovation strives for optimal results through sustained increments, as problems are encountered then solved and that these gains are cumulative over time.

Managing innovation in the firm is defined by the amount of market uncertainty that can be transformed into knowledge and described as a knowledge-based process. Access to knowledge and the combining of knowledge sets requires management of resources. Increasing resource commitment also requires a framework for successful innovation management to guide the way the combination of knowledge components as knowledge bundles are held and used by the firm (Henderson and Clark, 1990).

Walters and Rainbird (2007) propose that process innovation management and product innovation management within collaborative frameworks are significant for the development of inter-organisational relationships, value creation and competitive advantage.

Managing product innovation has shown dividends as conveyed in a ten-year analysis of stock exchange performance in the United Kingdom where companies identified to be effective users of design outperformed the market average by two-hundred percent (Design Council UK, 2004). The multiple facets of design as a
strategic tool for the interpretation of new product development and brand recognition are of interest to this study in the relationship of design as a tool for differentiation and cost competitiveness.

An understanding of the functional and abstractive product features “becomes the precondition for building new competencies in design-intensive industries” based on the acknowledgement those end-consumers “derive pleasure from the appearance and form of the product design” (Lindman et al., 2008, p.54). The Italian furniture industry has shown sustained innovation and export performance through contributions from firms of less than twenty employees and where the focus is on design and quality suggesting that economies of scale are not necessarily factors to competitiveness (Tidd et al., 2005, p.54).

In a review of the role of design process in the Canadian household furniture industry, Leslie and Reimer (2006, p.330) found that furniture design was conducted predominantly by committee at the furniture manufacturer level and included the participation of the company president, in-house designer (if there was one), and senior marketing, sales and finance representatives. More than half of the firms interviewed confirmed that design was conducted by “individuals with little or no formal background”, often relying on family members. This led to stagnation in innovation, which was based also on “tight and exclusionary” social relations. Furniture retailers were shown to provide input on “wood stains, fabric colours and style trends and consumer lifestyles”, but left most decisions to the manufacturer (Leslie and Reimer, 2006, p.331).

The Furnishings Industry Association of Australia (FIAA) reports innovation as “the key to creating a sustainable competitive advantage’ in the development of the Australian furniture industry, and argues that through the collaboration of suppliers, furniture manufacturers and government “a total product view of furniture production, through the supply chain from the forest log to the final product in domestic and export markets” would be required to be undertaken (BIS, 2004, p.12)
The framework requirement suggested here supports the adoption of a value chain approach, as a micro-level inter-firm view can be undertaken to enhance the understanding of knowledge sets that are contained within the chain of collaborative inter-firm activities which seek economic value returns for themselves and end-consumers.

The literature suggests that for innovation to flourish there must be a commitment from the firm or value chain to develop new products or services with clear definition of the innovation process to assist the formulation of new offerings. The leveraging of inter-firm innovation processes will be reliant on building relationships toward effective cooperation. Australian research initiatives capturing the value of innovation through research and development for forest and wood product industries have been encouraged (Adams, 2009, p.19). The more prominent studies include the commercialisation of wood product innovations (Bull, 2005), the Cooperative Research Centre CRC Wood Innovations (CRCWI, 2008), and Forest and Wood Products Australia (FWPA) various supported studies [www.fwpa.org.au](http://www.fwpa.org.au).

International projects involving cross-country collaborative groupings for the development of wood furniture industry strategy include SMART-fm (2003) with focus on the furniture product life cycle and part standardisation strategies for production efficiency improvement and the Centre for Furniture Foresight (CEFFOR, 2008) contributing to strategic planning through business model creation and scenarios for knowledge areas including wood furniture market intelligence, furniture consumption patterns, supply chains, and product design to inform future visions and models for furniture industries in high-cost-countries for furniture production (HCCs).

Collaboration and teamwork are viewed as catalysts for innovation, but the type of teams that yield the highest results are not fully understood (DeCusatis, 2008). The high costs of innovation also compel consideration of wider collaborative efforts, especially as product life-cycles are reduced as the demands for end-consumer choice in the market accelerate. A value chain approach can support a conceptual framework from which the effectiveness of collaborative contributions can be
viewed, assessed and reconfigured for improved market effectiveness. The high cost of innovation also promotes the importance that all stakeholders are involved in establishing what constitutes value and how value is measured.

2.11.3 **Collaboration**

Trust is recognised as a critical factor in building relationships and effective cooperation within organisations (Tyler, 2003). Organisational openness supports flexibility, cooperation, and learning which are seen as important in achieving competitiveness (Mollering, 2004). Firms are less likely to attempt to improve inter-firm effectiveness or seek benefits through collaboration if trust is not present (Costa, 2003).

Horvath (2001) reinforces the viewpoint that collaboration is the driving force on all levels of supply chain management (SCM), and that strategic SCM “demands collaboration among all participants in the value chain”. Collaboration is required to improve performance through closer and more unified relationships with upstream or downstream partners as firms are placed under intense competition to create new unique value propositions for the end-consumer (Bititci et al., 2004, Simatupang and Sridharan, 2004, p.9).

The correlation between better relationships and better performance is supported by Min et al., (2005, p.239) in a study comprising qualitative methods with open-ended interview questions. The authors reported that the use of qualitative methods have become more popular in logistics and supply chain management research and also found that firms should develop a policy of inter-firm performance measurement using common metrics; defined supply chain rewards, collaboration based on cooperation and information sharing, and successful collaborations “often result in the development of new culture and operating atmosphere” (Min et al., 2005).

Very few firms attain the theoretical integration of managing the chain, with half of surveyed firms working toward internal integration, and a third of firms focusing on first-tier supplier integration, while citing ‘the reluctance to share proprietary
information’ as a competitive limitation (Ballou, 2007, p.340). The reluctance to share information has implications for the management of intellectual property issues in current or prospective collaborative inter-firm alliances.

It is widely acknowledged that “inter-organisational trust is dependent and mediated by the institutional framework in which the relationship is embedded” (Mollering, 2004, p.560). Firms have shown that protecting investments and off-setting risks by possessing an intellectual property portfolio and managing intellectual property (IP), can provide greater value to the firm over time (Sterling and Murray, 2007). Collaborative network based approaches enable industries to maintain trust and competitiveness.

A study of resource-based clusters suggest that “social networking activities enhance inter-firm cooperation”, which may contribute to creating “new cooperative long-term competitive strategies amongst firms” (Felzensztein and Gimmon, 2009, p.74).

Collaborative research agreements are increasing rapidly, involving government research entities, international firms, universities and competitors. Slowinski and Zerby (2008) propose a four-tier framework which seeks: what resources firms want to source internally or externally; how a firm will find and evaluate resources; what processes will be used to plan, structure and negotiate agreement to access resources; and finally what tools and metrics will be used to implement collaborative relationships.

These findings are relevant for explorations in wood furniture value chains in regard to the advantages of collaborative frameworks and the leveraging of unique competencies and resources gained through differentiation is consistent with the strategy management literature (Porter, 1985).

In conclusion, the significance of collaboration in value creation has emerged from the literature as contributing to stronger alliances and prepares foundations for ongoing interaction between firms. The following section reviews the emergent themes in value creation within value chains and the trends in market orientation around the end-consumer as a source of value.
2.11 Market orientation and end-consumers

2.11.1 Introduction

The twenty-first century economy has been described as having more consumer choice but less satisfaction and more strategic options from top management that bring less value, forcing the re-examination of traditional firm-level centric value creation to a new frame of reference that includes the end-consumer in the co-creation of value (Prahalad and Ramaswamy, 2004, p.2 & 11).

A forum where new value is co-created suggests value chain dynamics where there is an uninterrupted flow of information from individual end-consumer experience to the value chain and back “rather than passive pockets of demand for the firm’s offerings” (Prahalad and Ramaswamy 2004, p.16).

The co-creation of value between firms and end-consumers provides the linkage between the needs of the end-consumer and the needs of the firm without isolating the firm or the end-consumer from the context of product use, nor the firms from the creation of new end-consumer experiences (McPhee and Wheeler, 2006).

Market orientation places the end-consumer at the forefront of organisational level culture and business planning with three levels of market orientation proposed. These levels include firm-level culture representing values and beliefs supporting placing the end-consumer first, strategies for creating superior value for end-consumers, and a tactical set of cross-functional processes and activities satisfying end-consumers (Cao and Hansen, 2006, p.35).

The focus on superior end-consumer value and market orientation assists firms and value chains build strategies toward gaining competitive advantage as it is the end-consumer who places economic value back into the value chain and can provide overarching relevancy to all value chain activities. Only when end-consumer value is implicitly or explicitly established can value be revealed.
A lack of end-consumer focus was identified within the Australian furnishing industry and “more collaborative, cooperative and mutually beneficial relationships” were recommended to be developed to aid communication in the furnishing supply chain to enhance understanding of the importance of the end-consumers as the next upstream contact in competitiveness improvement strategies (Commonwealth of Australia, 2000b, p.22). How end-consumer value is established in the Australian wood furniture value chain, and at which level or levels of the value chain decision making affects end-consumer value, is relevant to this study.

The research findings of Pakarinen (1999) in studying the success factors of wood as a furniture material reinforce the influence that the wood material characteristics have on end-consumers in the furniture retail environment or suppliers or buyers at intermediate levels of a furniture value chain. This emphasises the degree of importance that wood feature attributes carry and their influence on the wood furniture value chain from the chain’s traditional commencement at the forest and wood supply level.

It is therefore significant that the way wood is planted from seed, grown, harvested, processed and presented to the end-consumer as a completed wood product is influenced greatly by the decisions made in regard to forest research and forest management at the forest level of the value chain. Furthermore, the interpretations at the subsequent levels of the value chain where product qualities are defined and the underlying characteristics of raw materials highlighted or hidden suggests that the assessment of which product appearance attributes match end-consumer value becomes a multi-dimensional task (Lindman et al., 2008).

End-consumer decision-making insights are presented in a psychological study using a photo-questionnaire and content analysis method in consumer attitudes to office interior environments containing wood as a furnishing material; the first impressions of an occupant were more favourable in office environments with wood characteristics (Ridoutt, 2002). Furthermore, in terms of value it is notable that there is a long recognised interdependence of people and their physical environment, and that an individual may receive personal identity from their surroundings or place through qualities and attributes (Canter, 1977, p.163 & 179).
Close association to spaces where individuals have total control provide opportunity for self-expression and from this there is a search for clear relationships between physical forms and psychological responses (Canter, 1977, p.180). A search against the ephemeral world of techno-centric design is proposed to be founded on human empathic needs in a sustainable realm where users and products are engaged within long-lasting empathic partnerships (Chapman, 2005, p.18). Ridoutt (2002) raises the impact of the cultural and symbolic significance of wood and the perceived identity of people and their built environment and the relationship to value through empathy toward a natural object. The challenge is to identify perceptions and emotions of end-consumers then convert conceptions to value propositions for end-consumers.

The strategy management literature strongly supports that the end-consumer should be the focus of an industry and its intentions and the foundation source affecting decision making in value chains and the focus for new product and service development, however the literature is rarely specific to the end-consumer desired attributes of new product preferences.

In summary, the significance of end-consumer attributes emerging from the end-consumer experience is of considerable interest in how this may be integrated with strategy management concepts of value to end-consumers and to which value attributes end-consumers themselves convey as important or influential.

Managing decision-making in value chains is paramount as firms maintain and initiate inter-firm collaboration and knowledge sharing in the building of efficiencies in new products and processes and search for effective frameworks in meeting end-consumer requirements. The literature presents a gap in knowledge in the linkage strength between wood furniture end-consumers and wood furniture value chains and the nature of inter-firm collaboration and therefore an opportunity for further study.
2.11.2 Wood, the environment, and the end-consumer

In recent years, forests as receptacles for environmental mitigation through carbon sequestration supporting emission control measures have gained acceptance in capturing further value from forests and wood (Tredinnick and Mason, 2009 p.54). The characteristics of wood as a sequestered carbon storage media does not change once a forest is harvested for wood as the wood products that emerge also store carbon within their existing cell structures. The communication of this evidence has some consequence on the value attributed to wood as a material which is harvested from a renewable forest resource, possesses ongoing environmental benefits over other materials including steel which requires larger energy inputs to process through wood (Taylor and Langenberg, 2003), and carries a reputation among end-consumers as a material rich in meaning with positive linkages to the environment and pride in ownership over time (Ridoutt, 2002).

Contributions to the end-consumer value discussion include the innovation and environmental agenda which has been strongly influenced by sustainability issues including global warming, environmental pollution, population growth, declining traditional energy reserves, growth in exploration of potential renewable energy alternatives; and overall health standards (Tidd et al., 2005, p.50).

End-consumer interest in wood as a natural material is ever-present with beliefs held historically as a material of necessity and culturally, but the balance between reconciling the use of natural materials, of which forests hold a prominent visual presence, in a global political climate which seeks to simultaneously maintain environmental equilibrium and economic development of forests and wood as a construction material is a subject of considerable debate. Therefore the value yielded from a unit of raw material carries much more topical importance in the eye of the end-consumer in terms of the environmental and economic consequence of industry activities and investment.

From an end-consumer perspective, furniture has a relatively long durability with a life span of between eleven to thirteen years (Navarro et al., 2008, p.13) in comparison to other purchased articles of lower shelf-life, with “over ninety percent
of the resources taken out of the ground today become waste within only three months” (Chapman, 2005, p.8).

From an investor viewpoint, socially responsible investors tend to have longer-term investment horizons than typical investors and are “less likely to sell a stock the first time the company misses a quarterly earnings target” (Clikeman, 2004).

Clikeman (2004) suggests that an increasing number of company disclosures of “sustainable development” practices in recent years indicate benefits to companies in the form of increased investor loyalty, enhanced brand value, and bolstered company reputations.

The effect of wood certification on value to the end-consumer has become a widely reported issue. A study by Anderson and Hansen (2004) identified environmental certification as ranking lower in importance with end-consumers than any other influential product attribute, with one fifth of respondents expressing a willingness to pay more for certified forest products. This can be seen to indicate that price premiums could be realised through market segmentation of wood products carrying certification (Veisten, 2007).

Environmental certification is a growing influence in buyer behaviour as furniture end-consumers in developed countries demand more environmental information on wood materials to inform their purchasing decisions. Consumer demands have contributed to the development of conventions in certification including the internationally recognised Forest Stewardship Council (FSC, 2009, Kaplinsky et al., 2002, p.1165), and though there is no current legislation in the furniture sector for compliance, manufacturers have become “more aware of their responsibility to contribute more environmentally sound furniture” (Parrika-Ahola, 2008, p.472).
2.12 Furniture value chains: Australian context

2.12.1 Introduction

The Australian wood furniture industry (AWFI) is a concept based on the researcher’s assumption that firms operating commercially possess a range of activities or shared attributes which may fall within categorisation where several key values, characteristics of operation or commercial objective may be common. Precedence in industry grouping representation and categorisation exists in the formation of the Furnishing Industry Association of Australia (FIAA) in which the membership wood furniture manufacturers.

The Australian wood furniture industry (AWFI) was not isolated from the events of the global financial crisis of the last eighteen to twenty-four months (2008/10), but overall, Australia as a nation had sustained more than fifteen years of sustained economic growth to 2008 (DFAT, 2008). Consumer confidence during this period of economic prosperity increased Australian consumer appetite for choice and this has had a positive effect on demand for furniture products (BIS, 2004, FIAA, 2009).

The Australian furniture industry faces a strong threat from imports. Furniture imports to Australia have climbed from A$1.12bn in 2000/01; to A$1.89bn in 2004/05; to A$2.83bn in 2008/09 (FIAA, 2009, p.25). The predominant countries of origin include China and Malaysia, followed by Italy, Vietnam, USA, Germany, Thailand, and Indonesia.

2.12.2 Studies in the Australian furniture sector

The literature indicates several contributions to Australian furniture research focussed on productivity improvement (Orsaris, 1999, AEGIS, 2000, Dossenbach, 2002) with occasional value chain approach references including an Australian furniture case study primarily identifying key competencies and presenting a value driver framework (Business Victoria, 2006). Existing Australian value chain studies have emerged mainly with an agricultural (Johnson, 2002), or primary raw materials processing focus including sugar (SRDC, 2006), or highly branded and marketed end-consumer product; wine (Fearne, 2008).
Australian furniture industry in the late 1990s was described as consisting of fragmented, secretive, and very independent organisations reliant on competitive advantage stemming from use of natural resources and quality products flexible in market adaptation (Orsaris, 1999). These criticisms were responded to by the Australian Furnishing Industry Action Agenda Plan with a ten-year implementation timeframe targeting profitability, internationally competitiveness with reputation for quality, industry reorganisation toward integrated networks, innovative technologies, with design and production focussed on customer needs (Commonwealth of Australia, 2000a). Import replacement caps under the Action Agenda plan set as upper limits at the time were exceeded by 2008/09 by almost one-third at A$2.83bn confirming that import domination had exceeded expectations and Australian furniture export had fallen below expectation by two-thirds at $137m from projected ambitions of A$500m by 2010 (FIAA, 2009, p.25). It may be concluded that the furniture industry continues to experience considerable global market pressures.

During the height of Australian furniture industry planning in the late 1990s an analysis of the Australian furnishing industry (AEGIS, 2000) identified the importance of the relationship between end-consumers and producers as a significant driver of innovation and market success with well-functioning inter-firm linkages and communication systems proposed as essential to encourage successful innovation and improved market competitiveness. These findings are consistent with the value chain literature in building competitiveness through an end-consumer focus (Svensson, 2003, Walters and Rainbird, 2007).

Design innovation is cited as advancing market differentiated value propositions to residential furniture end-consumers and commercial specifiers based on furniture products possessing distinctive attributes, functionality, and look and feel suggesting aesthetic, tactile, and brand dimensions in ownership (Business Victoria, 2006). Motivation, aspiration and lifestyle of furniture end-consumers were also conveyed as guiding the formulation and articulation of product design and value. This study presented no evidence advancing the operationalisation of furniture value or a value chain approach in building competitive strategies.
The absence of detailed Australian furniture value chain studies in the literature, suggests that firm level studies may be an avenue to explore activity in the sector. The production efficiency level of the Australian furniture value chain has resulted in the most promising outcomes with a focus on improving competitiveness in manufacturing. Existing research on other levels of the Australian furniture value chain including raw materials for furniture production and the consequences of end-consumer demand through brand and design on the furniture value chain is not strongly linked to existing research in the sector.

An example of production efficiency review conducted collaboratively between an industry group and a national government agency focussed on one level of the Australian furniture value chain and was undertaken as part of the Furnishing Industry Production Efficiency Improvement Program, entitled ‘Furniture Technologies’ (FIAA/CSIRO, 2001) to define indicators to measure production efficiency. The study methodology included a structured questionnaire to collect quantitative data from a sample of seventy firms. Conclusions cited weaknesses in production and planning control; insufficient information flow; unsatisfactory use of computer systems and equipment; poor materials handling and layout; and ineffective stock control strategies.

Tischner et al. (2000, p.9) note that a relatively high proportion of eighty percent of all product-related costs and environmental impact occurs at manufacturing level. The manufacturing level of the value chain therefore is of considerable interest to this study in how decision-making occurs in value chains and the relationship value chain decision-making has to end-consumer value.

The Furnishings Industry Association of Australia (FIAA) reported that there was much to be gained from the demonstrated examples of successful foreign furniture manufacturing industries where government and industry collaboration contributed to industry transformation in the sector (BIS, 2004, p.17). The FIAA also recommended as a furniture industry development strategy that a coordinated strategic approach between government, and furniture and wood industries could
greatly assist in the need to vertically integrate the furniture manufacturing sector, in order to reap the benefits of heightened competitiveness as represented by successful global furniture manufacturing countries through economies of scale, networking, and co-location of value chain processes.

2.12.3 Exploration of the Australian furniture value chain
The assessment in the appropriateness of implementing a value chain approach as a competitive strategy in the Australian wood furniture industry requires an exploration of the Australian wood furniture value chain to widen understanding of the dynamics of capturing value for individual firms in the Australian wood furniture production sector, the Australian wood furniture end-consumer and the benefits of collaboration in improving value creation and the competitiveness of Australian wood furniture value chains.

The production pipeline defines the extended view of the value chain approach as an end-consumer oriented strategy which may be contained in single chains as a starting point for understanding micro-level activities in firms and introduces the need to understand the interdependence of firms in the process of product and value delivery to end-consumers. The appropriateness of the integration of the value chain approach as a method to advancing competitive advantage strategy in the Australian wood furniture value chain has been supported in the literature. How the exploration of the value chain approach will be operationalised is discussed in the following section.

2.13 Overview and knowledge gaps
2.13.1 Introduction
This chapter has reviewed the available literature dealing with the characteristics of strategy, competitiveness, performance metrics, the value chain approach, and examined existing competitive strategy studies for furniture industries. The Australian wood furniture industry (AWFI) was also explored in the literature and the consequences in adopting a value chain approach were discussed in the context of improving industry competitiveness.
The identification of research issues in this section contribute to the building of the theoretical foundation for this study by indentifying and discussing the knowledge gaps in the literature in relation to value, value chains, the Australian wood furniture industry, and end-consumer value. This chapter section details the theoretical framework drawn from the literature as well as addressing of knowledge gaps.

The current literature has presented gaps in relation to the understanding of interactions between firms that contribute to building competitive advantage in the wood furniture value chain. The research gaps identified in the literature are presented here and will guide the development of the theoretical framework for the study and the formulation of research questions and issues for further exploration.

2.13.2 **Summary of literature review research gaps**

The gaps identified in the literature review guide the next steps in research and assist the refining of research questions for this study. The literature review explored the concept of value and identified linkages between firm-level and value chain performance and end-consumer requirements. The review also discussed a value chain approach as a method to explore the concept of value and the strength of inter-firm relationships in the Australian wood furniture industry (AWFI) in building competitiveness. These linkages are reflected in following sections through discussion of the gaps found in the literature.

2.13.3 **Literature review research Gap 1: Measuring value chain performance**

The current literature in value chains identifies the production pipeline as a legitimate method with which to focus on value chains in the identification of value streams and the assessment of performance and competitiveness. Several industries draw upon the benefits of a value chain approach in improving the assessment of competitiveness and although there is some guidance on how to operationalise a value chain study, essentially no definitive research framework exists. The literature does inform that both qualitative and qualitative studies have contributed to the understanding of how value is defined and operational performance improved in firms but the benefits of interaction between firms in value chains still remains a
research area worthy of further exploration. Therefore there is a need to survey firms within the Australian wood furniture industry to establish the extent of; and the pressures exerted on; competitiveness in the sector.

2.13.4 Literature review research Gap 2: Communication in value chains

The level of detail at which value chains communicate and share information is not explicit in the existing literature though higher levels of trust and collaboration have indicated stronger relationships as a foundation for improved communication supporting strategic planning initiatives for the co-creation of value. In order to understand how effective communication is made between suppliers and buyers further investigation is required to establish the extent to which communication affects value creation and value chain performance. This supports the further study of the characteristics of inter-firm communication and information sharing in value chains and relevance to performance improvement considerations in value chains.

2.13.5 Literature review research Gap 3: End-consumer orientation of value chains

There is discussion in the literature in the important role the end-consumer plays in a value chain scenario and how wood furniture buyer motivations may influence the decisions made by firms within value chains affecting firm-level performance in creating value for end-consumers. What are not evident in the literature are the specific aspects of end-consumer value attributable to the production pipeline activities in the value chain and activity relevancy to value creation. Therefore further study of the motivations of the end-consumer in value chains is intended including perceptions of wood as a furniture material as relevant to performance improvement considerations in value chains. This synthesis of both value chain analysis and end-consumer value would therefore be a unique contribution to theory building in both areas.
2.13.6 **Literature review research Gap 4: Value creation in the AWFI**

The literature presented a lack of strategic direction in the Australian wood furniture industry (AWFI) towards operationalising assessment of the overall competitiveness of firms and global competitiveness of the industry as a whole despite the advances made in production efficiency and productivity improvement. A focus on the production pipeline of Australian wood furniture value chains would advance the understanding of inter-relationships within the value chain and explore the focus and effectiveness of current value creation industry strategies.

The movement of end-consumers toward renewable environmentally certified products has emerged in the literature over the past fifteen years but there is little reference to the relationship with the AWFI and value creation in the literature. The exploration of this dimension and other factors including the operationalisation of value through innovation and design affecting the competitiveness of firms and understanding how furniture markets interact with end-consumers may be advanced with further investigation. A survey of multiple sources within Australian wood furniture value chains is therefore required to widen the understanding of value creation in the Australian wood furniture industry.

2.14 **Theory formulation**

A research strategy based on the results of the literature review and the interpretations of these results by the researcher will be required to advance the next steps in the analysis of the phenomenon of the study (Denzin, 1978, p.192). The researcher provides the following initial and provisional explanation.

The initial and provisional explanation for the study suggest an inability of the Australian furniture industry to harness the collective knowledge towards increased performance and profitability following consecutive industry plans to counter the growth of imports and static nature of exports are aspects of unsolved understandings of how inter-firm communications, collective knowledge, inter-firm collaboration, and better understanding end-consumer market needs affect competitiveness. The level of tacit knowledge held mostly at firm level cannot be optimally leveraged
without exploring the benefits of collective efficiency through value chain thinking as current firm-level strategies appear to hamper efforts in building economies of scale in production and inter-firm levels efficiencies towards higher profitability. The nature of the small enterprise and limitations to available resources suggests that an extended value creation approach beyond firm-level efficiency should involve the exploration of the current levels of inter-firm relationships, collaboration, value, and competitiveness in the furniture value chain.

Based on these reflections, the review of literature, and the identification of gaps in the literature, the research questions and operational definitions are set out in the next section.

### 2.15 Development of the study and key research questions

Given the linkage strength of value to performance, and performance to competitiveness as evidenced in the literature it may be concluded that the concept and operationalisation of value holds central importance to industry improvement strategies.

The study will require observations to be made upon the central concept of value and related dimensions and involve concept definition through the development of nominal definitions of concepts and an operational definition of each concept to advance to the study (de Vaus, 2001, p24). The concept of value guided by evidence in the literature concludes the following dimensions of value: financial (returns to firms), competition (value and competitive advantage over rivals), organisational (structures supporting value creation) and psychological (emotional/functional aspects of end-consumer choice), (Figure 2.2).
The decision on the selection of the methodology for the research design is influenced by the review of literature and interpretations of the gaps in knowledge made by the researcher in specifying what is sought for explanation (dependent variables) and the formulation of provisional possible explanations of the phenomenon being sought. The evidence supporting the need to understand the role of end-consumers in value creation in industries dominants the literature and especially more recent literature in strategy management and the focus of value in industries and is therefore the focus of the phenomenon being sought by this study.

In summary the identification of gaps in the research literature and the phenomenon being sought, the two overarching research questions (RQ1 and RQ2) are presented.

RQ1: *What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry (AWFI)?* And;

RQ2: *How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?*
2.15.1 Summary of research questions and operational definitions

The literature review in Chapter 2 suggests that relationships between performance assessment, trust and collaboration, and end-consumer value have a strong influence on value outcomes for end-consumers and suppliers to the value chain and those stronger value outcomes can leverage competitive advantage against rival value chains. Based on the review of the current literature, research questions corresponding to knowledge gaps in the literature and operational definitions describing what will be observed and measured are presented in Table 2.1.

Table 2.2: Research Questions and operational definitions

<table>
<thead>
<tr>
<th>Research Questions (RQ)</th>
<th>Operational definitions</th>
<th>Gap No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ1</strong></td>
<td>The concept of competitiveness will be observed and measured by exploring the drivers for and barriers to building competitiveness of firms in the AWFI production pipeline including:</td>
<td>Gap 1</td>
</tr>
</tbody>
</table>
| What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry (AWFI)? | • External market characteristics (1)  
• Performance assessment (2)  
• Inter-firm relationships (3)  
• Resource management (4)  
• Wood furniture end-consumer buying motivations (5)                                                                                                                                                                                                                                                                                                                                                                      | Gap 2          |
| **RQ2**                                                                                 | The concept of value will be observed and measured by exploring several active Australian furniture production pipelines (value chains) inclusive of firm-level contributions made to their production pipeline and the relevance of production pipeline inputs to end-consumer value. The observation will measure the concept of value by:                                                                                                                                                                                                                                                                                                                                 | Gap 3          |
| How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers? | • Exploring how firms compete (6)  
• Exploring what constitutes value for end-consumers (7)  
• Exploring which production pipeline activities convey the highest value to end-consumers (8)  
• Exploring current firm-level strategies in conveying value to end-consumers (9)  
• Exploring avenues of overlap in firm activities consistent with the value chain approach (10)                                                                                                                                                                                                                                                                                                                                 | Gap 4          |
2.16 Literature review conclusions

The literature review allowed the complexity of the research problem area encompassing the value, the strategic management of value, the value chain approach, the Australian wood furniture industry, and the importance of the role of the end-consumer to value in the value chain to be presented.

Two specific research questions and four research knowledge gaps have been defined and will be investigated empirically. The next chapter, Chapter Three, outlines the research design and methodology of the thesis.
Chapter 3
Research Methodology

3.1 Introduction
Chapter Two presented a review of the literature relevant to the Australian wood furniture industry (AWFI); value to both end-consumers and firms; performance assessment; value chains; and strategies in building competitive advantage. This coverage concluded with two research questions and operational definitions of value to be explored empirically.

This chapter outlines the key research approaches and methods used for the study, including an outline of the research design; the justification between the objectives of the study and research methods through an elaboration on research methodologies; and discussion of the research phases of the study.

Specifically, this chapter comprises the following major parts: justification of the research design; descriptions of the case study and mixed method approaches incorporating an industry interview proforma (Phase 1); a firm-level industry questionnaire (Phase 2); and finally an end-consumer questionnaire (Phase 3).

3.2 Objectives
The objective of this study is to identify specific areas for improving the global competitiveness of the Australian wood furniture industry (AWFI), by examining the most promising mechanisms for value creation within the AWFI through the adaption of the value chain approach. The intention of the study is theory building upon the tenets of the value chain approach using a strategy of analytic induction toward the formulation of generalisations that apply to all instances of the problem; and adopting the observer as participant role in the investigation (Denzin, 1978, p.191). This role typically includes one visit or interview with the respondent and the contact brief and formalised through the use of a questionnaire (Denzin, 1978, p.190).
The identification of value for the stakeholders within the Australian furniture value chain requires the generic value chain approach (Porter, 1985) to be extended in several ways. Firstly, the measures employed must seek information on internal and external activities that create value for the firm or result in a loss of value through waste and inefficiency as the generic value approach describes. Once these factors have been identified, the second step is to seek the attributes of end-consumer value in the Australian wood furniture value chain and thirdly discuss how value is exchanged by firms which compose value chain membership and channelled towards end-consumers. Focus is directed to the consideration of end-consumer benefits and the overall efforts of the value chain in exceeding, meeting or failing to meet end-consumer requirements. This enhanced understanding may assist how the value creating activities within the value chain are interdependent across the industry players in meeting end-consumer needs and the division of value and profits to firms.

3.3 Research design: Justification of the methodology

The research design must contain the study’s questions; respond to operational definitions for observation, unit of analysis, the logic linking the data to operational definitions, and the criteria for interpreting the findings (Yin, 1993). A review of furniture industry and management literature assisted in identifying key concepts and variables for observation in wood furniture value chains. The shortage of research on the implications of value chain analysis for the Australian wood furniture industry has guided the decision to select an exploratory survey methodology.

The area of research interest focuses on the wood furniture value chain and the processes from forest plantation to the end-consumer which contribute value. Barnes and Morris (1999, p.9) suggest that a focus on an individual product (rather than relying only firm specific issues) provides the ability to assess a production pipeline and therefore the full value chain in its capacity to meet particular market demands (Womack and Jones, 1996).

The production pipeline signifies the actions of value chain member firms in the production of a product (Figure 3.1). Therefore; each production pipeline may be considered a potential case study of a wood furniture value chain when a product is
selected for tracking purposes. The case study method as a research strategy is appropriate for exploratory research and is required to follow protocol development and review prior to commencement (Yin, 2003, p.65). Given the complexity of a case study approach, several case studies are recommended to be attempted as a tactic to support the validity of the study and follow replication logic using multiple sources of evidence (Yin, 2003, p.34). Case selection may be undertaken using strategic case selection (Hillebrand et al., 2001) upon the rationale that the findings in each case study may complement the others by replication under varying conditions (Johnston et al., 1999). Relationship mapping and process flow charts also assist gaining an overview of activities and may provide opportunities to discover new relationship evidence to base performance improvement decisions (Handfield and Nicols, 2002, p.44). Key findings from an Australian furniture industry report support case studies to develop strategic views (Commonwealth of Australia, 2000b).

**Figure 3.1:** Furniture production pipeline
Source: Adapted from Barnes and Morris, 1999, p.8.

The challenge for the study is to present results that are externally valid or generalisable. Therefore efforts to triangulate findings assist data collection and the basis for the development of the foundation for logical argument especially in an industry which holds few empirical studies.
The overall study is based in part on a multiple-case study design to address the exploratory objectives and allow the investigation of variables in the wood furniture industry. Though there are shortcomings in the case study approach as evidenced by criticism that results cannot be generalised to the population within the bounds of widely accepted statistical generalisation, Hillebrand et al. (2001, p.656) respond in proposing that “by formulating a logical reasoning for the empirical findings, one may conclude that the results are not only valid for the cases investigated but also for all cases that are structurally similar” and can therefore be located within the concept of theoretical generalisation.

To complement the case research and the limitations in identifying all critical variables in the furniture value chain through case research, an industry survey is undertaken to investigate the drivers and barriers to value creation in the Australian wood furniture industry as part of a data collection triangulation strategy. The industry survey content is guided by the emergent results of the initial case study approach and earlier accepted theories and empirical facts.

Finally the relevance and interdependence of all value chain inputs by individual firms toward value is reflected upon the end-consumers perception of value and is operationalised through an end-consumer survey of wood and furniture value attributes. The plausibility of results will require the presentation of the underlying logical argumentation of how understanding and participating in a value chain approach may affect value creation in wood furniture industry. The framework for a triangulated research design approach in supporting the integration of both quantitative and qualitative data has precedence in the converging the line of research inquiry (Yin 2003, p.97, Creswell and Plano Clark, 2003).

The research intention is theory building and will integrate analytic induction as “a strategy of analysis that directs the investigator to formulate generalisations that apply to all instances of the problem” (Denzin 1978, p.191).

The approach to theory building using analytic induction in value chain/supply chains has previously been implemented (Heikkila, 2002, Zokaei and Hines, 2007, Lindman et al., 2008, Lefaix-Durand et al., 2009).
3.4 Mixed method approach – Quantitative and qualitative data

A mixed method approach employing a triangulated research design (Creswell and Plano Clark, 2007, p.62) was implemented with the view of interpreting the results of both industry and end-consumer surveys to establishing the extent of the wood furniture value chain and factors affecting value chain competitiveness (Figure 3.2).

Figure 3.2: Mixed method – Triangulation design: Convergence model
Source: Adapted from Creswell & Plano Clark 2007, p.63.

The research design was formulated in two industry data collection phases: Phase 1 - exploratory and primarily qualitative; and Phase 2, a more targeted survey informed by the industry interviews of Phase 1 and the literature, with both Phases containing a mixed approach seeking quantitative and qualitative data. A third, and final phase seeking end-consumer data provides the emphasis placed on wood furniture attributes and end-consumers’ perception of value (Phase 3).
The gathering of Australian wood furniture industry and wood furniture end-consumer data was proposed as the most effective data gathering starting point until data from industry and end-consumer survey could be analysed for “overlap and actors of significance” (AEGIS, 2000).

Overlap was sought through exploring the level of interdependence in what is perceived as value by the wood furniture end-consumer to the actual type of firm-level activities that create value for end-consumers through the actions of contributing producers in wood furniture value chains. The seeking for those activities and actions in the value chain which are of a higher order in creating value for the wood furniture end-consumer has not previously been fully understood; such an approach is unique to this study as guided by the existing literature related to the Australian wood furniture industry.

3.5 Unit of analysis

The unit of analysis refers to the level of investigation the study focuses on, and the types of units of the analysis. Before the commencement of the research, it was necessary to clarify the unit of analysis, as the variables included in the conceptual framework, the data collection method, and sample sizes are affected by this assessment. The unit of analysis selected was the Australian wood furniture value chain.

This study investigated value chain members in three separate Australian wood furniture value chains (AFVCs). Members of nine different value chain possibilities were originally approached, but the members of only three value chains remained reliable in the gathering of data across all relevant levels of the chain. The sampling elements were the representatives of firms participating within a value chain and predominantly directors of firms.

The primary unit of analysis comprised individual firms representing wood harvesting, wood furniture material suppliers, wood furniture or wood furniture component manufacturers, wood furniture retailer firms, and wood furniture end-consumers across an Australian wood furniture value chain’s membership.
Value chain members’ attitudes, perceptions and experiences were aggregated to reflect industry and end-consumer level of interdependence in relation to the creation of value for the end-consumer, for firm-level value chain members, or the value chain as a whole. It was the intention of the study to seek out potential competitive advantage improvements within the Australian wood furniture industry from a value chain perspective.

3.5.1 Validity

The industry fieldwork survey of Australian wood furniture value chains is a tangible and dynamic exemplification of what a micro-level wood furniture product study may reveal about firms and inter-firm relationships that can rarely be discovered with more formal statistical techniques which depend largely on external data. The cases studied are representative of a class of units to which generalisations can be made. The case of the Australian wood furniture value chain as represented by industry fieldwork surveys appear to be more typical than can be verified with statistical calculation. The cases may be described as typical to other wood furniture cases as the experiences of one case may reveal the reality of the wood furniture value chain.

3.5.2 Context of the study: sample methodology

The qualitative phase of the industry study (Phase 1) employed a semi-structured interview design. Respondents represented firms providing inputs to a specific wood furniture value chain. The sample selection and accuracy of sampling frame was advanced through referrals arising from discussions with representatives within divisions of the Furnishing Industry Association of Australia (FIAA www.fiaa.com.au) and the CRC Wood Innovations (www.crcwood.unimelb.edu.au).

The rationale behind this approach is that recognised industry, tertiary, and research institutions and organisations have established linkages to industry constituents in Australian states and regions, and to local, state and national government, and access to global industry sector knowledge and linkages. The professional bodies have the benefit of knowing and understanding past industry achievements and provide a guide to the strongest and weakest performers in the sector.
Screening criteria were used in establishing a defined and readily accessible wood product and an appropriate prospective firm. These included that the wood furniture product be of Australian manufacture, and that further value chain inter-firm referrals, and upstream or downstream production inputs would be forthcoming from each firm providing introductions to supplier firms and firms supplied (Hines et al., 1999, Barnes and Morris, 2000).

Firms either preceding or following a particular value chain member process input would be of interest to the study. Ideally, participation of all value chain levels from the forest resource to furniture retail and then the end-consumer was envisaged as part of the research design and data gathering process.

Initially nine value chains were considered to ascertain the level of positive engagement to the study. This was reduced to three wood furniture value chains based on the timeframe, level of cooperation, or extreme geographic dispersion impacting the researcher attending interviews. Limitations experienced included the securing and timing of interviews in several Australian states; intellectual property issues; or issues undisclosed. Using this sample frame, thirty-one respondents were engaged.

3.5.3 Sample frame: Questionnaire for firms

The main criterion for selection of the firms participating in the three phases of the research was that they have been involved in an Australian wood furniture value chain.

A successful acceptance for interview provides the basis for conveying an understanding of the merits of the study, to be able to enhance trust as much of the data is commercially sensitive (Ballou 2007, p.343). Then a request of introduction to an adjacent value chain member either supplying or being supplied is sought to expand the understanding of value chain inputs.
For many, the concept of a value chain is relatively unfamiliar with most recognising the concept of a supply chain in general terms. A number of wood furniture value chains were pursued as it was anticipated that not all value chain producer contributors (value chain members) may wish to participate based on time, lack of interest in the study’s intention or potential benefit or commercial confidence issues.

Subsequently, approaches were made at firm level to Chief Executive Officers (CEOs) and managers, as they normally have an overview and understanding of the industry in which they operate, including the pressures exerted in competitive commercial environments. In most cases the managers were interviewed. For the interviews where managers were unavailable or preference was expressed to delegate, line-managers in value chain manufacturing levels or firm representatives involved directly with end-consumers were also interviewed.

Furniture manufacturers supplied the names of both small and large national retailers and in some cases maintained their own retail outlet and brand. A snowball sampling technique was undertaken by using the firm-level manager’s contacts as immediately as possible during or at the conclusion of the discussion or interview, as the prospective, preceding or subsequent suppliers in the value chain could not often be readily identified without referral. Snowball sampling is an approach for locating information-rich key informants and is a technique used to identify participants with particular knowledge sets required as a part of a consultative process (Patton, 1990).

Managers of firms could refer those firms that supplied their firm or those firms they supplied. Referrals were not provided by firms until a rapport could be established with the survey interview firm. Heightened confidence in the interview procedure and the establishment of a level of trust was considered integral. The snowball sampling evolved as new referrals were provided or value chain survey avenues became limited should the next value chain member decide not to participate.
The thirty firms and one wood furniture research education organisation involved in the first phase of the research, the industry semi-structured interview, are categorised according to their primary activity in Table 3.1.

Table 3.1: List of firms and organisations for semi-structured interview (Phase 1)

<table>
<thead>
<tr>
<th>Number of Firms</th>
<th>Value chain – Primary activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 x firms</td>
<td>Forest – wood supply</td>
</tr>
<tr>
<td>4 x firms</td>
<td>Wood Milling operation</td>
</tr>
<tr>
<td>3 x firms</td>
<td>Wood drying – kiln operation</td>
</tr>
<tr>
<td>4 x firms</td>
<td>Wood merchant - distributor</td>
</tr>
<tr>
<td>6 x firms</td>
<td>Furniture design and manufacture</td>
</tr>
<tr>
<td>1 x firm</td>
<td>Fabric supply – textile manufacturer</td>
</tr>
<tr>
<td>1 x firm</td>
<td>Foam cushion supply – manufacturer sub-contractor</td>
</tr>
<tr>
<td>2 x firms</td>
<td>Upholstery – manufacturer sub-contractor</td>
</tr>
<tr>
<td>1 x firm</td>
<td>Wood components – manufacturer sub-contractor / plywood</td>
</tr>
<tr>
<td>5 x firms</td>
<td>Furniture retail</td>
</tr>
<tr>
<td>1 x organisation</td>
<td>Furniture research &amp; education</td>
</tr>
</tbody>
</table>

3.6 Research design implementation

3.6.1 Introduction to qualitative and quantitative research design

The industry qualitative and quantitative research design sections outline the nature and sample design of the study. This includes a discussion of the context of the study, the participants and techniques chosen, and the survey procedures. Ethical considerations and data coding are also described.

The following section presents the three phases of the research design:

- Phase 1 Qualitative Research Design
  (Industry Fieldwork Study – IFS - semi-structured Interviews);
• Phase 2 - Quantitative Research Design
  (Industry Questionnaire - IQ); and
• Phase 3 - Qualitative Research Design
  (End-consumer Questionnaire - EQ).

3.6.2 Participants in the research – Phase 1; Phase 2; Phase 3

The value chain approach in gathering data on the micro-level is considered one of the more complex analysis methods used in the assessment of competitive advantage (Gereffi, 1999, Barney, 2002). Despite the value chain approach’s complex nature it may also present one of the most promising opportunities for identifying avenues toward improved and enriched competitive advantage. This may lead to new strategies for efficiency improvement and new value creation due to its detailed approach in assessing firm-level connectivity; it may also introduce commercially favourable value chain alliances.

The complexity of the value chain approach even when simplified to its barest essentials entails a large task to identify each interaction or input in the process of production of a wood furniture product. The activity levels can include raw material inputs, business and production processes, storage, distribution and retail exchanges between suppliers within the chain.

Therefore, selecting a single simple generic wood product representative of Australian wood furniture sector processes, capturing the aesthetic and functional characteristics of Australian wood, and covering a representative range of aspects defining several levels of the value chain was required. The wood product selection process also provided limits on the scope and complexity of the Australian wood furniture value chain (Morris and Barnes, 1999).

A wooden-dining chair was proposed for value chain analysis, production process, and journey tracking purposes. A wood product of a small number of parts with a limit of the component material types to less than five was seen as appropriate for delimiting the study whilst highlighting value chain attributes.
3.6.3  General procedures

Referral from an organisation independent from and respected by the firm is important in the process of identifying, approaching and promoting the concept of the study, as advancement to interview may be protracted or may not occur without such referral.

Potential respondents for interview were telephoned by the researcher and the relationship to the referring individual and institution or organisation was described in order to provide confidence to the person about the intention of the study. An appropriate telephone manner was essential; researcher notes prompted the researcher as to the specific requirements for interview and the study and as a method of standardisation across potential value chain respondents. When the firm representative verbally agreed to participate, a formal letter of introduction and accompanying interview consent form containing appropriate ethics approval was posted or faxed at the respondent’s choice and an interview appointment arranged for a future date.

3.6.4  Phase 1 - Industry fieldwork study - semi-structured interviews (IFS) Qualitative research design

3.6.4.1  IFS - Questionnaire development

The industry fieldwork study was developed to take into consideration the requirements of the thesis and the principles of a value chain approach. The protocol development follows case study recommendations as described by Yin (2003, p.64) including purpose, schedule, and review.

The questions formulated for the semi-structured interview focused on firm level structures and procedures and inter-firm relationships within the chain (Porter, 1985). This assisted the researcher to structure the questions for relevance to the various value chain levels from forest resource to furniture retail environment (Appendix 2, p.238).
The categories were selected for ease of understanding so if the firm had no prior knowledge of the value chain concept, the firm could still participate in the interview. The study was intended to highlight general experiences of a firm within an Australian wood furniture value chain.

### 3.6.4.2 IFS - Measurement approach

The measurement approach used in Phase 1 of the study was the semi-structured interview proforma approach. This approach is particularly effective in generating exploratory perspectives. This method was used to explore the constructs of trust and collaboration, communication and value creation.

The standardisation of the survey for very different firm levels gives the study the potential to provide insights to and the identification of common or contrasting viewpoints within a value chain. A potential drawback is that the researcher may miss what is most important to the responder in their core competence area. For this reason questions were as general and as open-ended as possible to better inform the development of the more explicit firm-level core competency exploration in the industry survey questionnaire.

In addition, the consideration of data from a wide sample of industry respondents also enhances the potential generalisation of findings. Furthermore, the semi-structured interview represented eight constructs of interest providing a number of variables of consequence to value chain performance and contained over 32 open-ended questions within eight categories.

The study instrument also provided the opportunity to build a relationship with representatives often from small furniture-manufacturing firms based on trust leading toward the sharing of sensitive firm-level information. This information could include value assigned to trading partner relations, business process, business investments in equipment, and intellectual property.
Data obtained from the interviews was compared with relevant data collected from the quantitative industry questionnaires developed in Phase 2 using content analysis.

3.6.4.3  IFS - Semi-structured interviews

Structured interviews are face-to-face interviews conducted between a wood furniture value chain participant firm and the researcher. Interviews are most successful when conducted on the firm’s premises as opposed to remotely, as the firm-level size, configuration and resources can be more easily understood and visual prompts may support further elaboration by the firm’s representative or the researcher.

In the researcher’s opinion, the interviews conducted on a firm’s premises enhances the researcher’s understanding of the environment, which is usually an unfamiliar one given the variation in firms and processes exhibited, and where further discussion in relation to value chain associated activities that may include premises layout and production process can occur. The researcher and the interviewee also have the opportunity to build rapport, as some of the data required comprise sensitive firm-level proprietary knowledge not often disclosed.

3.6.4.4  IFS - Pre-testing the questionnaire design

Pre-testing was conducted to ensure relevancy of questions and degree of clarity. The pre-test highlighted the basis for modifying the language or phrasing of interview questions. Pre-test respondents were encouraged to write comments on, or separate to, the survey. Responses were received from three Australian states and from two value chain levels – wood supply merchant and wood furniture manufacturer. Overall, the respondents favoured the general structure and, based on feedback, the survey was further refined.

The search for establishing rapport with the interviewee is consistent with the attributes of trust and collaboration (Tyler, 2003). The visitation to the actual premises of the survey respondent’s firm assists the visualisation of activities and introduces the interconnectedness of activities, which also encourage further
engagement with the interviewee on the inter-linkages that combine to create value in the value chain. This is also consistent with the literature on the visualisation associated with value mapping (Womack and Jones, 1996).

3.6.4.5 IFS - Data Collection procedure

In this survey phase 30 firms were selected then confirmed for interview using industry and institutional referrals. The thirty-first ‘firm’ previously mentioned in Table 3.1 was a furniture research institution and did participate, but was asked a selection of questions from the interview proforma appropriate to their responsibilities.

Some firms possessed both milling and drying facilities so appear in more than a single firm category. Each firm was telephoned and a letter of introduction on University letterhead explaining the survey and ethical considerations and contact details was emailed, faxed, or posted in accordance with the firm’s preference.

Data were collected from respondents using a semi-structured interview questionnaire provided to the respondent either in advance of the meeting or provided to the firm representative on arrival; a copy of the interview questionnaire was read by the researcher face-to-face with the respondent.

Interviews were on the respondent’s commercial premises, recorded by one digital voice recorder, and supplemented by researcher notations, and in the first few interviews, a second cassette-based micro-recorder to extend interview recording reliability in some interviews. Due to the ambient conditions often associated with active manufacturing environments an acoustically isolated area away from the manufacturing machinery hub could affect the quality of several recordings.

The maintenance of eye-contact with the respondent was deemed essential in the interview process, as this constituted the first steps in the gaining of the respondent’s confidence and in building rapport. Therefore further hand-written researcher notations during the interview were kept to a minimum.
The establishment of trust during the course of the interview can lead to subsequent open dialogue and eventual referrals to commercial partners within their value chain.

The first interview conducted within each value chain required identification and nomination of further value chain member firms involved in production of the wood furniture article. This required the researcher to adapt the interview schedule to accommodate new interviews on several occasions once referrals were made and accepted by the value chain contributor firm.

On one occasion impromptu road travel arrangements of up to 500km in the one day to relatively remote rural locations were required to maintain the linkages in a particular value chain, or risk losing the interview based on availability or economic cost in returning at a later time. The destinations were often regional although on more than one occasion state borders were crossed in a day or across several days, and often arranged on-the-spot by phone call by the referring firm, by the researcher on referral, or by call followed up by facsimile-sent or emailed letter of introduction. This was also accompanied with a consent form identifying scope and ethical considerations of the study (Appendix 1, p.236).

Six of the nine initial wood furniture value chains approached had to be abandoned when the prospect of completing further value chain interviews was deemed too logistically difficult (due to time or costs constraints). In other cases, a value chain member did not have the time as a small business or could not perceive the merit of their participation in the study. As with any methodology, there were such unavoidable survey limitations.

3.6.4.6 IFS - Interview proforma: semi-structured interview

The study contained eight sections:
1. Information about the firm’s relationships with stakeholders within their value chain
2. Geography to confirm location and related logistical issues
3. Production and technology factors affecting firm-level growth
4. Information regarding inter-firm communication across value chain interactions
The interview included open-ended questions to assist in the identification of activities of each stakeholder in the wood furniture value chain and to enhance the understanding of most frequent and reliable linkages that could benefit, through reinforcement, the economic strength of their value chain and contribute to sustaining prosperity in the Australian wood furniture sector. In summary, the interview wanted to establish the value creation drivers for a wood furniture based value chain firm and the barriers to building competing advantage for the firm and its value chain.

3.6.4.7 IFS - Data preparation and entry -
All recordings of interviews were transcribed by a professional transcriber or by the researcher and a transcript of the interview produced in Microsoft Word. Each file was then checked by the researcher for accuracy by listening to the original recording, and explored for further qualitative references in preparation for coding.

Responses from each of the interviews were separately coded and entered into an excel spreadsheet, manually used to maximise the nuances and emotive cues in the data from a qualitative perspective in terms of tone, gesture and emphasis placed by the interviewee.

A limitation of this technique is the subjective nature of interpretation of the interviewee’s emphasis by the researcher.
3.6.5  **Phase 2 - Industry Questionnaire (IQ) – Quantitative and qualitative research design**

3.6.5.1  **IQ - Introduction**

The Phase 2- Industry Questionnaire was developed to collect data over a wider sample audience representing more than the thirty interviewed firms in Phase 1 – Semi-structured interviews and targeted toward the manufacturers who make up the wood furniture and Australian furnishings industry.

3.6.5.2  **IQ - Data collection procedure**

In this phase of the study 600 prospective respondents were selected. The respondents were sourced via the Furnishings Industry Association of Australia (FIAA) database of membership in the Australian states of New South Wales (NSW) and Australian Capital Territory (ACT).

The industry survey questionnaire was placed within a periodic FIAA membership mailout in the July 2006 edition of the FIAA quarterly newsletter with the assistance of the FIAA. The FIAA’s cooperation with the researcher extended to include a 400-word introduction article for the wood furniture value chain study and its potential advantage for FIAA members and the sector. The quarterly colour newsletter was brought forward to enhance the rate of returns of the industry questionnaire (IQ).

In addition to the FIAA membership mail-out, participants in Phase 1 were also included and questionnaire mailed directly to them. A self-addressed envelope with return postage was presented with the questionnaire to assist the respondent’s convenience in returning the questionnaire (Leedy and Ormond, 2005, p.193).

3.6.5.3  **IQ - Survey instrument**

The predominant discussion point in recent years in the furniture industry has been the impact of furniture imports and the effect on Australian furniture manufacturing, mainly due to the low cost of imported furniture from low cost countries (LCCs) in comparison to high cost countries (HCCs) such as Australia, which is categorised as an HCC (CEFFOR, 2008).
A review of competitiveness based primarily on cost does not necessarily expose the more competitive or less competitive aspects in a value chain or value system, nor utilise a micro-level assessment approach upon which value chain analysis is based.

Significant weaknesses in single supply chain performance measures, though simple in measuring cost, lacked inclusiveness in measuring all pertinent aspects of the chain (Beamon, 1999). It may be concluded that minimum cost is a factor, but as a narrow measure may be to the detrimental to the value chain if adopted as a primary performance measurement variable.

The complexity of the value chain and the diversity and magnitude of all possible production activities and associated expenditures across forestry, wood, transport logistics, retail and various sub-contracting suppliers including upholstery, fabric, and furniture fastening components, and other ancillary wood components, precludes collection of timely and feasible data related to every financial input. This prohibitive limitation placed on the available time and resources to the study emphasised the need to explore strategic planning in value chains, how firms compete, inter-firm relationships and opportunities for value creation improvements.

Therefore, in seeking the wider impact on competiveness, a multiple attribute approach to the survey instrument was proposed.

The survey instrument contained two sections. The first section asked for information about the firm’s basic company data including firm size, domestic and global turnover, and description of primary and secondary supply levels. The second section asked questions about strategies for competitiveness, including categories requiring firm-level responses to its present position on strategy, inter-firm relations, resources and competencies, competitive threats, competitive advantage initiatives, measuring firm performance, and profitability trends (Appendix 9, p.249).

3.6.5.4 IQ - Data preparation and entry
All returned surveys were then progressively entered by the researcher in a Microsoft excel with formulas to provide the percentage weightings for each question response
across all returned surveys. Each returned survey was then checked for accuracy by the researcher while reading the excel table file. The survey also contained qualitative data not contained within the likert-scale responses; these text responses were first entered into the Microsoft excel spreadsheet then transferred to a Microsoft word document for further interpretation.

3.6.6 Phase 3 - End-consumer Questionnaire (EQ) – Qualitative research design

3.6.6.1 EQ – Introduction

This phase provides the data collection procedure for the data that contributes to the extension of the value chain approach by exploring what values are attributed by end-consumers of Australian wood furniture. The level of interdependence between end-consumer value and the activities in the value chain are of significance to this study.

The survey contained five parts. The first part sought end-consumer’s opinion of wood as a furniture material; and the second, the attributes of wood in comparison to other materials. Part three addressed wood types and origin, aspects of marketing to the end-consumer and issues of the environment which had become a topic of discussion in the architecture and built environment field in general. Parts four and five of the survey included questions of salesperson product knowledge, branding, timeline from forest to retail environment and demographic characteristics (Appendix 12, p.261).

The research instrument contained fifteen attributes describing wood as a furniture material adapted from Pakarinen (1999), and respondents were asked to rate attributes using a five-point likert scale from total disagreement = 1 to total agreement = 5.

The questionnaire was pre-tested prior to release with four industry representatives (two from furniture manufacturing and two being furniture specifiers i.e. interior designers within architectural practice) and two university academics. The pre-test surveys were returned with comments and the changes incorporated in the survey released to consumers.
3.6.6.2 EQ - Data collection procedure

The data were collected at two different locations in two separate Australian states, South Australia and New South Wales, one within a furniture retail outlet and the other within an audience environment not within a retail store whilst attending a seminar presentation on the furniture sector.

The surveys conducted within the retail environment were initially issued and supervised by retail sales staff, but due to poor return responses after one month, further surveys were collected by the researcher within retail opening hours during two consecutive days on an annual public holiday weekend within the hours of 10am and 4pm. The retail showroom sold predominantly solid wood furniture towards the high quality end of the market and the premises were situated in a suburban area known as a mixed business area and not known as a furniture retail precinct.

Customers were approached as soon as it was evident that they had concluded their in-store activities and were about to leave so as not to encroach on their shopping time or jeopardise liaison with retail sales staff. The timing of the survey at this point was considered appropriate, as the experience of interacting with wood as a furniture material would have been the most immediate and their reflections most detailed by being interviewed within the furniture retail environment. Consumer perception of wood attributes representing value was measured using forty-four questions comprising 5-point Likert scale items within five end-consumer survey categories (Appendix 12, p.261).

3.6.6.3 EQ – The survey instrument: End-consumer value

End-consumer value is a consumer’s emotional and product or service evaluation of the experience obtained from observing and using a specific good or service. The survey instrument draws upon previous studies on consumer perceptions of wood furniture value in Finland (Pakarinen, 1999).

The end-consumer questionnaire (EQ) contained five sections. The first section asked about end-consumer attitudes toward wood as a furniture material and ranged from environmental issues to aesthetic attributes sought by the end-consumer. The
second section asked about wood attributes in comparison to other materials including glass and metal and the basis on which one material was considered by the end-consumer to be superior to another, then ranked. Section three asked about brand recognition and craftsmanship. Section four asked about environmental aspects, wood certification and perceptions related to access to wood products in the future, and finally, section five related to the respondents’ demographic details including education and employment. The measurement scales were adapted from a Finnish study seeking the same information within a Finnish furniture retail environment in Northern Europe (Pakarinen, 1999).

3.6.6.4 EQ - Data preparation and entry
All returned surveys were then progressively entered by the researcher in a Microsoft excel with formulas to provide the percentage weightings for the response to each question across all returned surveys. Each returned survey was then checked for accuracy by the researcher while reading the excel table file. The survey also contained qualitative data not contained within the likert-scale; these responses were first entered into the Microsoft excel spreadsheet, and then transferred to the Microsoft word document for further interpretation.

3.6.6.5 EQ – Statistical analysis - Consumer value
The procedures used to analyse the data for the purposes of addressing the research questions and operational definitions of this study range include correlation analysis of quantitative data to content analysis of qualitative data.

3.7 Treatment and collation of data: Phase 1, 2 and 3
The research design through a mixed method approach seeks to unite and compare the value proposition presented to the end-consumer to that of the overall value chain membership and the effect it may have on value chain effectiveness. The results may guide the value chain toward value greater value creation through building competitive advantage for their value chain.

The next research steps included the interpretation of the collected industry value chain data in the areas of common value chain interests of the interview sample
(Phase 1 survey) and the industry questionnaire sample (Phase 2 survey). Subsequently, the study correlated the expectations and perceptions of value arising from the end-consumer survey (Phase 3 survey) to the experience and perceptions of the industry level members of the value chain.

This can expose aspects of value chain activity of importance to both the industry and the end-consumer. Any differences in expectation from any stakeholder from within the value chain can lead to opportunities to enhance the value proposition to the wood furniture end-consumer. These value chain endeavours can contribute to future industry developments towards gaining competitive advantage over competing wood furniture value chains. The following survey question alignment table summarises the key research questions, operational definitions for exploration and spread of survey questions across the three research phases (Table 3.2).

Table 3.2: Survey question alignment – Phases 1, 2 and 3

<table>
<thead>
<tr>
<th>Research Question (RQ)</th>
<th>Operational definition</th>
<th>Industry survey Phase 1 n=34 questions</th>
<th>Industry survey Phase 2 n=123 questions</th>
<th>End-consumer survey Phase 3 n=42 questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1 What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry (AWFI)?</td>
<td>External market characteristics (1)</td>
<td>12 related questions</td>
<td>7 related questions</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Performance assessment (2)</td>
<td>8 related questions</td>
<td>19 related questions</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Inter-firm relationships (3)</td>
<td>3 related questions</td>
<td>23 related questions</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Resource management (4)</td>
<td>6 related questions</td>
<td>4 related questions</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Wood furniture end-consumer buying motivations (5)</td>
<td>5 related questions</td>
<td>9 related questions</td>
<td>18 related questions</td>
</tr>
<tr>
<td>RQ2 How can a value chain approach improve value for both firms and end-consumers in Australian wood furniture value chains (AWFVCs)?</td>
<td>Exploring how firms compete (6)</td>
<td>See Phase 2</td>
<td>9 related questions</td>
<td>5 related questions</td>
</tr>
<tr>
<td></td>
<td>Exploring what constitutes value for end-consumers (7)</td>
<td>See Phase 2</td>
<td>17 related questions</td>
<td>12 related questions</td>
</tr>
<tr>
<td></td>
<td>Exploring which production pipeline activities convey the highest value to end-consumers (8)</td>
<td>See Phase 2</td>
<td>7 related questions</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Exploring current firm-level strategies in conveying value to end-consumers (9)</td>
<td>See Phase 2</td>
<td>5 related questions</td>
<td>5 related questions</td>
</tr>
<tr>
<td></td>
<td>Exploring avenues of overlap in firm activities consistent with the value chain approach (10)</td>
<td>See Phase 2</td>
<td>23 related questions</td>
<td>2 related questions</td>
</tr>
</tbody>
</table>
The common areas of value interests between firm-level value chain industry membership and that of the wood furniture end-consumer level include the following common attributes as presented in the research instruments in Phase 2 and 3 research design (Table 3.3).

**Table 3.3: Mixed method research design – Collation of data for analysis / Common value chain interests – Industry and End-consumer**

<table>
<thead>
<tr>
<th>Mixed method research design – Collation of Data / Common value chain interest</th>
<th>Industry survey Phase 2 (Appendix 16)</th>
<th>End-consumer survey Phase 3 (Appendix 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique production or process features leading to unique product offerings</td>
<td>Q 7</td>
<td>Q 1 Sub-section 9</td>
</tr>
<tr>
<td>Competitor assessment leading to new and unique product offerings</td>
<td>Q 13, 22</td>
<td>Q 1 Sub-section 7</td>
</tr>
<tr>
<td>Access to new wood furniture end-consumers</td>
<td>Q 21</td>
<td>Q 2</td>
</tr>
<tr>
<td>Sustainability/environmental &amp; wood certification</td>
<td>Q 83-86, Q 120</td>
<td>Q1 Sub-section 1, 2 &amp; Q3 Sub-section 9 &amp; 10 Q 4 Sub-section 3 &amp; 4</td>
</tr>
<tr>
<td>Communication and market information</td>
<td>Q 43-47</td>
<td>Q 4 Sub-section 1 &amp; 2</td>
</tr>
<tr>
<td>Co-creation of value – industry &amp; consumer</td>
<td>Q 104-108, 109 - 121</td>
<td>Q 3 Sub-section 1-12 &amp; Q 1 &amp; 2</td>
</tr>
</tbody>
</table>

The additional survey questions from both the industry survey and end-consumer research instruments not presented with Table 3.3 are included in the study as seeking particular firm-level attributes pertaining to research Question 1 and 2.

**3.8 Ethical considerations**

This study’s ethical viewpoint and mode of survey in this study was guided by the University of Western Sydney ethics policy. Ethics clearance was applied for and approval received. The ethics policy was observed for the duration of the study and steps were taken in the preparation of documents released to participants to use plain statements describing the aims of the research, procedures, and in the provision of the protection of the identity and intellectual property of participants and their associated firms and participatory value chains.
3.9 Conclusion

This chapter described the selection and research justification of the research design and included the qualitative and qualitative data to be collected; the mixed method approach; and the sample identification process. The three phases of the survey methodology were outlined, including data collection procedures, the survey instruments, and data preparation and entry.

The chapter concluded with a discussion of the study’s ethical considerations and an introduction to methods used in the interpretation of data to be contained in Chapter 4.

The qualitative and quantitative survey results of the three research design phases and associated analysis procedures are now discussed; in Chapter 4, the results of the Phase 1 semi-structured industry interview survey; Chapter 5, the results of Phase 2 industry questionnaire, and Phase 3, end-consumer questionnaire.
Chapter 4
Results of industry fieldwork study

4.1 Introduction
The previous chapter introduced the research design and methodology for the study and the three research phases contained within the research design framework. This chapter outlines the data collected and begins the analysis of the data by describing the attributes of the sample obtained by Phase 1 of the study described as the Industry Fieldwork Study (IFS).

The following chapter (Chapter Five) presents the research findings of Phase 2 - Industry Questionnaire (IQ) and Phase 3 - End-consumer Questionnaire (EQ) also contained within the mixed method research design framework.

4.2 Australian wood furniture industry data
Research in the Australian furniture industry has predominantly focused on productivity improvement at a manufacturing level with a focus on production efficiency. What is not apparent is the level of understanding of the role of the end-consumer plays in Australian wood furniture value chain. The foundations upon which value chain analysis can be built are well represented in the existing literature regarding the benefits of effective inter-firm linkages represented by information sharing, collaborations, and high levels of trust.

In mapping the Australian furnishing industry sector the Australian Expert Group in Industry Studies (AEGIS, 2000) indicated that Australian geographical concentration of both manufacturing and retail firms was significant; the industry was led by retailers in the domestic sphere and by architects and interior designers in commercial project specification; the industry was a big importer; few firms invest in training, and the value-added per employee was low.

The average number of employees per establishment was low in all six furnishing industry categories presented, including wooden furniture manufacture, and lower in
comparison to Canada and Denmark which was expected to be similar (AEGIS, 2000 p.7 & 15). The small size of firms was seen a major obstacle to the implementation of development policy, with firms in the wooden furniture/upholstered seat manufacturing sector employing on average 9.3 persons in 1990-91 then reducing to 6.9 persons in 1996-97 (ABS, 2009b). The relative size of the small furniture manufacturing firm has remained low and stable at less than ten employees per firm (32.4%), 10-19 persons (14.3%), 20-49 persons (29.5%), and 50-99 persons (13.8%), with 10% of a workforce of 43,500 having one hundred employees or more (FIAA, 2009).

In response to the key Research Question 1 presented in Chapter 2: *What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry?*, the study implemented a value chain approach.

The approach focused on the various subsystems of the value chain for a selected consumer product (Beamon, 1999, Fine *et al.*, 2002, Marr, 2004). The complexity of inter-relationships within the wood value chain and its value stream is indicated in a mud-map or value stream map (Figure 4.1).

**Figure 4.1**: Australian wood value chain – dining chair  
(Simplified macro view – indicative inputs)

Source: Adapted from Barnes and Morris, 1999.
The basis for selecting a single generic wood product was further guided by the recommendation that a value chain should focus on an individual product rather than only observing firm specific issues (Barnes and Morris, 1999, p.9). Barnes and Morris (1999) have contributed prior value chain studies in the automotive and wood furniture sectors in South Africa.

The criterion for the selection of an Australian wood furniture product for value chain study was based on the product being predominantly of wood construction, and that the qualification for Australian wood furniture be based on the product having domestically sourced wood components of Australian manufacture and assembly. The exploration of furniture distribution and retailing would also be limited to the Australian context.

Classifications portraying ‘Australian made’ or ‘Made in Australia’, ‘Product of Australia’ or ‘Australian grown’ can be described respectively as a product substantially transformed in Australia with at least fifty per cent of production cost incurred in Australia; all the product’s major components are from Australia including manufacturing or processing; and a product’s significant ingredients are grown and processed in Australia (Australian Made, 2009).

A wood dining chair was selected for value chain study as being predominantly wood in construction and qualified as being of Australian sourced, manufactured, and assembled wood components.

A review of Australian furniture industry statistics identified a category segment in wooden furniture, and specifically kitchen and dining chairs (ABS, 2002, p.14). This study also observes that the last year of Australian Bureau of Statistics (ABS) reporting a specific wooden furniture sub-category was 1998. In 2009 reporting, dining chairs are grouped within ‘wooden furniture and upholstered seat manufacturing’ and therefore are not easily identified (FIAA, 2009). Guidance was sought from furniture research and furniture industry representatives during the research design phase of this study. The advice suggested that the most favourable
furniture industry cooperation may be found in the Australian wood chair industry which had been supportive in former industry studies in the area of production efficiency.

The chairs selected for value chain study also contained furniture construction materials not sourced from wood, including metal fasteners; wood glues in plywood or in the fixing of wooden dowels; and other miscellaneous minor components. Further materials included upholstered fabric, and straps to support upholstered expandable foam cushions, providing comfort and through colour and pattern linkage to furniture aesthetic trends. Supplementing the integral structural components providing structural rigidity, surface coatings for decoration or protection in use, also form further value chain contributions Endeavours were made to approach all firms contributing to each value chain.

Accessibility to and cooperation from Australian wood furniture value chains was sought by the researcher. The comprehensive and complex nature of a value chain approach with a focus on the micro-level from raw materials to end-consumer was not attractive to all firms and therefore the establishment of the sample experienced limitations.

Participating firms were required to divulge sensitive firm level information as well as entrust links to associated supplier firms with whom they may have held historic and lengthy commercial relationships.

Wooden chair manufacturers were sourced by referral from suggestions received from the Program Manager of the CRC in Wood Innovations at the University of Melbourne and the General Manager of Furnishing Industry Association of Australia (FIAA). The manufacturers were then approached by phone introduction, and by letter of introduction emailed, faxed, or posted on the advice of the intended participant. The written introduction was accompanied by a university approved ethics consent application request form prior to the meeting dates being set.
It was at the manufacturing level that many of the end-consumer preferences are interpreted and presented in respect to wood type, wood finish, upholstery colour and material type and design. Therefore, this was the value chain level with the highest potential to generate associations for the research study in providing linkages from raw material supply through to the furniture retail environment. The manufacturing level transforms wood material by establishing it as a consumer product through inputs and contains a variety of inter-firm relational viewpoints.

In order for the study to address variations in wood species, source location, furniture type, and have a geographic distribution of value chains, more than one recognised regional furniture manufacturing cluster in Australia was pursued. Regional clusters had been described in the existing literature which guided considerations (AEGIS, 2000).

Manufacturers were sourced in several Australian states. Studies were undertaken in the Australian states of New South Wales, South Australia, Victoria, and Queensland, with Western Australia and Tasmania the only recognised furniture cluster omitted due to the more complex researcher-based logistics and cost to the study. The results are described in the following section.

4.3 Industry fieldwork study (IFS) - Descriptive statistics and qualitative data

4.3.1 Introduction - semi-structured interviews

The semi-structured interview study contained eight categories and thirty-four questions seeking qualitative data in response to the overarching research questions and operational dimensions. The objective of the survey was to establish those factors in the wood furniture industry that either act as drivers for firm or barriers to industry or firm-level competitiveness as contained in Research Question 1 and linked operational dimensions:

What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry?

And;
The five proposed operational definitions summarised factors impacting value chain performance including: *external market characteristics; firm-level performance assessment; wood furniture end-consumer buying motivations; and resource management.*

The attributes of successful value chains were also considered for inclusion in the IFS through Research Question 2: and further operational definitions 5 to 8:

How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?

And;

A further four linked operational definitions were summarised as impacting value chain performance through value chain inter-relationships in the production pipeline including: *how firms compete, what constitutes value for end-consumers, pipeline activities delivering high value to en-consumers, current firm-level strategies conveying value to end-consumers, and exploring for evidence of the value chain approach.*

The interview proforma categories generated from Research Question 1 and 2 and dimensions 1 to 8 were also guided by the research gaps and emerging themes in the literature and comprised a focus on; value chain stakeholder relationships; geographic location; value chain logistics; value chain production and technology investment; inter-firm communication; profitability; wastage; wood furniture industry business environment; import and export; and the wood furniture end-consumer.

A description of qualitative data collected during the Industry Fieldwork Study (IFS) semi-structured interviews is included here.

Observations were made with notations concerning the physical commercial environment to supplement the overall landscape of the wood furniture value chain member enterprise. Data collection were comprised by the taking of notes;
photographs; and digital audio and digital video recordings where permitted. A series of excel spreadsheet templates and Microsoft word templates were constructed to assist the capture of key aspects of observation (ILO, 1979) or comment brought to the attention of the researcher by the sample (Appendix 3 - 7, p.242-246).

This also provided additional data and a common qualitative data capture technique to address a diverse range of value chain membership, ranging from forest resource to the retail environment, and directly supplemented the qualitative results of the interview proforma.

4.3.1.1 Inter-firm dynamics – forest to end-consumer

To inform the spread of cost and inputs, wood transportation provides an insight to efforts which the end-consumer is not aware. The overall distances between the commencement of the furniture value chain at the forest resource for wood, through the manufacturing stages, and eventually to the wood furniture end-consumer, varied greatly.

For example, the travel distance for wood in furniture value chain 1 (FVC-1) ranged from 1210 kilometres from the forest resource to the furniture retail showroom and the end-consumer in one capital city, to 2575 kilometres for the same FVC from the same forest resource to end-consumer for another capital city. The lower figure was represented by 200km from forest resource to wood mill, 275km intermediate logistics stages, and then an additional 700km to the wood merchant.

This was followed by further road transport of 35km to the furniture manufacturer, who then transformed the merchant-supplied milled wood into a completed wood dining chair, subsequently forwarding it to their own retail showroom 35km away (overall 1210km), or to their more substantial nationally represented furniture retail buyer 1400km away (overall 2200km).

This does not yet take into account the inputs of outsourced material inclusions of furniture fastening hardware, foam or fabric for upholstered chair, or the numerous adhesives and wood furniture surface coatings required to provide the final sealing
and enhance the visual attributes of the wooden chair, nor was an export travel
distance scenario observed. FVC-1 participated in export market sales to the United
Kingdom through a local consortium with a common branding strategy to reach a
retail market in London, England. This could add a further 10,000km at least to the
already formidable distances travelled.

The wood tracking distances FVC-2 ranged from a 300km low to a 4050km high for
this value chain’s traditional retail client base. FVC-3 wood transport distances were
noticeably closer at 150km low and 800km high for the Rosegum wood variety
(Forest - A); and an 800km low and 1550km high for hoop pine variety (Forest - B)
supplied to the same respective furniture retailers.

Ninety percent of FVC-1 sales were located on the Australian seaboard, which may
also be a reflection of the concentration of the Australian population and
consequently affects the location of wood furniture sales.

The associated economies-of-scale and logistics affect many aspects of value chain
activity including wood supply, wood milling, and manufacturing processing. The
factoring of a key outsourced component as layered and formed plywood acting as
the reinforcing structure of the chair seat and back in upholstered and non-
upholstered wooden dining chairs may add well over 1500km to the overall chair
transport distance total.

The following sections provide qualitative descriptions of the responses from the
various levels of the Australian wood furniture value chain, including industry
interviewee responses pertaining to drivers and barriers, to creating value and
sustainable competitive advantage. The various value chain level respondents include
forest, wood mill and wood merchant, wood furniture manufacturer, wood furniture
sub contractors, and wood furniture retailer levels of the value chain. The end-
consumer level of the value chain was addressed in a separate section in the end-
consumer survey questionnaire (Chapter 5).
Throughout the study, each tracked value chain is referred to as the Furniture Value Chain (FVC) and carries a number to identify the value chain, i.e. FVC-1, FVC-2 and FVC-3. The key classifications of firms involved in FVCs are described by their generic firm-level activity in the literature which for firms is most commonly their dominant activity within a FVC i.e. wood furniture manufacturer level of the FVC.

4.3.1.2 Forestry level

The forest level defines the commencement of the wood furniture value chain and the first step from where the wood for the furniture industry is sourced, harvested, and graded into levels of wood quality. The logs once sorted, labelled, and purchased by a wood sawmill or mill, depart on the journey to the wood mill level of the value chain for processing. This study established a link to a forest resource level for each of the three wood chairs tracked for value chain analysis.

The forest source and milling activities may be independent whereby the forestry supply is a separate business entity to the mill, but this is not always the case. For example the wood chair representing Furniture Value Chain - 1 (FVC-1) required various species of wood and was sourced from a large firm that had a degree of vertical integration as their business model structure. Vertical integration is a product of more than one level of the value chain combining under the direction and control of one firm, often involving the purchase and merger of more than one level of the value chain (FIAA/BIS, 2004). This may assist the consolidation of decision-making activities, day-to-day operations, and control of intellectual property.

4.3.1.2.1 Inter-firm relationships (forest level)

The forest level supply firm operating in FVC-1 acted as the supplier of wood from crown and private land, the mill, and as a wood merchant. This firm possessed a strong industry-wide recognised brand name and supplied many value chains in the wood industry, of which the wood furniture industry was one smaller industry grouping and FVC-1 an even smaller value chain within this firm’s scope of supply.

The engagement of the forest level value chain member in an FVC stems from the decision that commences at the furniture manufacturer level or even further along the
value chain at the furniture retail and end-consumer levels of the value chain. The furniture manufacturer decides what level of wood quality is acceptable and in what sizes are required to execute a wood furniture product through to completion. If the furniture manufacturer is also a retailer of their own firm’s manufactured furniture then the furniture manufacturer level of the chain commands a key leadership role in value chain member engagement.

In contrast the chair manufacturer in Furniture Value Chain - 2 (FVC-2) held specific wood requirements for its wood furniture and had built a relationship with a small wood mill supplying high quality wood cut and finished to its specifications. The small mill supplied reliable quantities to the FVC-2 manufacturer over time, leading to a long-term relationship based on trust and quality supplied. The mill and its independent supplier of wood also shared this level of trust.

The wood in FVC-2 was sourced from a privately-owned forest owned by a large company holding wood plantations. This represented a reliable source today, but future wood supply reliance, once this limited specialist wood supply runs out, could weigh on relationships with individual landholders “who are not in the business of growing trees” (Wood Mill Interview 3 paragraph 192 / FVC-2). This foreshadows implications in supply of logs to the mill, and the mill to the furniture manufacturer.

The relationship of the FVC-2 mill with the FVC-2 furniture manufacturer accounted for a high proportion of the small sawmill’s overall turnover at around eighty-five percent of mill production. The dependence of the private forest owner supplying to the FVC-2 mill is unknown, except that the mill was prepared to purchase all the logs of a particular type as long as the mill could afford the log sale price and the private forest owner was a large plantation commercial entity with further wood customers.

The scale and relationship characteristics of Furniture Value Chain-3 (FVC-3), through the leadership of the furniture manufacturer held similarities to FVC-2 except that forest level supply was from privately-owned small firms or farmers. Value chain cooperation was evident within a circle of small business operators in the supply and milling of wood and the group was participating in a small regional consortium or grouping of small like-minded high-quality wood furniture
manufacturers. FVC-3 relied on wood sourced from private land-owners and two mill operations, one almost mobile given its size and run by one or two persons, and the other more established but still considered a type ‘boutique’ supplier of selected wood and possessed more substantial kiln drying facility and milling operations in comparison.

4.3.1.2.2 Forest level summary

In summary, forest level responses indicated that wood was sourced from crown and private land; introduced the importance of the small wood furniture manufacturer in procuring quality wood sometimes directly from the forest source, and therefore governing the commencement of value chain requirements; and also introduced linkages to saw-milling and wood merchants. Cooperation amongst small business operators was evident, and though one forestry concern incorporated a large sawmill and a considerable wood merchant distribution business, other forestry participants were very small operations of between one and two people.

4.3.1.3 Wood mill level

The wood mill level of the value chain is the first opportunity for the qualities of the wood including texture and grain to be revealed. Being a naturally growing material, the wood’s resultant characteristics exposed by the milling process are prone to great variance. This variance can include aspects of wood density, knots, grain distortions, veins and pockets, or wood checking creating different levels of quality. Each natural variance may potentially affect subsequent levels of the value chain in the quality and availability of certain wood. This is a constant factor in the wood industry.

4.3.1.3.1 Wood mill profiles and activities

The wood mill respondent for FVC-2 provided both milling and drying services in the preparation of wood for the furniture industry. Approximately eighty to eighty-five percent of this mill’s business relied on the one furniture manufacturer with very specific wood requirements. The FVC-2 mill facilitates the wood sawing operation producing rough-sawn wood, which is then air-dried, and subsequently kiln-dried.
Specific orders placed by the furniture manufacturer to the wood mill rely on an understanding of wood quality and therefore good verbal or written communication between the value chains members in regard to key wood attributes.

Following the air-drying of wood, which can take more than six months or as little as three, and a session of kiln drying to attain a favourable moisture content for furniture production is the timber surface finishing process. The dressing, or finer preparation of the wood prior to forwarding to the furniture manufacturer, was achieved in FVC-2, by two firms residing in two locations; one fifty kilometres away; the other eighty-six kilometres. The wood then returned to the mill in readiness for further transportation to the furniture manufacturer.

The furniture manufacturer in FVC-2 is one of two furniture manufacturers involved in this value chain, one pre-processing milled wood, the other as the furniture constructor of the final wood furniture article. The next value chain connection the wood intended for chair production makes after the mill, the firm facilitating the dressing, and then the transport firm dealing with the wood’s logistical requirements, is the furniture manufacturer who is sub-contracted by the primary furniture brand holder, another furniture manufacturer.

This sub-contracted firm specialised in an efficient and proven chair production of high and reliable quality. The outsourced activity permitted the primary furniture brand holder to devote their factory capacity to other furniture items, including chairs and associated dining and wooden households goods including hi-fi entertainment wooden furniture modules and sets. The range of services held by the mill in FVC-2 also associates with the mill as a wood merchant, thereby integrating the services of two classified value chain levels as described by this study.

It may be noted that there has been no value created yet, only materials converted with some remuneration for services to discrete members in the value chain. This may also be said of the journey of wood from the forest-level to the mill-level of the value chain. This view of value creation is supported in the conclusions drawn in the
work of Svensson (2003) where it is argued that no value is realised until the ultimate or end-consumer confirms value in the final purchase. In the wood furniture value chain, the wood furniture product purchased in the retail environment represents the economic value transferred from end-consumer to the value chain.

4.3.1.3.2 Wood characteristics (wood mill level)

The grading of the natural characteristics of wood received from the forestry level provides the capacity to sort wood into structural wood grades required in building, subject to standards, or appearance grade categories. The appearance grade destined for furniture markets is visually graded by trained graders (Bootle, 2005, p.42) as the characteristics of a wood predetermine for which market the timber product can be utilised. The occurrence or lack of particular characteristics including wood knots and veins within the grain can affect the expectations of mill, wood merchants, furniture manufacturers and therefore the retailers and ultimately the end-consumer.

Continuity in reliable supply of quality wood with certain attributes is therefore cited as a potential barrier to the Australian wood furniture industry if the continuity and reliability in supply cannot be maintained.

The climate also affects the availability and continuity in supply of wood. The forest harvest of logs is affected by wet or dry harvest conditions, therefore influencing the amount of logs available at a given time of the year:

“only allowed to log certain times of the year when there’s not too much rainfall around and typically in the Otways [Victoria] it’s from early December through to the end of March, normally, albeit the seasons are changing with the climate now, and they can log through now until the end of May, usually. Unlike Tasmania, where they can log all year round, because they do different road preparations” [log type: Blackwood / acacia melanoxylon.

(Wood Mill Interview 3 paragraph 8 / FVC-2)
Quality in wood supply once sourced is coveted by wood mills and regional substitutes may be no match to in replacing a good source. A respondent from the FVC 2 value chain was prepared to increase the annual purchase of three or four hundred cubic metres of logs from a supplier with access to private land to over one-thousand cubic metres to ensure continuity in quality for supply to the next level of the furniture value chain over time.

Manufacturers in the furniture industry are seen as good clients for high-end wood grades in which the respondent in FVC-2 specialised. In terms of quality:

“we supply only to the top end of the market. We don’t worry about the middle end, and we don’t compete on price. We compete on quality”

(Wood Mill Interview 3 paragraph 85 / FVC-2)

The FVC-2 mill respondent was also prepared to walk over the forest coup and ‘sound’ logs for quality. When asked if there was any specialist apparatus used in the sounding of logs it appeared to be based on the tacit knowledge held by an individual with the firm with log sounding facilitated by:

“whacking it with an axe…an axe is the particular apparatus! (laughs)
A high-tech method!”

(Wood Mill Interview 3 paragraph 24 / FVC-2)

This axe-test quality method by the FVC-2 mill respondent was actioned at the base of the tree as an assessment of the presence of rot in particular logs within a forest stand that could in turn influence the price paid per log, as this could contribute variances in wood yield from certain logs. The stand represents a cluster of trees within a designated area, which in this case was a private land area of thirty-five hectares.

Technical advances have been made in the sounding of logs and are represented by a sonar resonance apparatus assisting the search for favourable tree growth characteristics that assist foresters in forest management.
The stand densities experienced by this respondent equated to approximately one-thousand cubic metres of wood per eight to nine hectares of Blackwood forest, which was seen as not relatively high in the respondent’s opinion. The stand was predominantly the mill-preferred Blackwood species *Acacia melanoxylon*. This species, used as the source for FVC-2, was considered unique in the wider regional context as being a near pure one-species commercially available source. Only about five percent of the stand was not the appropriate wood, rather Mountain Ash *Eucalyptus regnans*, therefore requiring some selection within the stand prior to logging. The classification and non-harvest of certain wood species was not cited as a barrier to forest harvest although it may require some collaboration in deciding which trees in a stand are selected for harvest and which are not. The stand was about sixty-five years of age and was part of hardwood forest regeneration after comprehensive bushfires of 1939 in the region. The fires are also a reminder that some barriers can not be overcome by competitive strategy alone.

4.3.1.3.3 Inter-firm relationships (wood mill level)
The relationship of the mill to the forest owner may be defined by a contract for a period of years and annually projected volume and in the case of FVC-2, a five-year contract. Furthermore, the mill level respondent was a ‘price-taker’, based on a price being offered by the forest owner and the mill accepting or taking the price or risk the wood logs being offered to another mill. Annual log purchase prices for FVC-2 were based on annual consumer price index (CPI) increments on top of the previous year’s purchase prices. This appears to be an accepted industry norm for similarly sized small mill enterprises. Therefore, cost increases in mill outputs affect the next level of the value chain as participants are influenced by the annual incremental price increases from the forest wood supplier. The cost accumulation indicates an inherent inter-firm relationship activity worthy of further consideration.

4.3.1.3.4 Wood quality & environment (wood mill level)
Wood quality levels are also affected by geology and climate. The orientation of a naturally growing forest stand or coup to the sun also had an affect on the quality of forest yields. The respondent FVC-2 preferred wood grown on the south side of a hillside slope limiting the natural drying of wood and therefore improving the quality of the harvest. There appears to be a good deal of common tacit commercial
knowledge of where the best logs are and whether the stands are on crown land (government licensed to industry) or land privately held. It also appears that the forest-level value chain suppliers are well aware of what they have and how abundant the supplies are, including wood quality levels. In the case of respondent FVC-2, the small mill operator was prepared to visit the forest and rely on their own knowledge and accumulated experience in judging quality.

One example of the effect of drought on the forest of a private farmer was a tree reduction rate of about seventy-five percent, from a high of forty-seven thousand trees to around seven thousand in a period spanning less than 10 years commencing in the late 1990s. The remaining trees would still require a further twenty years to mature in comparison to forest closer to the coast where higher rainfall was usually anticipated.

Further emerging barriers cited were projected closures of crown land forests from logging. The sourcing of logs after the closure of crown lands could rely on the relationships built with private farmers and then those farmers’ own subsequent permit applications and release to prospective wood mill purchasers.

The wood mill FVC-2 respondent forecast that the supply of logs would be a future barrier and affect profitability. The mill was resigned to the fact that the particular hardwood species they sought may be required to be custom selected from among pine plantation as they grew as ‘weeds’, then matured undisturbed, until a harvest could take place. The furniture industry perception of how the dominant wood users in the pulp and paper industries see furniture manufacturer’s sporadic hardwood requirements as being weeds speckled amongst the predominant harvest softwood log pine, is a concern. The quality and quantity would be questionable and this already prompted the mill and their client furniture manufacturer to become more innovative in preserving supply through conservative yet smart applications.

The conserving of high-end quality wood for the more prominently seen furniture components on show to the end-consumer was one of the strategies adopted to reduce wood use in light of the possible growing scarcity of wood specie(s?) suitable for furniture manufacture. On the lesser seen parts of the wood furniture product the
same species but a lesser quality could be melded without losing the furniture article’s marketable integrity. This level of collaboration signifies the level of product development relationship currently held by the FVC-2 mill/merchant with the FVC-2 furniture manufacturer.

4.3.1.3.5 Inter-firm communication (wood mill level)
Communication between the saw mill in FVC-2 and other mills and merchants was frequent, including the wider sharing of information about this industry. Consultant advice was provided by the FVC-2 sawmill to other mills on wood drying and marketing in an open and “free exchange of ideas and information” (Wood Mill Interview 3 paragraph 95 / FVC-2). The advantage was that access to different species of logs could be sourced through new associations and open cooperation.

Trust was seen in FVC-2 as an integral expectation in their company’s viability:

“Levels of trust. That’s what the company’s future is based on. Trust.... I trust the log supplier to give me the quality of logs that I’m after and not vary the schedule, and the standard of logs. The people I supply, (manufacturer name withheld), trust me to supply the best timber dried to their exact needs and to deliver on time. I trust them to pay me on time, and me to pay. The people I buy logs from and who transport trust me to pay them on time. There’s no written agreement in these arrangements.”

(Wood Mill Interview 3 paragraph 97 & 99 / FVC-2)

The inter-firm relationship in FVC-2 was so established that the grading of wood by the mill for the valued client was customised beyond the industry grading levels and carried the client’s brand name grade, as the wood did not fall within industry grading system associated with select or feature boards. The mill’s client required different wood grades for different parts of the furniture manufactured. In the opinion of the mill respondent in FVC-2 this was seen as highly unusual for the industry.
The mill/wood merchant in FVC-2 reinforced the open levels of communication built over time and with frequency in communication:

“We speak almost daily on the phone, and I go down, try to go down and see them, every three weeks, so any issues that arise are resolved. Then I go down and speak to their key personnel, [owner/manufacturer personal name withheld], who’s the owner, who does all the ordering. I speak to the sales personnel, I speak to the production manager and I speak to the machine-shop manager, and I speak to the person that assembles all the boards, so if there are any problems anywhere about anything, they’re all resolved. And that has worked extremely well.”

(Wood Mill Interview 3 paragraph 188 / FVC-2)

4.3.1.3.6 Logistics (wood mill level)

The FVC-2 mill’s location and distance from their suppliers and those they supplied was not seen as a barrier. These distances included 550km from the forest supply (where 100km was seen as the maximum industry norm for log transport in the respondent’s opinion), 900km from the furniture manufacturing subcontractor (who was 770km from the primary furniture manufacturer), and 600km from the primary furniture manufacturer. The FVC-2 mill was adamant that if a firm could supply a quality service, distance would not be a contributing factor:

“When you have a specialised product and you’re at the top end of the market range, it doesn’t matter where you are”

(Wood Mill Interview 3 paragraph 186 / FVC-2)

4.3.1.3.7 Wood mill level summary

In summary, wood mill level responses reconfirmed that wood as a natural material is affected by location, climate and species which are subject to variance affecting wood, and that woods are graded to different quality level specifications affecting price and availability.
The responses also drew attention to the reliance of some small wood mills on wood furniture manufacturers and that inter-firm relationships in the wood furniture sector between the wood mill level and the wood furniture manufacturer are robust with inter-firm communications frequent, open and free even among competitor wood mills. Trust was seen as integral to current and future business in the sector, with one alliance with a wood furniture manufacturer procuring a wood supply and finish carrying the purchaser’s own ‘brand’ requirements. Collaboration was present in the interview responses, with wood mill and wood furniture manufacturer teaming up to blend premium wood on the faced side of wood furniture with good but lesser quality on the parts unseen by the end-consumer while still meeting the structural integrity of the wood furniture product.

Continuity in reliable supply of required woods was seen as a potential barrier to the AWFI, with closures of some crown land forests of particular concern to wood mill operators and their clients – the wood furniture manufacturers.

4.3.1.4 Wood merchant level
The interviewees were asked questions regarding the description of their firms and their activities. Among wood mills and wood merchant levels there was some activity description overlap where a firm could mill wood and also provide wood merchant services. A firm’s strength may be expressed in terms of diversity in core business activities and the ability to value add internally and provide a product to the end consumer was perceived as a valuable asset to their firm. In particular cases of value adding internally there was one in the area of architectural wood mouldings and dressed wood for the furniture industry and another which provided wood drying kiln services and furniture design and manufacture – for example:

“We’ve covered a lot of broad avenues, I guess, but its part of our strength, too, is that we couldn’t go down one trail, so we’ve fanned out”... “Because we are so diverse, there’s no one area we specifically over target more than any other. The firm really relies on that diversity.”

(Wood Merchant Interview 1 paragraph / FVC-3)
The same respondent estimated that sales to the wood furniture industry accounted for about five to ten percent of their turnover and was considered an emerging industry in their regional coastal locale and not adjacent to a major capital city. The wood furniture industry was criticised for its inconsistency of demand from year to year:

“Very up and down... developing more now, we may see growth in that... a fledgling industry, so there’s not the consistency or steady growth pattern or anything happening there. It’s as per order. Bang, bang, bang.

(Wood Merchant Interview 1 paragraph / FVC-3)

4.3.1.4.1 Wood species (wood merchant level)

Species variety was also seen as a wood merchant’s strength and a differentiator in the marketplace. Attention was drawn to the difficulty of sourcing some wood varieties, especially in advance of perceived forest conservation legislation by state level government. There was a perception that the future sourcing of some varieties could come from private property rather than through government-licensed forests referred to as crown land.

Softwood wood supply of hoop pine, botanic name *Araucaria cunninghamii* (Bootle, p.323), to FVC-3 was exclusively in plantation wood as maiden pine was rarely seen by merchants. The FVC-3 wood merchant would purchase from several timber mills with the hardwood wood supplied to FVC-3 sourced from one mill and the softwood from another. The relationship between wood merchant and timber mill in FVC-3 was long-standing, in one case over twenty-five years, and considered a ‘handshake’ arrangement built over time and based on trust. The trusted relationships continue even though those individuals who initiated the inter-firm relationship are no longer with the respective firms.
The more considerable barrier suggested was future access to wood and the associated forestry issues linked to legislation and future specie availability.

The changes in Regional Forest Agreements (RFA) were perceived as changing on an increasing basis, possibly six-monthly, with an increased negative impact on wood supply, with a reciprocal effect leading to the need for rapid re-evaluation of a firm’s business position.

Given the prospect of supplying alternative wood species in place of harder to source species in future the furniture manufacturer stressed to the wood merchant the importance of the colour of wood species. To the wood merchants, the wood species requested by furniture manufacturers appeared to be based on consumer market trends.

The respondent noted a further desirable quality of their currently supplied wood species, Rose Gum *Eucalyptus grandis* (Bootle 2004, p.281) for example, as possessing the ability to be processed or worked more easily in manufacture. That the wood was lighter in physical weight was seen as an asset to the production level of the chain, and provided an easier to handle weight for the end-consumer.

Wood supply and wood quality issues are related to wood grading processes at the wood mill value chain level. The size of the sections of wood and time taken to air-dry large wood sections in preparation for wood merchants had an effect on how long a level of the value chain carried the cost of production (Wood Merchant A - Interview 1 paragraph 91 – FVC-3). The time required to air-dry and kiln-dry wood after harvest and milling for thicknesses of the more popular wood furniture material types, varying from 25mm and 38mm sections, ranged from two to three months for the lesser thicknesses up to a five to six months drying time for the 38mm wood sections.

Older wood was suggested as offering higher yields in comparison to younger trees where cell collapse could occur, and therefore a judgment would be required to be made by the supplier and the supplied if a particular wood quality and yield was preferred.
These decisions were based traditionally on tacit knowledge of the wood species and application requirements of the furniture manufacturer within the value chain in cooperation with the wood mill or wood merchant. The level of effort, timber quality and reliable delivery was reliant on pre-existing value chain relationships built over time and trust.

The seventy year old wood used in FVC-2 suggests that the overall wood journey from the forest to the end-consumer will take around seventy years for this hardwood. In more than one interview it was stated that wood in general was undervalued by the current market prices in regard to time-to-grow and effort to harvest and process this naturally growing material.

4.3.1.4.2 Inter-firm relationships (wood merchant level)
Inter-firm communication between a firm’s suppliers and those customers supplied by their firm was primarily conducted by phone and facsimile transmission and more rarely by email. A new source of marketing for the FVC-3 wood merchant was seen through the future establishment of a firm-based website and increased attention to email communication.

In response to the question of market intelligence and profitability, the smaller family-based or small director-owned and run firm appeared to gauge progress on a monthly basis, a continuous level of financial self-diagnosis contingent on the health of their regional economy, and a perceived firm-level economic recovery following the introduction of the Australian Government goods and services tax (GST).

4.3.1.4.3 Networks (wood merchant level)
A promising wood supply trend as described by wood merchant A in FVC-3 suggested that the network of private growers was on the increase and could provide greater assistance should the supply from government forestry sources appear to diminish in the more favoured species destined for the furniture industry. Further, it was stated that the Native Vegetation Act (NVA) could preclude logging on one’s own property. This was seen as potentially adversely affecting supply across the Australian wood furniture industry (FVC-3 wood merchant A).
4.3.1.4.4 Competitive threats (wood merchant level)

One wood merchant experienced a heightened level of competition led by the consumer demand for wood flooring, with a flooring company purchasing between 300 and 400 cubic metres of wood compared with about 10-20 cubic metres in a given period demanded by the furniture manufacturing level in their regional area.

The frequency of wood mills contacting specialist suppliers to the furniture industry in the targeting of specialist wood was viewed as an experience of the past:

“…ten years ago I had people ring me up and say – ‘we’re in a particular area, we’re logging Blackbutt but we’ve come across a Red Mahogany tree. Are you interested?’ But that’s a thing of the past.”

(Wood Merchant Interview 1 paragraph 145)

The high volume demand from flooring and hardware suppliers and the general public has placed further pressure on access to quality wood for the low volume wood consuming channels as represented by the Australian wood furniture industry. The competing forces for quality wood outside the furniture industry were described by:

“They are taking everything from us, like a big octopus out there”

(Wood Merchant Interview 1 paragraph 153/ FVC-3)

There was a level of scepticism from one wood merchant interviewed that the forest harvests conducted on the behalf of the larger wood customers, citing the wood pulp and papers industries, were less likely to take the time to extract a highly desired and rarer wood species for the furniture industry when found in a wider mixed species forest context. It was suggested that even if the economic yield per cubic metre were exceptionally higher, possibly ten-fold, this may not motivate the harvest of specific trees within forest stands based on time constraints related to level of custom selection.
4.3.1.4.5  **Collaboration (wood merchant level)**

A wood mill-level respondent, also conducting wood merchant activities and close collaboration with the furniture manufacturer in the FVC-2 value chain, had observed that the FVC-2 furniture manufacturer was learning more about new product development and end-consumer attitudes by conducting retail sales through the manufacturer’s own retail showroom. The FVC-2 furniture manufacturer operated a modest furniture showroom upstairs from the main reception area of the premises in order to receive customers.

In an effort to further expand the level of supplier and end-consumer feedback for FVC-2 furniture manufacturer services, the same furniture manufacturer-merchant had visited several other furniture retailers carrying examples of the FVC-2 furniture range with which he had been indirectly involved in supplying ‘his timber’. The gauging of retailer experience to the furniture end-product provided considerable insights to the FVC-2 furniture manufacturer mill-merchant in forecasting demand for particular wood.

4.3.1.4.6  **Wood merchant level summary**

In summary, there was some overlap in services including both wood mill and wood merchant activities that was experienced in both smaller and larger firms. The wood furniture sector accounted for a very small percentage, of ten percent at best, and the wood merchants described the AWFI’s annual demand for wood as inconsistent in comparison to the growing needs of the wood flooring industry, for example.

When wood is ordered by wood furniture manufacturers the purchases are strongly influenced by furniture market trends requiring planning to respond to wood orders. The size of wood sections dried by wood mills and mostly by wood merchants required variation in drying times which could extend the drying periods and reliance on the wood merchant to carry costs over time prior to recouping on sales later on.
The range of wood species was seen as a popular wood merchant strength, although difficulty in sourcing particular wood was becoming more pronounced with the advent of regional forest agreements and the closure of some forests. Older wood offered higher yields than younger trees related to cell structure. This was of consequence to wood buyer preferences and relayed to the wood merchant.

One respondent was aware of a particular wood furniture manufacturer’s own foray into furniture retailing, which conveys the strength of the level of inter-firm trust and collaboration.

Inter-firm communication was conducted by traditional means including phone and facsimile (FAX), including a response which discussed the prospect of future communication of the availability of wood via an active website.

4.3.1.5 Wood furniture manufacturer level

The furniture manufacturer level of the value chain is responsible for the conversion of milled and dressed wood towards readily recognisable furniture articles destined for furniture retail environments. None of the three Australian wood furniture value chains studied milled their own wood, although some wood dressing occurred at the furniture manufacturer level or through sub-contracting.

4.3.1.5.1 Inter-firm relationships (Wood furniture manufacturer level)

According to the response from the furniture manufacturer in FVC-3, the strongest relationships lay with raw material suppliers though these relationships varied. Reliability, quality and timing in supply was seen as important to the business relationship. Quality in supply was the most valued attribute with standards developed in collaboration over time and experience (Wood manufacturer interview 1 paragraph 12 / FVC-3).

FVC Furniture manufacturers held wood supply relationships with several wood merchants or wood suppliers. It was common to know several alternative sources of wood supply in the event that some wood may be required quickly, or the alternative source is of a higher quality than the regular wood:
“...I have to farm that around a bit, because every piece of timber is different. It's not like buying woodscrews where every one’s identical. Every piece of timber is different, so we’ve got to be careful with it”.

(Wood furniture manufacturer interview 2-paragraph 140/ FVC2)

4.3.1.5.2 End-consumer linkages (Wood furniture manufacturer level)

Contact with the end-consumer was limited to furniture shows or expositions open to the general public or occasionally in the stores of the furniture retailers (FVC-3), unless the manufacturer equipped their own additional retail furniture showroom as observed in FVC-1.

The furniture manufacturer in FVC–3 did not see being detached from the end-consumer as a barrier as the relationship with the furniture retailers was based on a number of factors, including quality, ability to supply promptly, and trust. Despite this the FVC-3 furniture manufacturer would value more information on the costs and pricing of supplied inputs and possible government support to others in the value chain, to better understand the factors contributing to rising costs.

When questioned as to the level of contact between them, the wood furniture retailer and the end-consumer, the FVC-2 furniture manufacturing respondent suggested that the larger furniture retailer would only refer end-consumer complaints, rather than receive any market related inquiries from the furniture retailer.

“The only time we hear from them [end-consumer via the furniture retailer] generally is if they’ve got a complaint…and they ring the shop and say they’ve got a complaint, and the shop will ring us and say they’ve got a complaint, you fix it. They [the retailer] don’t even go and look at it”.

(Wood furniture manufacturer interview 2-paragraph 104 / FVC2)

The furniture retailer would recommend that the end-consumer contact the manufacturer directly, bypassing the retailer altogether. At best this appeared to be very limited end-consumer contact, especially for this manufacturing level value chain contributor and supplier to the larger furniture retail groups (FVC-2).
This may suggest that the need for more understanding of the end-consumer by more
than one level of the value chain may benefit the relationship with the end-consumer
and the value received by the end-consumer and subsequently the value chain. This
may also affect the viability of other Australian wood furniture value chain
contributors and the wider Australian furniture industry.

4.3.1.5.3 Competitive threats (Wood furniture manufacturer level)

The same manufacturer was astounded that some competitors shipped wood to China
for manufacture into chairs and then imported them back into Australia. The resultant
final sale price of the imported furniture was low and an attempt was made by the
manufacturer to comprehend how these prices were determined, given the Australian
wood material, the transport costs, labour and overheads. Although the manufacturer
then attempted to subtract the entire labour cost, the imported product’s price
benchmark still could not be met, leading to the conclusion that industry subsidies or
support may be present, if not immediately apparent.

Each of the three FVC furniture manufacturers interviewed cited the threat of
imports as their greatest barrier to competition today. The FVC’s also postulated the
future viability of their firms on quality wood products positioned in the high-end of
the market in premium wood furniture.

According to one respondent, price competition across same brand retail groups may
have compelled some stores to withhold product information in order to keep the
prospective customer close. This distortion of the level of trust and information in
comparison to the strong relationships shared in other parts of the value chain does
not appear to be a surprise to some of the furniture manufacturer respondents.

In the opinion of FVC-3 competition was limited in Australian chair manufacturing,
with the last remaining immediate local Australian competitor now manufacturing all
wood furniture in China, so the competition was no longer perceived as a local
furniture manufacturer. The FVC-3 respondent indicated that their firm was very
active in meeting wood furniture industry participants, of whom a high number included those customers that make everything but chairs and needed to purchase the FVC-3 manufacturer’s wooden chairs (Wood furniture manufacturer interview 1 paragraph 39 / FVC-3).

### 4.3.1.5.4 Competitive strategies (Wood furniture manufacturer level)

Various competitive advantage strategies were being considered or had been attempted by the FVC furniture manufacturers by the time of the industry interviews, including the further development of an existing furniture cluster within one of the FVC proximity, the targeting of current and new local furniture retailers, and a focus on export markets for premium wood products.

Two of the three tracked furniture value chains pursued export markets, with one furniture manufacturer attempting a consortium-based retail approach in the United Kingdom in the late 1990s. This independent commercial endeavour did not return the financial expectations of the group and therefore ceased after less than one year of operations.

Similarly, FVC-2 was involved in a network of furniture manufacturers. The network was initiated by the FVC-2 furniture manufacturer inspired by the visit of an international expert. The expert had suggested that a network of wood furniture manufacturers with an export focus could work well for Australian firms. The export strategy targeted Japan and China on market intelligence advice from the furnishings industry body in the given year. The furnishings industry body (FIAA) assisted the wood furniture manufacturer network with grants supporting the promotion of the network’s wood furniture at major international furniture shows in the respective countries. The venture, while encouraging, experienced marginal success.

An additional attempt to enter the furniture market in the United Kingdom (UK) was made by the FVC-2 furniture manufacturer network and was considered a final export attempt in deciding the firm’s future concerning export markets. The FVC-2
furniture manufacturer network also provided feedback to the FIAA on the progress of their UK venture although the industry body was not directly involved in the venture. This is an indication of the preparedness of the wood furniture manufacturer to take a leadership role in the wood furniture value chain.

The FVC-3 furniture manufacturer had considered exporting but would not attempt until the evolution of their high-end hardwood series had advanced. FVC-3 considered their current standard chair range uncompetitive for export. No reasons were cited at interview, although the manufacture did state that a change of ownership in the firm to the current owner did delay the development of new products due to the focus on immediate manufacturing management concerns.

Further opportunities exist in linking of firms that do not wish to make wooden chairs themselves and require chairs to complement other furniture items, including dining tables, with those firms that still do manufacture wooden chairs. This was seen as a communication barrier to new business as the firms with market need could not easily link with firms with production capability.

Furniture retailers have been known to focus the furniture manufacturer in FVC-3 towards developing hard-to-get or very expensive furniture items. This challenges the manufacturer to meet the retailer’s expectation, which can emerge as a new business opportunity for growth in the value chain.

FVC-3 found that a key competitive advantage was the ability to deliver rapidly, with an average of around two weeks from order. This was viewed as a particular advantage over importers who may need to order fifty chairs or more, then struggle awaiting new container shipments if sales clear importer’s stocks. The local product could also be supplied in customised colour orders in a short time frame, further differentiating the firm’s offering in attracting retailers.

FVC-2 in contrast had a six week lead-time from order placement by the furniture retailers to delivery to the end-consumer. FVC-2 commanded sales with some of the largest Australian furniture retailers. This longer lead-time in delivery was not cited as a barrier by the supplying FVC-2 furniture manufacturer.
One furniture level manufacturing respondent (FVC-1) stated that the communication flow-through of end-consumer requirements from a large and well-recognised Australia-wide furniture retailer had diminished in recent years to a level of being ineffective in assisting the design and manufacture process. It was suggested that manufacturers were often isolated from the furniture retailing decision making process as they had no access to the end-consumer to ascertain the wood furniture attributes sought-after by the end-consumer.

For FVC-1 a marketing budget percentage of the retailer marketing strategy had now been built into the furniture manufacturer’s sales price to the retailer, adding another factor to the economic weight carried by the wood furniture manufacturer value chain level, and leaving this manufacturer unimpressed and searching for answers.

Larger Australian furniture retailers periodically exert pressure on furniture manufacturers during sales negotiations. The pressures may include the interest in a particular furniture design provided exclusively by the furniture manufacturer to another retailer or the ever-present cost reduction pressure:

“…retailers could be ringing us to buy a particular product that they can’t buy, when they might already be a customer…no we can’t sell you that…” [based on exclusivity to other retail customers]

(Wood furniture manufacturer interview 2-paragraph 66 & 68 / FVC2)

“Well OK can you make it for $300 cheaper? And we say, well look, we haven’t been able to make it cheaper, we’re not going to compromise our standard of workmanship or our quality of supply, product that goes into it…if you like the design this is what you are going to have to pay for it. If you don’t like it we’ll show it to someone else”.

(Wood furniture manufacturer interview 2-paragraph 94 / FVC2)
In response, one furniture manufacturer interviewed (FVC-1) was prompted to supplement sales by branching out into their own branded furniture retail environment. This was a measure to gain more immediate market feedback and more appropriate profit margins in comparison to the dwindling margins offered by the major chains.

FVC-3 had experienced a retail customer turnover of around thirty percent over a five year period as retailers left or entered the industry. There was a cost associated with pursuing new retailers with a presence at trade shows and ‘cold-canvassing’ retailers by walking into a new retail furniture showroom in search of new opportunities.

Referrals from retailers in other value chains were also instrumental in developing new business for the manufacturer if the competing value chains were geographically separated. Every attempt was made by FVC-3 to avoid having multiple adjacent retailers cross-competing and therefore was selective in the forging of new retailer relationships (Wood furniture manufacturer interview 1-paragraph 284, 288 / FVC3).

4.3.1.5.5 End-consumer orientation (Wood furniture manufacturer level)

For retail promotion purposes FVC-3 furniture manufacturers specified the wood species used and the forest source location to the FVC-3 furniture retailers, to assist the marketing of wood product attributes to the end-consumer at the retail level. This level of information appeared more valued by the large retailers than smaller ones.

It was revealed by the FVC-3 furniture manufacturer that the FVC-3 retailers, and more notably the on-floor sales staff, were not aware of the manufacturer-prepared product information accompanying the manufacturer’s price list. The furniture retailer’s sales staff was more likely to contact the FVC-3 furniture manufacturer by phone to ask for the same information, frustrating the manufacturer to an extent. FVC-2 responded that some furniture retail stores sold more of their furniture than other stores under the same retail chain grouping, but the reasons were not well known except that in terms of specific furniture knowledge held by the retail sales staff of the wood furniture and associated quality:
“...[quality ?] no way. No, they never know”. Well, they get sheets like that but they [retail sales staff] don’t read them. All they’re interested in is selling furniture...most of them don’t take any real interest in what’s involved. So we have a roving team of product knowledge people, who will hopefully time with the help of the store manager to get the sales staff together and give them a run down on the furniture”.

(Wood furniture manufacturer interview 2-paragraph 120 & 122 / FVC2)

In contrast to the smaller furniture manufacturer-owned boutique type retail showrooms who possessed specialised furniture sales staff as experienced in an FVC-1 and an FVC-3 furniture retailer outlet, FVC-2’s relationship with the furniture retailer in the conveyance to the end-consumer of key wood furniture attributes indicated a perception of shortfalls in communication:

“I would like to know what the consumer is being told, and we know that the consumers are not told the facts most of the time. Not because of any animosity, just plain, straight out...you know, sales people are common, everywhere, in cars, in washing machines, whatever you’re buying. If they don’t really know the answer, they’ll just tell you whatever they think of first. And the customer will probably, normally believe it.

(Wood furniture manufacturer interview 2-paragraph 126 / FVC2)

The FVC-2 furniture manufacturer believed the end-consumer would have many wood related questions. These questions may include the location of the forest and whether the wood represents ecologically sustainable and environmentally certified wood. The furniture manufacturers in FVC-1 and FVC-2 were sceptical about whether their product specification brochures were actually being distributed by sales staff to the end-consumers, or if the store feared that the brochures could be used to inform other stores of a retail customer’s buying intentions as customers ‘shopped around’.

4.3.1.5.6 Inter-firm communications (Wood furniture manufacturer level)

Inter-firm furniture manufacturer communications in FVC – 3 were held with wood merchants and not mills, although an imported New Zealand wood required the
furniture manufacturer to contact their New Zealand based wood processor. The processor undertook some mill-type processing for FVC-3 including timber dressing and docking to length to the furniture manufacturer’s specification.

FVC-3 also stated that they spend more time communicating with buyers than suppliers, suggesting more downstream interaction in the value chain based on a higher numbers of buyers. The furniture manufacturer in FVC-3 had known months to go by without the need to contact a supplier except for a monthly discussion by phone over certain issues. Complaints and issues in wood supply were also discussed with travelling wood supplier representatives visiting the firm periodically, often at a greater frequency than the placement of the usual longer-range orders placed every few months.

4.3.1.5.7 Production (Wood furniture manufacturer level)

The level of activity at the furniture manufacturing level of the value chain was dictated by sales and associated orders. In FVC-3 orders were received daily and ranged from one chair to one-hundred and twenty with batches of three, six, and twenty the more usual order size. Order frequency usually peaked on the Monday of the new week after weekend retail sales, then reducing towards the end of week. This routine was maintained in FVC-3 for forty-nine weeks of the year based on the factoring of an annual three week holiday period.

Manufacturing specialisation was a trend suggested in FVC-3 with the formation of a regional cooperative:

“…..co-manufacturing arrangements whereby we manufacture chairs for other manufacturers who manufacture the tables and everything else. We’re heading quite strongly in that direction.”

(Wood furniture manufacturer interview 1 paragraph 69 / FVC-3)

Wood supply quality across the cooperative was noted as a barrier in FVC-3. The dressing and cutting to length of softwood in FVC-3 namely the softwood, Hoop Pine, was available due to the larger volumes but not so in hardwoods. The FVC-3 furniture manufacturer respondent stated there is no supplier in Australia that
currently does the same for the hardwoods required in the high-end of the wood furniture market. This therefore leaves the furniture manufacturer to carry the pre-processing activity rather than the ease found in the ‘ready-to-use’ volume markets found in pine softwood.

Wood manufacturing respondents also conveyed that the financial burden of carrying considerable value chain and market investment risk in labour, plant, equipment was placing an excessive economic impact on this particular value chain member level. Other levels of the value chain exercised their powers of negotiation based on their own closely held data on supply and demand, namely the retailers, therefore placing further pressure on manufacturers. This lack of cooperation cited by one furniture manufacturer was seen to stifle collaboration and reduce shared benefits.

4.3.1.5.8 Wood furniture design (Wood furniture manufacturer level)

The provision of furniture design expertise which contributes to both structural and inherent aesthetic merit was often the responsibility of the furniture manufacturer. Furniture designs are based on a firm’s own independent experience in assessing emergent trends, design service procurement by investing in external design services, or influenced by furniture retailer conveyed market intelligence.

Furniture designs were part of product ranges identified usually with names for ease of reference to style-type and representation of brand in preparation for retail. The furniture manufacturer in FVC-3 possessed up to seventy designs with regular stock levels held in about ten product ranges. The furniture chair ranges in FVC-3 were unique to the furniture value chain with some designs developed in cooperation with retailers, with development time as short as one month from the chair image or concept presented by the retailer.

It was customary for the furniture manufacturer in FVC-3 to visit the furniture retailer personally to discuss a new chair project design brief and desired product specifications. When product development schedules run longer than expected the FVC-3 furniture manufacturer’s resources were pushed to the limit if the development of a new product moved backwards and forwards from manufacturer to
retailer in a continuous development cycle. The manufacturer was optimistic in the new product relationship with the retailer:

“...some things we can’t do, and we’ve had to say, well we can’t do that, but a lot of others we’ve come up with something new and different things out of it.”

(Wood furniture manufacturer interview 1 paragraph 303 / FVC-3)

It can therefore be considered that a reduction in market intelligence sharing between value chain members, when coupled with a surge in imported furniture products and cost-cutting pricing pressures emanating from furniture retailers, could affect competitiveness. The future of current relationships between these two value chain levels, furniture manufacturing and furniture retailing, could further erode and adversely affect local furniture manufacturers.

Previous studies contend that ineffective marketing can adversely affect competitiveness, concluding that half of marketing failures arise from inadequate marketing analysis and that most innovations come from customers (Pakarinen, 1999).

4.3.1.5.9 Performance measurement (Wood furniture manufacturer level)
According to the respondents at the furniture manufacturing value chain level there are no wood furniture industry benchmarking processes assessing the competitiveness of rival firms, nor shared performance measures, nor gauges of success except which firms are still in business and which ones are not (Wood manufacturer interview 1 paragraph 111 / FVC-3).

4.3.1.5.10 Profitability (Wood furniture manufacturer level)
According to the respondents profitability in comparison to competitors or collaborators within the value chain at the manufacturer level was unknown. This appeared to be the case across the various levels of the value chain. One furniture manufacturing respondent understood that an industry study was to be conducted by the industry body but had not yet commenced.
This type of industry survey was considered a rarity in the furniture sector if it planned to broker inter-firm liaison concerning performance and profitability. The same manufacturing respondent also thought their own firm’s profitability was in the industry average area but was not certain as there was no apparent industry reference point. The industry average representing profitability was not presented or discussed by the respondent during the interview.

Whilst discussing firm-level performance and relative profitability, one FVC furniture manufacturing respondent did mention that in their network, furniture manufacturers, though competitors, did visit each other’s manufacturing plants, discussed production, met periodically, and travelled together to domestic and international furniture promotion events. Despite this level of trust and interaction, each firm was not aware of the other’s profit margins, except as indicated through the informal observation as represented in the purchase of new car or holiday, leaving each firm only to second-guess relative performance.

### 4.3.1.5.11 Sub-contractor inputs (Wood furniture manufacturer level)

The furniture manufacturing level of the value chain also signifies the entry point to the value chain for various subcontracted suppliers considered as secondary to the primary wood inputs. The subcontractor inputs have included materials ranging from plywood for seat structures, textile upholstery, wood and metal fasteners, surface coatings and glues, and foam cushion materials, most of which are visible to or experienced by the end-consumer.

FVC-1 and FVC-3 furniture manufacturers outsourced fabric upholstering activities due to volume, whereas FVC-2 conducted their upholstering in-house with a dedicated facility with two upholsterers. The FVC-3 furniture manufacturer’s relationship with the outsourced upholsterer was held for over fifteen years and was price competitive over this period according to the FVC-3 furniture manufacturer. The relationship was reliable although the furniture manufacturer did need to briefly accommodate annual holidays taken by the nearby upholsterer’s small operation and worked ‘around this’ with order planning.
Further value inputs in furniture manufacturing can be seen as plant and equipment, including wood saws, wood preparation equipment including planers, computer controlled machinery and software enabled office products, hand-tools, and inter-supplier communication systems. Inter-firm logistical relationships within the value chain also include transport between firms and suppliers and customers, the buildings that house the people, plant and further equipment including surface finishing facilities and transport vehicles used in the logistics in the conveyance of the completed wood products to furniture retail showrooms.

4.3.1.5.12 Wood furniture manufacturer level summary

In summary, the wood furniture manufacturer’s role was considerably influential in the initiation of decisions in the value chain. Key wood furniture manufacturer decisions included the selection of quality wood, the development of new wood furniture designs, the targeting of sales at furniture retailers, both large and small, across Australia, and the push toward wood furniture exports.

There is no doubt that Australian wood furniture retailers also have considerable influence on Australian wood furniture markets and therefore Australian wood furniture value chain decisions, and potentially governance through leadership. It has also become evident that despite the wood manufacturers welcoming sales to wood furniture retailers the disconnection from the end-consumer and the erosion of profit margins has prompted new, more self-reliant business models to emerge, including boutique retail enterprises and export market exploration.

4.3.1.6 Logistics level

Transportation logistics are a secondary yet essential wood product value input that contains furniture value in the value chain. Although not as evident in the wood furniture product itself, an understanding of this value chain input provides an insight into furniture volumes, storage, distances between value chain members including
the end-consumer, which translates either as value to the end-consumer or as a hidden cost to end-consumer and may therefore affect value chain competitiveness against other value chains.

### 4.3.1.6.1 Wood furniture travel distances (Logistics level)

The following is a summary of several transportation logistics movements of wood furniture materials between the value chain levels in three separate Australian wood furniture value chains (FVCs). The distances were calculated using geographic map references to ascertain the overall travel distances in kilometres (km). Transportation costs represent a value component of the final wood furniture product relayed to the end-consumer in a furniture retail environment and therefore concern all value chain membership including the furniture end-consumer.

The furniture value chain (FVC-1) primary wood type was Mountain ash, botanic name *Eucalyptus regnans* (Bootle, 2005, p.241), upholstered and dyed in wool fabric and foam cushioning and fastening systems including wood and glue joint connection methods. It commenced its journey on a furniture manufacturer order prompted by end-consumer demand. The wood was tracked from forest of origin through all value chain levels (appendix 7) to the retail environment, with a low transport mileage figure of 375 km to high mileage figure of 2200 km for Australian retail markets. One wood mill and one furniture manufacturer made contribution to FVC-1.

The upholstery fabric type used in the FVC-1 on the wood dining chair was woven wool fibre sourced as raw material in Australia, then forwarded to a weaving mill and dye-works in China, then returning to Australia at an estimated 10,000 km round-trip. The order then covered a further 500 km from the fabric supply firm in Australia to the Australian furniture manufacturer. The foam-cushioning component underlining the fabric was factory manufactured in Australia, 1400 km from the foam material supplier who supervised the cutting and shaping, then supplied to the furniture manufacturer’s premises, adding a further 50 km.
Data related to sourcing of the primary raw materials for plant and equipment, and intermediate inputs including dyes, transportation types, and foam or the detail of each particular value chain, i.e. dye, foam, fastener chains, was not sought as this lay outside the frame of the wood furniture industry in this study.

The second furniture value chain (FVC-2) primary wood type was Blackwood, botanic name *Acacia melanxylon* (Bootle, 2005, p.253), and was constructed without upholstery. It used two wood processing mills and two furniture manufacturers due to the specialisation in the treatments of the wood materials and some historic reasons related to company structure and commercial confidentiality. For these proprietary reasons, the low and high transport mileage figures for forest-to-retail transportation distances of the dining chair in FVC-2 were more generous, ranging from a low of 300km to highs of 2550 kms and 4050 kms from forest to retail.

The third and final furniture value chain (FVC-3) analysis was conducted in a geographic location recognised for its unique regional clustering of value chain levels as noted in AEGIS (1999), and proximity of the forest resource to retail environment. The FVC-3 primary wood type was Rosegum, botanic name *Eucalyptus grandis* (Bootle, 2005, p.281) and the chair was mainly of wood construction with upholstery. This value chain was noted for its proximity of firm-groupings to forest resource, wood milling, furniture manufacture, and furniture retailing. Signifying value chain levels at a concentration within a 50 kms radius of each other.

The total distances travelled for FVC-3 ranged from a low travelled total of 150km low to 800 kms medium to a 1550 km forest to retail high. Local markets accounted for relatively small sales with remaining sales directed toward major capital cities.

The following table summarises the low and high travel distances for Australian produced wood dining chairs, Australian sourced wood species and low and high Australian retail destination distances measured in kilometres (Table 4.1).
The kilometre distances are rounded to the nearest 25, 50, or 100km for greater distances.

<table>
<thead>
<tr>
<th>Furniture Value Chain</th>
<th>Wood product - Travel distances</th>
<th>Forest</th>
<th>Wood mill</th>
<th>Wood merchant</th>
<th>Furniture manufacture</th>
<th>Subcontract input/supply (distance not added)</th>
<th>Furniture retailer</th>
<th>Total km</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FVC-1 Mountain Ash</strong></td>
<td>Low</td>
<td>0</td>
<td>50</td>
<td>275</td>
<td>50</td>
<td>500 fabric (10.5k*)</td>
<td>0</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>0</td>
<td>50</td>
<td>700</td>
<td>50</td>
<td>1450 foam cushioning</td>
<td>1400</td>
<td>2200</td>
</tr>
<tr>
<td><strong>FVC-2 Blackwood</strong></td>
<td>Low</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>300</td>
<td>n/a</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>0</td>
<td>850</td>
<td>n/a</td>
<td>700</td>
<td>n/a</td>
<td>2500</td>
<td>4050</td>
</tr>
<tr>
<td><strong>FVC-3 Rosegum</strong></td>
<td>Low</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>50</td>
<td>2/upholstery</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>50</td>
<td>2/upholstery</td>
<td>700</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Pine</td>
<td>0</td>
<td>n/a</td>
<td>250</td>
<td>600</td>
<td>2/upholstery</td>
<td>700</td>
<td>1550</td>
</tr>
</tbody>
</table>

*Australian wool fabric (originally from sheep’s back) shipped to two European cities (brand related) then back to specifiers in Australia then to Australian wood furniture manufacturer (and/or upholsterer) then to the Australian wood furniture end-consumer.

Each of the three furniture value chains (FVC) sub-contracted road transport services to external firms, with FVC-3 utilising twice-weekly pickups for completed furniture inclusive of final finishes and coating. One FVC-3 retail showroom customer would receive unfinished chairs, and then forward the chairs on to their local polisher who polished in a particular colour, introducing another stage under the manufacturer and transport levels for the FVC-3 chair. This level of customisation was particular to the pine softwood retailers who offer the end-consumer raw do-it-yourself (DIY) polishing or those end-consumers requiring pre-finishing prior to purchase.

None of the FVCs in the study had current international sales though FVC-1 and FVC-3 did participate in a furniture manufacturer consortium-based sales strategy in the United Kingdom. The profit projections were not met and the venture ceased. International shipping distance calculations may apply for this type of export scenario based on the fifteen-thousand kilometre one-way distance.
4.3.1.6.2 Logistics level summary

In summary, the responses to logistics were mainly transportation services within the wood furniture value chain. Collating the collective distances of each FVC highlighted the further complexities within FVCs in their interaction with subcontracted goods and services and those activities within value chains which are not often recognised in the literature or as a hidden cost passed to the end-consumer.

An inherent impact of logistical services is the use of equipment and energy in the execution of activities, which is a distant theme in relation to wood furniture end-consumer experience, although it maintains a linkage to the environmental impact of FVCs and can be a cost attributed to the value chain.

This section has also drawn attention to the type of wood species transported through the tracked FVCs, has defined linkages from the forest source to the wood furniture end-consumer in the wood furniture retail environment; and presented a view of concentrated and dispersed FVCs.

4.3.1.7 Wood furniture retailer level

The furniture retailer value chain level represents the culmination of all furniture value chain (FVC) activities and presentation of the wood furniture to the end-consumer, the wood furniture buyer. The connection made with the end-consumer at the point of successful purchase is also argued as the only place in the value chain where value is truly attained (Svensson 2004). The furniture purchase may be viewed as the final approval of all value chain inputs in the value chain’s attempt to create value. Value is created in the value chain once end-consumer expectations are met and the furniture sold.

Furniture retailers in each of the three tracked furniture value chains (FVCs) were sought with two value chain furniture retailers participating in interviews. The relationships forged with the furniture manufacturers during survey interviews quickly established that the furniture manufacturer level would be influential in
identifying wood furniture retailers suitable for interview. The successful furniture retail interviews were conducted in both regional and capital city locations in retail showrooms selling predominantly wood furniture.

The FVC-1 furniture retailer interview was conducted in an inner suburban retail furniture showroom in a major capital city and the FVC-3 interview in a retail furniture showroom on a main street near the centre of a regional city.

The respondent in the FVC-1 furniture retailer interview supported the viewpoint that without an end-consumer there is no value to share in the value chain. In describing the relationship with the furniture manufacturer level the furniture retail respondent stated:

“I don’t know whether [first name withheld] realises that, because I often say to him, if I don’t sell something, you guys don’t work”

(Wood furniture retail interview 1 – paragraph 2 / FVC-1)

The FVC-1 furniture retailer comprised a single suburban retail showroom fully owned by the FVC-1 furniture manufacturer. The retail showroom was in the environs of a major Australian capital city and located within a shopping precinct well known for its high pedestrian traffic, co-location with small specialist boutique-type homeware stores, and with the benefit and relative ease of car parking for either window-shopping or in-store visits.

4.3.1.7.1 End-consumer linkages (Wood furniture retailer level)

A growing disconnection in communication of the FVC-1 furniture manufacturer with the wood furniture end-consumer was noted. The pressures in the wood furniture manufacturer-to-retailer relationship was mostly amicable, though more recently, a commercially formidable independent national furniture retail client had prompted the FVC-1 furniture manufacturer to branch out in an effort to consolidate eroding profit margins.
It was also accepted practice that end-consumers would consult larger furniture retail chains for price and quality comparison prior to visiting a smaller store, as was the case indicated in the FVC-3 retailer interview. It was acknowledged by the end-consumer that a purchase of FVC-3 wood furniture may involve higher retail entry prices given FVC-3’s custom built quality, good surface finish or use of unusual wood species that positively affect appearance and end-consumer appeal (Wood furniture retail interview 2 – paragraph 7, 8 / FVC-3).

Good quality furniture at affordable prices was seen as a distinctly different service offered by the FVC-3 furniture retailer in contrast to imported furniture products in general. The respondent also stated that the personalised service they offered and ability for the end-consumer to talk to the cabinetmakers built enthusiasm among their customers. The involvement of the end-consumer at the design stage of a wood furniture product appeared to resonate for the end-consumer and added an element of customisation and uniqueness (Wood furniture retail interview 2 – paragraph 276 & 278 / FVC-3).

4.3.1.7.2 Branding (Wood furniture retailer level)

The FVC-1 brand was known in retail and end-consumer circles for its quality and the firm for its highly communicative design through high-level craftsmanship. FVC-1 did treat price considerations seriously, but chose to compete in the premium price chair market rather than compromise quality through competition with low-cost imported wood furniture products. The brand was represented both in name as the furniture retail store and as the furniture manufacturer level of the value chain. The small family-owned business was respected for its integrity and honesty in business (Wood furniture retail interview 1 – paragraph 24 / FVC-1).

FVC-3 also possessed a strong reputation known for retailing well-constructed, custom-made furniture of high quality. This respected position was often supported by returning customers proud of their former purchases and valued long-term relationship with the retailer, hoping to refinish a much-treasured wood furniture piece or suite held for ten to fifteen years or more or to complement their current acquisitions.
The FVC-3 furniture retailer could be considered a small business and hybrid in business model. The firm outsourced the purchase of manufactured wood furniture products, mainly chairs, for their retail offerings, sub-contracted some custom surface coating finishes on behalf of their showroom customers, especially in softwoods, and constructed their own tables to complement the chairs bought from the external source. The retailer was proud that their wood chair supply was sourced within twenty-five kilometres of the showroom and the wood required for the custom tables was also locally sourced, harvested, milled, dried and finished.

The FVC-3 cooperative’s branding was evident in the design of the shared trade show stand, through printed literature, audio-visual presentations, and a managed website presenting the cluster and the various value chains involved. Costs were shared across participating firms, all of which may be considered small enterprises, with the larger firms possessing ten to fifteen staff each and the smaller firms mostly less than five employees. The trade show also facilitated meetings with other wood furniture retailers and furniture manufacturers from outside the regional cluster who had an interest in joining the cooperative or were seeking to complement their own retail offering.

The level of advertising for FVC-1 furniture retail was more modest in comparison when promoting its own brand name as the firm was relatively small and independent. FVC-1 also supplied wholesale wood furniture chairs to one Australian national department store and one Australian national furnishings store chain. Each wholesale client was supplied with custom designs carrying brand identification derived by the manufacturer at the retail customer’s request.

Wooden chairs often carried one word titles in addition to the overarching brand-name, signified by a female name in one range of wood chairs and other ranges carrying prominent Australian pioneer explorer names of relatively easy recognition, and almost regal in sound and often of English origin. A background in basic history or everyday exposure to English place-names could assist the end-consumer in making an historic association to quality or ease of pronunciation. Another furniture item carried an African tribal name alluding to its raw visual strength, while Italian regional names appeared occasionally, immediately conjuring imagery associated
with Italian fine taste, design, elegance, lifestyle or linkage to historic artistry widely recognised internationally.

FVC-1 did share an interest in participating on a national level at furniture industry trade shows endorsed and sponsored by the furnishing industry association (FIAA) of which FVC-1 was an active member. FVC-1’s role in manufacturing and retailing its own wood furniture products led to the firm participating periodically in industry activities, including furniture industry training and development opportunities on a local and national level through the furnishing industry body.

The FVC-3 furniture retailer responses revealed that a high level of goodwill was present among those wood furniture value chains in the cooperative and from the cooperative toward other small wood furniture manufacturers or retailers outside the cooperative:

“…so we do compare notes…he told me how he does things, and I told him how we do things, and just help everybody else out”

(Wood furniture retail interview 2 – paragraph 213 & 215 / FVC-3)

4.3.1.7.3 Retail environment (Wood furniture retailer level)

The FVC-3 furniture retailer also found that presenting larger furniture products such as tables in a real-life home furniture setting with chairs at a recent furniture fair drew attention to the wood species and appearance. This assisted with sales staff to promote the Australian origin of wood and quality manufacture, and appropriateness to home living environments. The inclusion of hardwood products for FVC-3 into the retail range was a departure from the usual softwood pine range held by the retailer which had been a trademark for many years. The move to higher-priced hardwoods and the effect on their trademark brand was yet unknown, but was a direct response to higher competition in low-cost imported wood furniture products.

According to the respondent the end-consumer experience at the FVC-3 furniture retail point was enhanced by the floor assistant’s technical knowledge. End-consumers are shown the aesthetic qualities in the wood and structural aspects of wood furniture conveying elements of durability and stability. End-consumers are
also shown the difference between a good piece of wood and a badly cut piece of wood straight from the mill to explain the journey that a good piece of wood furniture makes between forest and furniture use.

The FVC-3 furniture retailer expected about seventy percent of customers to visit the showroom then leave to consider their intended purchase and return within the month, sometimes two months, to buy. The respondent suggested that:

“a lot of people waiting for renovations to be finished because they’ve got a new home…so it’s a waiting thing. People come in and out…they get different ideas, come in, we do another quote for them, different type of timber, whatever.”

(Wood furniture retail interview 2 – paragraph 173 / FVC-3)

The FVC-3 furniture retailer was a wood chair wholesale buyer from the wood furniture manufacturing level of the value chain, but was also a wood table manufacturer and able to offer wood furniture customisation in wood table designs. Often three to four meetings would be required to be held with an end-consumer and preliminary monochrome design sketches in pencil would be provided to inspire and confirm the end-consumer’s wishes.

Subsequently a more accurately dimensioned sketch would be provided by the FVC-3 furniture retailer to assist the end-consumer’s understanding and the retailer’s preparation of furniture costings, often for a suite consisting of wood chairs and table. Some customers at times provided photographs of furniture types that had aroused their interest and the furniture retailer presented photographic albums containing the firm’s previous achievements to arouse choice and to commit to a visual design pathway. End-consumer consultations could run for between twenty to sixty minutes, but most aspects could usually be sorted within thirty minutes.

The FVC-1 furniture retailer also reported that end-consumers may visit the showroom four or five times over one year prior to purchasing a dining suite including wood dining chairs (Wood furniture retail interview 1 – paragraph 72 & 74 / FVC-1). The retailer placed a main wood furniture purchase as next in importance
to the purchase of a house and motor vehicle, and suggested that only on five occasions in a long furniture retailing career did a customer purchase a wood furniture suite within a day of seeing the furniture item in the showroom.

4.3.1.7.4 Market trends (Wood furniture retailer level)
The trend in upper-market home developments and higher disposable incomes had influenced the future direction of the FVC-3 furniture retailer toward high-end hardwood furniture products. The interior of the retail showroom in FVC-3 was rich in decorative visual references to Australia’s eighteenth and nineteenth century colonial origins in the type of emotions evoked in the furniture designs, references to ‘old-world charm’ and traditional interior warmth and homeliness in the furniture settings. The respondent in FVC-3 furniture retail demonstrated both disappointment and admiration for their customer base that may be captured by:

“…there’s a lot of opposition out there, and lot of people just look at the bottom line [cost]. They’ll look at the figure, and that’s it....They don’t care how roughly it’s been built or whatever because they can all afford. So, with the hardwood, it’s usually thirty percent dearer, but the people who target it are prepared to pay for it. It’s not hard for us to sell, even though it’s more expensive, it’s not hard.”

(Wood furniture retail interview 2 – paragraph 47 / FVC-3)

In terms of wood appearance, the FVC-3 furniture retailer also stated that:

“…quite often I’ll quote a particular piece in hoop pine, and then when I give them a hardwood price that’s thirty percent dearer, and once I show them the differences and the difference in the finished product, they’re prepared to pay thirty percent more.”

(Wood furniture retail interview 2 – paragraph 47 / FVC-3)

The combining of furniture items as sets or suites including wood chairs, wood tables, and other substantial accessories including wood sideboard cabinet and wood media storage units provided sales leverage for the FVC-1 furniture retailer. One individual sale could be up to or more than twenty times higher than the retail price
for one individual wood dining chair. The higher pricing may also indicate the merits of personalised furniture retail service and the need for most customers to return several times to the retail furniture showroom for the larger sets of wood furniture items. The higher priced furniture suites being sold from the furniture manufacturer/retailer boutique showroom often commanded higher exclusivity than either the department store or furnishing retail outlets and therefore more exclusive retail sales prices.

4.3.1.7.5 Retail location (Wood furniture retailer level)

The regional proximity of the FVC-3 furniture retailer to most collaborating value chain member firms supported ease of communication between firms and strengthened the cohesion of inter-firm linkages. Strong long-term relationships based on quality supply and trust were characteristics found in FVC-3 (Wood furniture retail interview 2 – paragraph 105 / FVC-3).

This furniture cluster, as it has been recognised and marketed by the FVC-3 value chain member firms, has emerged to collectively promote the further building of wood furniture value chain relationships within the region. The FVC-3 cluster also anticipates that their attempt to forge an extended wood furniture value chain in the region may lead to new competitive advantages for participating firms over other competing value chains in providing new wood product and service offerings to customers.

4.3.1.7.6 Inter-firm linkages (Wood furniture retailer level)

The FVC-3 furniture retailer valued trusted and personalised service and supply in high quality wood boards, with one wood supplier relationship ranging over almost thirty years. The resulting supply of high quality wood branched from high quality wood sawing standards reliant on the methods implemented by very small saw-millers in FVC-3. These saw-millers were two person operations and their team size was indicative of mobile saw-miller contracting.

The ability of a saw-miller to “look at a log and cut it up” into quality boards was held in high regard by FVC-3 furniture retailer as it can positively affect wood quality and price premiums. Wood supplied from the larger wood merchant suppliers
was considered of a lesser standard than wood supplied by ‘little backyard guys’ mobile saw-mill operations (Wood furniture retail interview 2 – paragraph 103 / FVC-3).

Trust was also a constant in the relationship between the FVC-1 furniture retailer and the end-consumer. It was usual for the FVC-1 furniture retailer to permit an end-consumer to borrow a wooden dining chair for a number of days to assist the consumer to absorb the qualities of the wooden chair and reflect on the match to the end-consumer’s home interior design. Similarly, several books or swatches of sample fabric were lent to the end-consumer for consideration in their own home environment of the range of upholsteries available.

4.3.1.7.7 Competitive strategy (Wood furniture retailer level)

The FVC-3 furniture retailer suggested that in contrast to their own retail strategy informing end-consumers of the wider attributes of wood furniture design and construction, other retailers and their sales staff were confined to identifying wood furniture attributes narrowly as ‘Australian’ and ‘hardwood’. This may imply the limiting of the retail experience and potential value to the end-consumer if wood furniture attributes are present yet not conveyed to the end-consumer:

“…half the time, all their salesmen, that’s all they’d know! That’s all they’d know!” [said with exclamation]  
(Wood furniture retail interview 2 – paragraph 119 / FVC-3)

A combination of modest successful advertising and repeat business from long-standing local customers maintained and enhanced the reputation of the FVC-3 retailer, with some repeat customers held for over fifteen years.

In the FVC-3 retail showroom customers were presented with the choice of softwoods and hardwoods at different price points with hardwood, in the opinion of the FVC-3 retailer, selling at about thirty percent more expensively in general than softwood:
“We can do a pine table set of chairs, six chairs, for about sixteen-hundred dollars [AUD] compared to the hardwood one we had at the show, it’s around the five thousand mark.”

(Wood furniture retail interview 2 – paragraph 159 / FVC-3)

Softwood pine furniture was considered by the FVC-3 furniture retailer as a ‘throw away item’ based on the response from end-consumers, with hardwood the more valued end-consumer purchase.

Export was not on the agenda for the FVC-3 furniture retailer although a member of the cooperative had discussed the possibility of FVC-3 supplying Australian hardwood furniture to a high profile Australian trade delegation to North America for promotion. This networking opportunity had arisen during the FVC-3’s attendance of a prominent Australian furniture trade fair. A North American source had suggested that a sales premium of almost double may be expected in the new market, causing the FVC-3 furniture retailer to seriously consider the prospect of exporting to at least the wood table market which the retailer had produced themselves. (clarify last part here)

4.3.1.7.8 Wood furniture retailer profile

The owner of the FVC-3 furniture retailer was a relative newcomer to furniture retailing, having held the business for less than six months. Despite the tacit knowledge held among the employees retained from the business purchase, especially the cabinetmakers, the retailer relied on the furnishings industry body, the Furnishings Industry Association of Australia (FIAA), for industry advisory services including training and apprenticeships.

Upholstered wood chairs constituted about eighty percent of the FVC-3 furniture retailer’s sales, with end-consumers attracted to new textile materials and comfort. FVC-3 end-consumers were also attracted to un-upholstered wood furniture with a traditional and historic aesthetic linked to the Australian Colonial period of the nineteenth century. The popular modern furniture style accounting for the larger
sales volume was associated with colourful upholstered fabrics (Wood furniture retail interview 2 – paragraph 322 / FVC-3).

4.3.1.7.9 Wood furniture quality (Wood furniture retailer level)
FVC-1 placed end-consumer priorities on quality. Quality was based on the retailer’s perception of the end-consumer’s appreciation that a good quality product would last and be enjoyed in use for many years. This was in contrast to the interviewee’s opinion of inexpensively priced wood furniture requiring maintenance potentially in the first months of use, although no exact wood furniture example was referred to during the interview.

4.3.1.7.10 Wood furniture promotion (Wood furniture retailer level)
Promotional advertising activities were prominent in both value chains’ retailing. FVC-3 furniture retailer promotions included local newspaper and magazine advertising, and printed material for distribution at furniture trade shows targeting both wholesale and retail customers. The FVC-3 furniture retailer benefited from a cooperative based approach fostered through the designated and marketed furniture cluster. Promotion economies were defined by the booking of exhibition space at the main furniture trade shows and shared print production costs.

The FVC-3’s trade shows were accompanied by unique firm-level promotion literature and complemented by unique branding of the region from which the wood furniture had emanated. The firm’s trade show grouping also promoted the furniture cluster, indicating the dynamic nature of firms and the region in offering innovative furniture design and build quality.

4.3.1.7.11 Wood furniture orders (Wood furniture retailer level)
The FVC-3 furniture retailer was accustomed to placing wood chair orders by sending a fax (facsimile transmission via phone line), after placing a direct telephone call to the wood furniture manufacturer to assess possible delivery dates. FVC-3 furniture retailer mostly used one local manufacturer supplier and another supplier that facilitated alternative wood chair designs from an overseas source.
Wood chair orders supplied by the local Australian furniture manufacturer were delivered between four to six weeks from order placement, presenting problems for the FVC-3 furniture retailer who could prepare a custom wood table in less time and then had to wait for the matching chair order to arrive. The local wood chairs orders placed by the retailer were also often customised, therefore adding a longer delivery lead-time to the externally sourced chairs and affecting the wood chair manufacturer’s usual schedule. The manufacturer’s delivery schedule relied on standard available chair ranges but not the customised chair types required by the FVC-3 furniture retailer.

In contrast, FVC-3 furniture retailer orders requested from the supplier of the wood chairs sourced overseas had experienced a two-month delay as a container-load was being awaited. Though delays seldom occurred some difficulty was experienced by the FVC-3 furniture retailer in gaining communication response at the time from the intermediate supplier of the important wood furniture product. This supplier was in a distant Australian city and answers as to the progress of the order were not easily forthcoming. This was considered a breakdown in communication and frustrated the commercial relationship.

4.3.1.7.12 Wood furniture retailer level summary

In summary, the wood furniture retail level both represents the penultimate level of the FVC and the most direct linkage to the wood furniture end-consumer. The retail level also maintains the aspirations of the diverse mix of firms that constitute FVC membership, most members with little recourse but to await directives from the retail level creating a disconnection for several levels of the FVC in some cases. This has promoted some FVCs to launch, or contemplate branching into, their own ‘boutique-style’ retailing thus completing a more integrated value chain model with leadership emerging from wood furniture manufacturers.

Retail level interview responses also identified the differentiation in product offerings to wood furniture end-consumers, especially towards higher value wood furniture capitalising on custom build qualities, surface finish, and use of unique wood species of strong appeal. In contrast, varying retail strategies include good
quality furniture at affordable prices as a service point of distinction and direct end-consumer contact with wood furniture makers was seen as a competitive asset.

Some branding was synonymous with high quality Australian wood furniture products responding to the competitive threat of low-cost furniture imports and consolidations were made upon reputation; either based on family-owned brands or publically recognised longevity in the furniture retail sector. Small retailers exercised the option to provide diversified product offerings to increase wider appeal to end-consumers, and the provision to create furniture sets including dining chair, tables and currently fashionable wood furniture entertainment cabinetry with linkages to lifestyle. These retailers were considered a version of a new hybrid retailer, often an emergent wood furniture manufacturer somewhat frustrated with ongoing periodic negotiations with major retailers.

Inter-firm relationships were invariably long held, some upwards of thirty years, and trust, collaboration and personalised service were among the traits that secured strong linkages between firms.

In unison with brand building exercises the respondents identified their mix of product packaging, including varied chair range names that often conjured lifestyle or eminently Australian periods in history, and provided opportunities for their wood furniture end-consumers to reflect if the furniture of choice matched their personal identity and architectural lifestyle.

Furniture retailers were criticised by the wood furniture manufacturers on the grounds that they employed ignorant sales staff with little or no knowledge of the wood furniture product they were selling, thus breaking the bond between the wood furniture qualities espoused by the FVC only to be thwarted at the last link in the value chain at the retail level. This was not a comprehensive reflection of retailers; some were proud of their sales staff strategies in conveying the functional and aesthetic merits of the wood furniture on sale.
End-consumers were also shown the difference between good pieces of wood and roughly cut pieces of wood directly from the mill, further identifying the process from forest to retail and of particular interest to discerning wood furniture end-consumers. It was also noted that wood furniture end-consumers rarely purchased wood furniture on a first visit to a wood furniture showroom, but returned several times, up to four or five times over one year prior to making a decision to purchase.

The next section provides the conclusion to the IFS (research design Phase 1), followed by the contribution the IFS provides to the preparation of research design Phase 2 – industry survey questionnaire (ISQ) and Phase 3 – End-consumer survey questionnaire (ESQ).

4.4 Concluding statement for Industry Fieldwork Study (IFS-Phase 1) –Semi-structured interviews

4.4.1 Introduction

From the analysis of the data from the semi-structured interviews, it was shown that there are many inter-firm level interactions which constitute value adding activity. The inquiry into firm-level and inter-firm activities through the semi-structured interviews did not immediately convey the impact of each activity on value towards the wood furniture product, and ultimately value for the end-consumer. The qualitative industry data did, however, suggest the dynamics of firm-level activities and the types of drivers or barriers at a number of key value chain levels.

Several value chain activities were less visible in showing how the end-consumer value is directly or indirectly affected as these activity factors are not immediately quantifiable or tangible as value to the wood furniture end-consumer. These process contributions in wood furniture value chain are unavoidable and are an inherent part of today’s commercial production landscape and contain, but not exclusively; equipment supply, transport, and marketing which appear to be remote features attracting little wood furniture end-consumer attention. These activities which represent integral business processes are worthy of further response and are discussed in the next chapter, Chapter 5.
The wood furniture value chain activities, which more directly affect the opinions formed by the end-consumer toward a wood furniture product, can therefore be established as the higher order value. It adds priorities to the focus on the more tangible aspects of end-consumer value as communicated by a completed wood furniture product which requires particular knowledge sets, including skills and market knowledge.

In contrast, the lower order value adding priorities are those value chain activities which are less tangible or visible to the end-consumer and appear to contribute less to the completed wood furniture product. Despite this, the impact of lower order value chain activities needs to be considered in value chain analysis with equal merit as a cost affecting the value proposition to the end-consumer.

### 4.4.2 Response to research questions (RQs) and operational dimensions

The following section summarises the results of the Industry Fieldwork Study (IFS), representing information gained from research design Phase 1 – IFS about the research questions and operational dimensions.

Firstly, a summary table of IFS responses to the key research questions and research dimensions is presented in Table 4.1, followed by a more detailed description of new knowledge contributions from Phase 1 and the requirements for further knowledge required from Phases 2 and 3 of the research design that were unable to be concluded from Phase 1 - IFS which was exploratory by design.

#### 4.4.2.1 Summary of IFS results: Forest source to wood furniture retail

The following table summarises the results of IFS against the key research questions and operational dimensions (Table 4.1).

The categories contained in the industry interview proforma are grouped within value chain classifications generated from the research gaps in literature and the study research design, and include: competitive strategy; inter-firms relations; firm-level strengths; competitive threats; competitiveness; performance assessment; and end-
consumer value. New knowledge is indicated by the positive symbol (√) and further knowledge is required to respond to the key Research Questions 1 and 2 and operational dimensions 1 to 8 inclusive (✓).

**Table 4.2: IFS result summary in response to research questions and operational dimensions**

<table>
<thead>
<tr>
<th>Industry Fieldwork Study (IFS) categories</th>
<th>New knowledge contributed by IFS to Research Question</th>
<th>New knowledge contributed by IFS to operational dimension (OD)</th>
<th>Further knowledge required from Phase 2 &amp; 3 for RQs and OD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive strategy</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>1, 2</td>
<td>✓</td>
</tr>
<tr>
<td>Inter-firm relations</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>3</td>
<td>✓</td>
</tr>
<tr>
<td>Firm-level strengths</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>Competitive threats</td>
<td>RQ1 ✓ n/a ×</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>Performance assessment</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>2</td>
<td>✓</td>
</tr>
<tr>
<td>End-consumer value</td>
<td>RQ1 ✓ RQ2 ✓</td>
<td>5</td>
<td>✓</td>
</tr>
</tbody>
</table>

Further discussion of these results is presented in the next section. The results also influence the development of survey instruments in Phases 2 & 3 of the research design, and further exploration of the key research questions and linked propositions through the mixed method research design approach.

### 4.4.2.2 IFS results and next research steps in responding to RQs

The following sections correspond to the results emerging from the IFS and contain an extended description of requirements guiding the next research design phases.

#### 4.4.2.2.1 Competitive Strategy:

The following points represent areas of learning from the IFS in relation to competitive strategy.

New knowledge contribution to competitive strategy from the IFS includes:

- The importance of the wood furniture manufacturer as a catalyst for the FVC, governing linkages from forest to furniture retail to an extent;
• Evidence of small and large players at the forest, wood mill, wood merchant, and wood furniture levels of FVCs with similar activities but different economies of scale. The commercial success of Australian wood furniture manufacturer and inter-firm partnerships was linked to and influenced by furniture market trends;

• Diverse wood furniture products FVC offerings provided choice to end-consumers and leverage in building competitiveness especially for smaller wood furniture manufacturers and FVCs.

Further knowledge required to respond to RQs and operational dimensions beyond IFS results:

• To explore inter-firm dynamics and FVC decision-making;
• To explore FVC governance and potential effect on FVC value;
• To explore the effect of firm size on FVC value;
• To better understand the connectedness of FVC inter-firm relationships and the consequence of furniture market trends on current and future FVC management.

4.4.2.2 Inter-firm relations:

The following points represent areas of learning from the IFS about inter-firm relations.

New knowledge contribution to inter-firm relations from the IFS includes:

• Evidence of inter-firm cooperation was present in the FVCs studied and at all value chain levels;
• Evidence of collaboration in procuring the best woods between wood merchants and wood furniture manufacturers for wood furniture production was the pride of several FVCs;
• Evidence of a considerable amount of tacit FVC knowledge appears to be present and either held closely or shared within FVCs;
Further knowledge required to respond to RQs and operational dimensions beyond IFS results

- To ascertain the nature and strength of inter-firm cooperation and the management of relationships;
- To further understand the characteristics of collaboration in the AWFI and AWFVCs and the effect this may have on the AWFI and AWFVC in identifying those relationships that require maintenance and improvement and those inter-firm relationships that require closure or considerable re-assessment.

4.4.2.2.3 Firm-level strengths:

The following points represent areas of learning from the IFS in relation to firm-level strengths.

New knowledge contribution to firm-level strengths from the IFS includes:

- The indication that good inter-firm relationships appear in FVCs studied, with reliable access to quality wood considered a strength in FVCs;
- Evidence of wide ranges of wood species held by wood merchants or that could be procured through wood merchant networks is seen as a FVC strength;
- High levels of communication and trust are evident in all levels of the FVC, with trust seen by respondents as essential to current and future FVC business;
- Personalised service between firms and contact with people as firm-level representatives appears to be a trait of a well-connected industry in social relation terms.

Further knowledge required to respond to RQs and operational dimensions beyond IFS results:

- To identify where the strongest and weakest FVC inter-relationships occur and how this may affect FVC performance;
- To explore how formal or informal methods in assessing firm-level strength are represented at one or more levels of the FVC;
- To explore where the strengths and weakness in communication occur and how this may affect value in AWFVCs.
4.4.2.4 Competitive threats:
The following points represent areas of learning from the IFS in relation to competitive threats.

New knowledge contribution to competitive threats from the IFS includes:

- Wood is a natural material and exposed to natural climatic conditions which can favourably contribute or weaken wood quality and affect value chain performance and end-consumer value;
- Access to favoured wood species for wood furniture and reliable supply into the future was a concern expressed by wood merchants and wood furniture manufacturers in regard to legislated forest closures;
- Australian wood furniture industry demand for annual wood quantities represents a small proportion of production for most wood suppliers and at best is sporadic in the nature of wood required which can strain some suppliers relationships at times;
- Heightened business pressure from new popular wood product applications in building was observed as rising although not an immediate threat;
- Heightened pressure from cheap imports of perceived inferior quality and utilisation of Australian wood
- Evidence of a disconnection in the relationship between the end-consumer and the wood furniture manufacturer is suggested by some wood furniture manufacturers to be a product of the decisions made by some wood furniture retailers; a considerable amount of FVC investment is carried by the wood furniture manufacturer who is often responsible for the assignment of product attributes. This decision-making occurs in relative isolation and can be a potential threat to meeting end-consumer value requirements.

Further knowledge required to respond to RQs and operational dimensions beyond IFS results:

- Evidence to better understand the representation of concern in the AWFI toward potentially reduced access to preferred wood species intended for wood furniture industries;
To further understand the importance of the opinion of the wood furniture end-consumer to the AWFI and the ways in which the AWFI can capture end-consumer motivations to wood as a furniture material, and respond to end-consumer requirements while creating more value in the AWFI for AWFVCs.

4.4.2.2.5 Competitiveness:
The following points represent areas of learning from the IFS in relation to competitiveness.

New knowledge contribution to competitiveness from the IFS includes:
- Wood is a natural material and exposed to natural climatic conditions which can improve or weaken wood quality;
- Small wood mills are reliant on wood furniture manufacturers and proportionally affected by manufacturer fortunes;
- The emergence of the ‘boutique’ furniture retailer has become attractive for the smaller wood furniture manufacturer frustrated with perpetual and pressured negotiations with larger furniture retail players;

Further knowledge required to respond to RQs and operational dimensions beyond IFS results:
- How firms today measure their competitiveness in comparison other firms and if membership of an alliance or network affects FVC competitiveness.

4.4.2.2.6 Performance assessment:
The following points represent areas of learning from the IFS in relation to performance assessment.

New knowledge contribution to performance assessment from the IFS includes:
- Evidence that some performance assessment is occurring in FVCs but the nature of and depth are unknown from the IFS;
- Indications of FVC logistics, mainly in transport services for raw materials and finished wood furniture products, is a cost partially recognised by FVC, but not evident to end-consumers and no apparent performance assessment is present in
FVCs. This also raises the prospect that other activities within the FVC may incur incidental costs but carry an inherent cost to business and can affect value to FVCs and end-consumers;

FVC logistics also indicated the dispersion of FVC activities and the overall journey of wood species and wood product components between FVC players.

Further knowledge required to respond to RQs and propositions beyond IFS results:

- To further explore the methods currently employed to assess performance with firms and across the FVC;
- To understand if the performance assessment methods currently employed are informal and customised designed in-house, or more formally developed either in-house or through outsourced proprietary performance assessment procedures.

4.4.2.2.7 End-consumer value:

The following points represent areas of learning from the IFS in relation to end-consumer value.

New knowledge contribution to end-consumer value from the IFS includes:

- Evidence that good inter-firm relationships based on reliable access to quality wood is considered a linkage to wood qualities recognised by end-consumers affecting the delivery of value to the end-consumer;
- That considerable influence is carried by wood furniture manufacturers and wood furniture retailers in the assignment of wood furniture attributes, including wood species selection, wood furniture product designs;
- Evidence that wood furniture retail is the most direct contact point to the end-consumer and the penultimate FVC level – from forest to end-consumer;
- Indication that product differentiation occurs mainly in high value wood furniture products combining unique wood species, craft-built quality, high quality surface finishing, and branding;
- Support that wood furniture product branding is a strong component in the wood furniture promotion mix for all FVCs with place names, female names
and references to historic conquests and successful historic individuals in prominence;

- Citing wood furniture retail floor staff for their ignorance towards wood furniture attributes imbued by wood furniture manufacturers, although this was not the case in all FVCs studied. Considerable effort was made by retail sales staff in conveying the journey of wood from the forest, the mill, the crafted production and other wood attributes including wood species, furniture-in-use qualities and wood furniture care to enhance the longevity of furniture and enrich wood furniture ownership experience;

- The re-emergence, or continued expansion of wood certification in the marketplace to respond to environmental and end-consumer concerns in forest products.

Further knowledge required to respond to RQs and operational dimensions beyond IFS results:

- Further understanding of the attributes that end-consumers associate with desired wood furniture, including wood qualities and other wood furniture features including aesthetics and function;

- The knowledge sets the levels of the FVC need to hold to support their capability to contribute as either node for governance issues or as an actual leadership governance key facilitator or co-facilitator;

- To further understand the importance of the opinion of the wood furniture end-consumer to the AWFI and the ways in which the AWFI can motivate the end-consumer towards wood as a furniture material, and respond to end-consumer requirements while creating more value in the AWFI for AWFVCs and the wood furniture end-consumer.

4.4.3 **Next research steps (Research design Phase 2 & 3 results)**

The next chapter, Chapter 5, will present the analysis and results from the industry and end-consumer survey instruments developed for Phase 2 and 3 of the research design, entitled Phase 2 - Industry Questionnaire (IQ) and Phase 3 - End-consumer Questionnaire (EQ).
Chapter 5

Results of industry and end-consumer surveys

5.1 Introduction

The previous chapter reported on the qualitative results from the semi-structured industry survey, Phase 1 - Industry Fieldwork Study (IFS).

This chapter outlines the data collected from the industry, Phase 2, Industry Survey Questionnaire (IQ), and Phase 3, End-consumer Survey Questionnaire (EQ) and covers the analysis of the data collected in these two Phases of the research.

The following chapter, Chapter Six, focuses on the response to the research questions and propositions presented in Chapter Two of the thesis; it then presents the discussion and extent of interdependence between end-consumer value and the value chain’s ability to support value creation and competitive advantage. Chapter Six also draws conclusions and recommendations for future research.

The objective of the structured industry survey is to focus on those factors in the wood furniture industry emerging as gaps in the literature and the results of the semi-structured interview study in Phase 1 of the research design. The factors included: firm-level strategy; inter-firm relations; resources and core competencies; local and global competitive threats; competitiveness from quality, policy and market data perspectives, firm level performance; end-consumer value; and profitability trends.

The sample for the quantitative industry survey was sourced through the NSW/ACT Branch of the Furnishing Industry Association of Australia (FIAA). The survey was circulated to 600 members and was accompanied by the FIAA 2006 Winter edition of their quarterly newsletter. The survey was circulated predominantly to furniture and furnishing suppliers, furniture manufacturers and furniture retailers that make up the organisation’s membership.
Even with reminder phone calls to many firms, a low response rate of nine returned and completed surveys was achieved. This may be attributed to several factors, including the array of questions and the sensitivity of responses sought.

Several Australian furniture industry interview respondents reported during the Phase 1 interviews that Australian survey participation in the furniture sector was historically low. This is not a generalisation of the Australian furniture industry or a comment on specific firms but a view shared by a proportion of firms interviewed.

In contrast to the industry survey, end-consumer survey data were collected primarily by direct invitation by the researcher to customers in furniture retail stores. The researcher found that approximately one quarter of customers approached were prepared to complete the survey in the presence of the researcher. The results of the end-consumer survey data analysis are presented in following section.

5.1.1 Structured value chain questionnaires - Data collation and results

The results from the structured value chain questionnaires addressing industry and end-consumer issues were prepared in a Microsoft excel format to capture the data and provide a method from which statistical interpretations could be made. A 5-point Likert scale response was used in the survey with a scale ranging from strongly disagree to strongly agree (Appendices 10 & 13).

The data that was captured in the open-ended questions of a qualitative nature was also initially recorded on a Microsoft excel spreadsheet and later collated in a Microsoft word format where further analysis could be conducted.

5.2 Descriptive statistics

The quantitative data collected are discussed in the following order: firstly, the wood furniture industry value chain survey questionnaire (Phase 2 of the research design), conducted at various firm-levels within the value chain; and secondly, the end-consumer survey questionnaire (Phase 3 of the research design) is presented. Due to the low response rate ($n = 9$ from an invited 600 potential industry respondents), only
simple descriptive analysis was undertaken and the results and discussion should be interpreted as indicative only and not representative of the complete Australian wood furniture industry.

The industry questionnaire contained ten categories and one hundred and thirty questions seeking aspects of industry competitiveness in the Australian wood furniture industry value chain (AWFVC). The end-consumer value chain questionnaire contained ten categories and forty-four questions seeking purchaser attitudes toward wood and wood furniture attributes.

The following section of the study describes the responses to the industry survey questionnaire including: competitive strategy; inter-firm relations; resources and core competencies; competitive threats – local and global; competitiveness – quality, policy, market data, assessing efficiency; firm level performance; end-consumer value; and profitability trends.

### 5.2.1 Competitive strategy (industry survey)

All twenty-eight survey questions were scored on a five-point scale and focused on strategies related to value-creating strengths, including new product development (NPD), unique offerings over competitors, reputation, performance measurement methods, market intelligence, and funding investment.

A high proportion of eight of nine respondents agreed that their firm possessed a strategy for new product or service development, with a high proportion (7/9 firms) possessing a unique offering over competitors. All respondents reported possessing a superior product offering in at least one area, signifying a key component toward building a competitive advantage strategy. Only one respondent held either registered or patented product designs or processes, while two firms held a unique production or process feature (2/9 firms).

International trade policy was seen to adversely affect the profitability of all firms surveyed (6/9 in strong agreement, 3/9 in agreement), which is consistent with experience and forecasting in the sector (FIAA, 2009). The implementation of
Standards to maintain or improve quality was present in all firms surveyed (9 of 9 firms), although pessimism was expressed as less than a quarter of their suppliers (2/9 firms) and buyers (2/9 firms) were perceived to use consistent standards to maintain or improve quality.

Respondents supported the wider industry compliance with quality standards to enhance competitiveness (8 of 9 firms with one firm undecided). All respondents reported that imported products have an adverse effect on local firm competitiveness due to cost. In terms of imported products having an adverse effect on the competitiveness of local products due to design as a factor, most responses did not rate it a factor (6/9 in agreement, 3/9 undecided); wood certification of imported products as an adverse competitiveness factor (3/9 in agreement, 3/9 undecided, two firms in disagreement and one firm strongly disagreeing).

Location of the business enterprise was also viewed in the survey as a competitive strategy and when asked whether the firm was located in a furniture cluster of firms, most were negative (6 of 9 firms) or were not sure if they were in a cluster (3 of 9 firms).

In the majority, firms consulted suppliers in the development of new products (7/ 9 firms surveyed) and in the case of consulting buyers in new product development (NPD) the reporting was higher (8/ 9 firms surveyed).

Wood certification has become a topical consumer issue and one avenue where consumers can exercise their buying power. When asked if certified wood had been used in a product offering in the last five years the response from the industry survey was positive (6/9 firms in agreement, 2/9 not sure, and one firm with none). When surveyed if certified wood would be part of a product offering in the next five years over half of the respondents (5/09) confirmed the prospect of using a certified wood source. Slightly fewer respondents (4/9 firms in agreement) reported that the use of certified wood would have a positive future effect on profit.
Reaction to government policy on forest management in the responses from surveyed firms was not highly supported, with a third of respondents (3/9 firms) disagreeing that the policy on forest management had had a positive effect on profitability and only one of nine firms supporting a positive effect on profitability. The proposition that profitability based on current forest management policy may further adversely affect the industry in the near future was supported by four of nine firms surveyed.

Global competitors in the furniture industry were perceived to be generally more competitive (7/9 firms in agreement) while strong support was given to the need for more data on competing Australian firms to assist strategic planning (7/9 firms surveyed). This opinion was equally backed (7/9 firms surveyed) in the requirement for the better understanding of competitiveness of foreign firms to assist local strategic planning.

5.2.2 Performance measurement (industry survey)

Firm-level performance over time was signified in firms maintaining superior products or services in more than one year of the last five years (3/9 strong agreement in addition to 5/9 firms in agreement). In responding to the question of growth as a strategy to improve competitiveness, personnel was seen as important (3/9 in agreement), whilst the outsourcing of services was seen as a trend (4/9 firms in agreement), the concept of acquiring other firms to enhance competitiveness was held by a third of respondents (3/9 firms).

In the questions focused on assessment of competitive threats and the formality of firm-level performance measurement, there was strong agreement from respondents to the periodic assessment of competitors’ business strategies (8/9 firms, Question 11) using an informal firm-level customised assessment method (4/9 firms), formal firm-level customised assessment method (3/9 firms), or an externally sourced formal performance measurement system. The latter returned weak responses with more than half (6 of 9 firms) not participating in formal external measurement methods and the remaining undecided (3/9 firms), suggesting a flexible approach in the adopting of some external formal methods may be present.
Performance measurement systems were used for the benchmarking of internal performance targets in most firms surveyed (8/9 firms including 2/9 in strong agreement, and 6/9 firms in agreement).

Respondents were asked about their assessment of markets using organisational or governmental assistance. Only one firm utilised organisational assistance where industry organisations were involved (1/9 firms), and assessing the market with government only marginal more successful (2 of 9 firms in agreement). No respondents strongly identified with support from either an organisational or a governmental perspective.

Firms reported being satisfied with their current internal performance assessment systems (6/9 firms with 3/9 undecided).

In terms of profit margins, firms were not well informed of suppliers’ profit margins, with only one firm informed of profit margins together with almost half (4 of 9 firms) stressing that there was little transparency. Buyer profit margins were better understood by the respondents (3 of 9 firms) with an additional one-third citing hidden profit margins (3/9 firms).

In terms of firm profitability trends, one third of respondents (3/9 firms) experienced no increases in the year 2006 with the remainder undecided, possibly suggesting a flat but stable trend. All firms responding to the survey were in private ownership.

About half of respondents (5/9 firms) believed that their brand was well recognised in the market while a grouping within the same data set (4/9 firms) could not confirm if they held brand recognition in the marketplace.

All respondents believed in the importance of an industry reputation for product and services with seven firms from nine (7/9 firms) strongly identifying with brand strength, and the remaining firms (2/9 firms) agreeing on some level of recognition of reputation. Recognition of industry excellence was indicated by respondents as a strength (7/9 firms) as it may positively affect brand and quality perceptions in the marketplace.
5.2.3 Inter-firm relations (industry survey)

Relationships between suppliers and buyers were captured through a series of twenty-three questions related to inter-firm relations. A strong response to the improvement of access to suppliers (7 of 9 firms) and access to new buyers (7 of 9 firms) was returned by respondents. A noticeable difference was one firm strongly agreeing on the need to pursue better access to new suppliers, whereas a larger response of two of nine firms (2/9 firms) strongly agreed that access to new buyers was required.

The need for improved access to more reliable market information was identified by seven of nine firms (7/9 firms), while access to more development funds was seen as desirable (5 firms in agreement and 4 firms undecided). A considerable response was reported with firms seeking more collaboration with industry bodies (8 of 9 firms), but there was a lower level of interest in collaborating with government bodies (5 of 9 firms), indicating a marginal preference toward industry involvement.

Inter-firm relationships tend to be more successful when communication and cooperation between value chain members is present. Cooperation with buyers in maintaining quality was considered essential by respondents (6 of 9 firms strongly agreeing, 3 of 9 in agreement), although cooperation with suppliers in maintaining quality was almost equally as important overall (4 of 9 firms strongly agreeing, 5 of 9 in agreement).

When asked who initiated periodic communications with suppliers respondents agreed that their firm were the initiators of communication (8 of 9 firms), with two firms strongly agreeing as to who makes the first steps in the relationship at this level. Overall, periodic communications initiated by respondents with suppliers was stronger than communications with buyers (7 of 9 firms, including 2 firms in strong agreement).

High quality inter-firm communication is viewed as a pre-requisite for value chain efficiency. Preference was indicated in firms meeting suppliers face-to-face (7/9 firms surveyed including 2/9 firms strongly agreeing), and a preference for all respondents meeting buyers face-to-face (9/9 with 7/9 strongly agreeing).
The frequency of meeting and communication with suppliers was satisfactory (7/9 firms surveyed) and in meeting with buyers, more than half of the respondents, 5/9 firms surveyed were satisfied with the level and frequency of buyer meetings and communication, two firms in disagreement and one firm could not confirm.

Respondents considered the confirmation of furniture sales orders by email as the preferred method of communication (7/9 firms surveyed) with only one firm preferring not to use email. The use of a fax machine was preferred by a third of respondents to confirm furniture orders (3/9 firms).

Trust and good status of inter-firm relationships is described in the literature as a key aspect of effective value chains. Although respondents did not necessarily trust suppliers in maintaining quality with only one-third in agreement (3/9 firms), two thirds of firms did agree that suppliers were trusted in timely delivery (6/9 firms).

Suppliers were slightly less trusted (5/9 firms) than buyers (6/9 firms) in the negotiating of terms, but overall all nine respondents were pleased with their current good status in strength of relationships with suppliers (9/9 including 2/9 who strongly agreed) and buyers (9/9 including 4/9 who strongly agreed).

Collaboration and market access was similarly mirrored when comparing suppliers with buyers, with higher levels of collaboration relationship sought with buyers in all firms surveyed versus the improving of collaborative supplier relations (8/9 firms) and full support for better market knowledge sought from buyers (9/9 firms) rather than suppliers (7/9).

Respondents challenged the rate of flow of inter-firm information flow, with a third strongly agreeing that there was good information flow with suppliers and buyers (3 of 9 firms) and most undecided (6 of 9 firms). Only two respondent firms agreed that they were well informed of their suppliers’ business strategy (2/9 firms) with the remaining undecided (6/9 firms) and one firm not well informed. Buyer business strategy was more transparent (5 of 9 firms with the remainder undecided).
A majority of respondents found they did not have difficulty in maintaining a reliable supplier base (6/9 firms in agreement, 2/9 undecided), but had trouble in maintaining a reliable customer base (6/9 in agreement, 2/9 undecided) and one firm experiencing no difficulty (1/9 firms) with their customer base. In forecasting if difficulties may be experienced in the sourcing of new suppliers in the future, a majority of respondents reported that there could be problems (8 of 9 firms). There was also agreement that new customers would also be more difficult to source in the future (6 of 9 firms surveyed).

Firms were asked as to their advocacy in providing a cooperative approach in meeting end-consumer needs through inter-firm relations. This was supported by respondents (7 of 9 firms), with a quarter of respondents noting a lack of cooperative endeavour (2 of 9 firms) in meeting end-consumer needs.

In the development of new products, a high level of consultation occurs with the end-consumer in the furniture retail environment (6/9 firms surveyed). Firms had a strong interest in understanding supplier/buyer efficiency; an interest in assisting supplier/buyer efficiency; and a desire in understanding one’s own firm’s efficiency; each supported by seven of nine firms surveyed.

The positive results of these combined elements support the foundations in building confidence in the undertaking of a value chain approach which relies on transparency in inter-firm relationships and a mutually constructive ethic in building the competitiveness of a value chain.

5.2.4 Core competency (industry survey)
This section of the industry survey contained eighteen questions covering communication and technologies, warehousing and packaging efficiencies among others, issues around procurement and logistics, and the conducting of efficiency audits.

The respondent firm strengths were reported in the use of appropriate communication technologies (7 of 9 firms), appropriate manufacturing technologies (7 of 9 firms),
access to skilled human resources (6 of 9 firms), materials handling and machine layout competency (8 of 9 firms), inventory control efficiency (5/9 firms, 4/9 undecided), warehousing efficiency and handling (3/9, 4/9 undecided, 2/9 in disagreement), technological efficiency machine-based (6/9 firms supporting strengths), and packaging efficiency (5/9 firms, 3/9 undecided, one firm in disagreement).

In the more service oriented resource allocations the respondents reported on their firm’s strengths in: marketing of services (3/9, 4/9 undecided, 2/9 no strength reported), order processing efficiency (8/9, one undecided), level of service (3/9 strong agreement, 6/9 in agreement), the effective marketing of products and services (6/9 firms, 2/9 undecided, one firm non-effective), and strengths in procurement effectiveness (7 of 9 firms).

Manufacturing and logistics capability can be presented by the survey responses to utilisation of advanced processing equipment (5/9 firms reporting strengths), ability to purchase new technologies (4/9 firms reporting strengths), inbound logistics (6/9 reporting strengths, 3/9 undecided), outbound logistics (4/9 reporting strengths, 3/9 undecided, two firms identifying weaknesses), and the ability to conduct regular efficiency audits (5/9 reporting strengths) 3/9 undecided).

5.2.5  End-consumer value (industry survey)

Section eight of the industry survey contained questions related to the firm’s relationship and understanding of end-consumers and the results are presented here.

The needs of end-consumers in the retail environment were identified as being of primary importance to firms (7/9 firms surveyed), of primary importance to suppliers in the opinion of firms surveyed (4/9 firms surveyed), of primary importance to buyers in the opinion of firms surveyed (8/9 firms surveyed). Almost half of the respondents agreed that end-consumers had an interest in their firm’s efficiency (4/9 firms surveyed, 4/9 undecided, 1/9 in disagreement).
The survey results indicate that firms believe that end-consumers have an interest in environmental issues (7/9 firms surveyed), and that wood is perceived by the end-consumer as furnishing material that possesses superior qualities over other materials i.e. metal (6/9 firms surveyed, 3/9 undecided).

More than three-quarters of respondents thought that end-consumers had an interest in the origin of the wood whether imported or locally sourced (7/9 firms surveyed) one firm in disagreement, and one firm undecided), or from a plantation, or termed ‘old growth’ forest source (6/9 firms, 3/9 undecided). Fewer than one third of firms thought that end-consumers were influenced by wood certification (3/9, 1/9 disagreement, 5/9 undecided), while about half of respondents believed that furniture would be more difficult to purchase in the next ten years due to raw material shortage (2/9 strong agreement, 3/9 in agreement, 2/9 disagree).

In the responses to the question whether firms believe that there was end-consumer appreciation in the wood furniture process from the forest to the retail environment, almost half did not agree (4/9 firms) with less than a quarter of respondents agreeing that it would be of interest to the end-consumer (2/9 firms).

Support was provided by firms in the survey linking end-consumers’ recognition of the furniture construction process to higher profits through more informed end-consumer purchases (5/9 firms in agreement, 3/9 undecided). Whether this was attached to quality in craftsmanship or the entire process could not be concluded from the survey.

It was clear that firms maintained that end-consumers should be involved in the process of creating value (6/9 firms, 3/9 undecided).

5.3 Discussion of industry survey results

The low response rate to the industry survey contributed to the lack of ability to generalise from the results. However, the key points summarised below gained from the responses received provide some insight into the views of Australian wood furniture manufacturers.
From this data, the following points concern aspects of the Australian wood furniture industry and firms that contribute to Australian wood furniture value chains (FVCs).

(A) **Strategy**: Respondents were confident that their firms held sound new product development strategies; that they possessed unique product or service advantages over competitors; that competitors were assessed for competitiveness periodically through mostly informal methods; and that internal performance measurement applying benchmarking techniques were prevalent.

(B) **Inter-firm relations**: Respondents were more likely to seek better relationships with suppliers, buyers, and industry bodies and less likely to seek further collaboration with government in their keen need to derive more reliable market intelligence. Higher collaboration was linked to better quality outcomes with suppliers and buyers, and that firms, mostly manufacturers, were more likely to be the initiators of communication with suppliers and buyers. Business strategies of interacting firms were not widely shared, nor were profit margins.

(C) **Resources/core competencies**: Respondents were positive in high and appropriate technology access and utilisation, reliable access to skilled human resources, reliable materials inventory and handling competencies, strong order processing efficiency and procurement effectiveness. The marketing of services was seen as a concern but effective selling was not.

(D) **Competitive threats**: Respondents were more likely to encounter difficulties in maintaining reliable suppliers and customers, and that international trade policy would adversely affect profits and with competition based on cost alone.

(E) **Competitiveness**: An increase in wider industry compliance to quality standards was linked to competitiveness. The design of imported products was not seen as a key competitive determinant, nor did wood certification give the imported products the competitive edge.
Assessing efficiency – firm level performance: Strong support for understanding efficiency in firms and with collaborative firms, and preferences to meeting suppliers and buyers face-to-face. A very high level of satisfaction was present with current internal performance systems.

End-consumer value: The needs of end-consumers were held in very high regard by respondent industry firms and the wood furniture buyers according to the survey of firms, but the suppliers were thought to have less interest. Respondents perceived that end-consumers were more likely to have an interest in environmental issues and the belief that wood held superior material qualities over comparable materials in the end-consumer’s mind, and that origin of both location and type of wood had some influence on end-consumer choice. Respondents did link higher end-consumer knowledge of the process to higher profits by better informing the purchase decision.

While of restricted value due to the low response rate, the industry survey data adds to our knowledge of the AWFVC, especially when viewed with the qualitative data of Chapter 4 in regard to strategy, inter-firm relations, competitive threats, competitiveness, firm-level performance, and industry viewpoints toward end-consumer value.

5.4 End-consumer survey responses

5.4.1 Introduction

Results from the semi-structured wood furniture industry interviews (Chapter 4) have suggested that while wood furniture manufacturers generally have a cooperative relationship with wood furniture retailers, they find these retailers reluctant to share information regarding end-consumers.

More than one furniture value chain (FVC) furniture manufacturer linked the ability to understand the needs of the end-consumer and their firm’s competitive advantage as critical to their efforts in meeting end-consumer demand. This inability to collaborate may adversely affect the success of furniture manufacturers as indicated as influential to firm success.
Lacking this important cooperative market information exchange appears to leave manufacturers and wood furniture product designers to second-guess end-consumer-purchasing intentions. Value chain stress is further compounded by continuing furniture retailer cost reduction pressures exerted on wood furniture manufacturers, as found during the industry interviews in driving wholesale prices downward in a marketplace where the cost of production was gradually rising.

Overall some wood furniture manufacturers have lost trust in the large furniture retailers and were concerned that their commercial futures rested considerably on the relationship and communication with wood furniture retailers. The wood furniture manufacturers supplying the major furniture retailers found that retailer intentions were at times secretive and that in-store sales staff knew very little about the furniture they were selling, especially in higher-end and higher-priced furniture including Australian made wood dining chairs and tables.

In response furniture manufacturers had considered various methods to tackle the disconnection with end-consumers, including the commencement of direct sales to end-consumers. For some manufacturers this could be relatively informal with factory-direct sales generated from passing road traffic, word of mouth, or more targeted through modest print advertising strategies in local press.

The more elaborate strategy was the acquisition of a stand-alone, wood furniture, manufacturer-owned, furniture retail showroom. In one studied FVC, the furniture manufacturer maintained both a branded factory outlet and a small furniture retail showroom. This FVC wood furniture manufacturer also engaged their ‘sales successful’ end-consumers to respond to a feedback response questionnaire, to ascertain their interest and level of engagement in their wood furniture purchase. The response to the feedback questionnaire was rewarded with an extended warranty for the furniture purchased and a quality pledge from the furniture manufacturer, now retailer. This provided valuable end-consumer attitudes toward the firm’s product and service, and supplemented the limited market information seldom provided by the furniture manufacturer’s traditional furniture retailers.
The limited sharing of key market information can be of particular concern to value chain contributors upstream in the wood supply or wood furniture manufacturing processes as many of their contributions may be isolated from key decision-making affecting the stability of the value chain.

Potential new value creation opportunities may as a consequence be hidden from the view of most value chain members and the prospect of innovations emerging from value chain levels other than the wood furniture retailers remain unrealised. The importance of each value chain member’s understanding of the wood attributes sought by the end-consumer would need to be established and the consequence to the entire value chain presented for discussion. Only then can the importance of the end-consumer be considered as it affects the value chain.

5.4.2 End-consumer survey instrument

The instrument proposed to capture the attitudes of the wood furniture end-consumer was administered as a questionnaire, with questions included to capture qualitative responses through open-ended questions targeted toward end-consumer attitudes to wood as a furniture material, in comparison to alternative furniture construction materials.

The questionnaire was prepared in response to the gap in general value chain knowledge in the wood furniture attributes sought by the wood furniture end-consumer. The end-consumer survey instrument was proposed to address the operational dimension that it is through better understanding of buyer motivations; the value chain is better placed to assess competitiveness.

The purpose of the survey instrument was the collection of information from end-consumers who intended to purchase wood household furniture in a furniture retail environment. Access to the initial sample audience of furniture end-consumers was provided by a firm that had participated in earlier industry semi-structured interviews as both a wood furniture manufacturer for major national furniture retail chains, as
well as a small single store retailer in its own right. Time and resource constraints required a further sample to be considered and sourced outside the furniture retail environment.

The survey instrument was entitled ‘Consumer value’ and adapted from an investigation of wood as a furniture material and the influences affecting wood furniture purchase in furniture retail stores in Finland (Pakarinen, 1999). The survey was also extended based on the results of the earlier conducted semi-structured industry interviews. A copy of the final industry survey questionnaire used is shown in Appendix 13 (p.262).

It was proposed in the research design (Chapter 3) that the results of the end-consumer survey could be presented and discussed with results of the industry survey. This discussion will establish whether there may be any linkage present between the needs of end-consumers and the appropriateness of value creation activities of firms within a furniture value chain (FVC) in meeting end-consumer demand.

A value chain’s viability relies on sustained end-consumer purchasing and end-consumer revenue inputs (Svensson, 2003). This focuses directly on this study’s research questions of what the drivers and barriers to more competitive wood furniture industry are, by ascertaining the emphases placed in production of wood furniture, and examining how a value chain approach may assist in improving collaboration, thus contributing to targeted value creation for end-consumers.

A total of 103 surveys were completed and returned. Thirty-five surveys were completed in an Australian wood furniture retail showroom and the remaining sixty-eight surveys conducted prior to the commencement of a wood furniture seminar that was delivered by the researcher on a university campus. The on-campus predominant demographic comprised 18-24 year old adult senior students identified as prospective or past furniture end-consumers. The students were also designing, as part of their curricula, chairs destined for domestic use with students free to construct in a material of their own choice. There was no emphasis placed in their chair project
brief as to the merits of wood or other materials and each student’s research was their own. The researcher was present at the university to administer the end-consumer survey and later collect it after allowing a fair time for completion.

The same end-consumer survey as presented to the university student sample was also presented in a wood furniture retail showroom. A portion of the data collection was conducted with the researcher present in the furniture retail showroom or survey respondents taking the opportunity to complete at their convenience and reply by a supplied postage paid returned envelope.

In the wood furniture retail showroom, the researcher presented promotional signage in the furniture retail environment to assist the participation of prospective respondents. The promotional signage was A4 in size, vertically oriented, in colour. The signage that was placed in the showroom of the furniture retailer to promote the survey opportunity assisted in accelerating returns in about half of the time compared to usual respondent motivation, as experienced when a survey was placed passively on a counter and relied on a busy sales assistant administering the survey in addition to their own furniture sales responsibilities.

The data collection method was seeking to engage respondents whose intention was to buy wood furniture. This group was seen as having specific opinions relating to wood furniture which could lead to some bias toward wood as a furniture material.

In the analysis of results, several key questions are presented to illuminate any differences or homogeneity in the two groupings: the wood furniture showroom end-consumer sample and the adult university student wood furniture end-consumer sample. As mentioned, the same questionnaire was presented to both groups.

5.5 End-consumer survey results

5.5.1 Demographics characteristics

The demographic characteristics of the end-consumer survey (n=103) included a fifty-seven percent male to forty-three percent female distribution. The age distribution spanned sixty-one percent (61%) in the 15-24 year age range, thirteen
percent (13%) in the 25-44 age range, twenty-one percent (21%) in the 45-59 age range, and five percent (5%) in the greater than sixty year age range.

Eighty-six percent (86%) were university educated, nine percent (9%) at technical college level, and five percent (5%) with secondary school qualifications. The high level of university-educated respondents may be explained by the fact that approximately two-fifths of the sample were surveyed at the conclusion of a research seminar on a university campus and may explain the skew toward the lower age range 15-24 years and ‘university-educated’.

Private sector employment across the sample dominated at seventy-two percent (72%), and twenty-eight percent (28%) from public sector employment.

The following section of the study describes the responses to the end-consumer survey questionnaire, including wood as a furniture material, successful wood attributes, wood furniture buyer preferences, wood furniture brand character, wood certification, and the demographics characteristics of the end-consumer survey sample.

5.5.2 Wood as a furniture material

All sixteen survey questions in this section were scored on a five-point Likert scale ranging from strong disagreement = 1 to strong agreement = 5. The survey questions were focused on end-consumer opinions in regard to the success factors of wood as a furniture material. The same scale was implemented for each of the four remaining survey sections except where data could benefit from a qualitative survey approach.

The survey questions sought end-consumer perceptions of wood as a furniture material by focusing on topic areas including aesthetic, environmental, fashion, desire, prestige, durability from a maintenance perspective, and wood as a material that may transcend trends and be passed through continued ownership from one generation to another as a family heirloom with associated personal memories.
Wood was perceived by more two thirds of respondents (68%) as being a recyclable material and a slightly lower level in regard to wood being environmentally safe (60%). One fifth of respondents (22%) were undecided as to the environmental status of wood as a safe material and there was a nearly equal response from those surveyed who thought wood was not environmentally safe (18%).

**Figure 5.1: End consumer survey Q3: Is wood is good looking?**

A high proportion of respondents perceived wood to be attractive from an aesthetic viewpoint (92%, Figure 5.1) and believed that wood was also fashionable (83%). Only about one third considered wood youthful or trendy for a younger audience (31%), a large proportion was undecided (41%) and one quarter believed wood to be unappealing for a younger audience (25%). Furthermore, when surveyed to ascertain if wood was old-fashioned less than half supported this concept (45%) of wood being old-fashioned.

Despite the low approval of wood for younger end-consumers, the overall response to wood being a desirable and sought-after material was shared by a high percentage of those surveyed (69%). This appeal was not shared by about one third of respondents who were undecided (29%), which may indicate a criticism of current timber furniture products or gravitation toward other furniture materials or furniture designs.
About one third of respondents thought wood was a practical material (65%) with timeless qualities (79%) but not a material of the future, with only less than one third supporting this position (30%). This could indicate pessimism related to the design of furniture or the prospect of limits in the availability of wood itself. This may be the result of the impression given in the popular press as to the importance of trees to the environment, or the internal psychological conflict an end-consumer may hold between ideal pristine natural environments, including forests, and the decision to buy wood-based products. This may pose a potential dilemma for the wood furniture end-consumer.

Figure 5.2: End-consumer survey sample comparison for heterogeneity – Q3

![Graph showing Q3 - Is wood good looking?](image)

5.5.3 Wood furniture maintenance

In terms of maintenance wood was perceived as easy to repair for about half of the respondents (57%) with under one third undecided (28%). This may indicate a possible reluctance to repair furniture oneself or a perception of the magnitude of a potential repair requiring attention, who may advance the repair, and what type of furniture may require a repair within a particular circumstance.

A further aspect emerging from this response may be that wooden furniture communicates with the end-consumer more readily through the simplicity of design, indicating wood grain and basic construction unhindered by paint, welding, or more complex fastening systems, therefore aiding consideration of repair by the owner or an external source.
5.5.4 **Qualities of wood**

A high number of respondents were confident that wood was durable (81%, Figure 5.3) and held the view that wood was a prestigious furniture material (79%), possessing appropriately inheritable and intergenerational qualities potentially transcending time and fashion trends (79%). This result challenges the responses to the survey questions directed toward end-consumer responses to wood being youthful or old-fashioned.

**Figure 5.3: End consumer survey - Q13: Is wood is durable?**

Furniture trends, furniture design, cultural and personal experiences, and end-consumer’s consciously or sub-consciously held belief system regarding functional and spatial architectural concepts or emotional requirements, can be among many reasons to affect an intended furniture purchase. Further influences, including retail-shopping advice, can guide the decision of an end-consumer toward a particular furniture purchase, which in turn may affect the value chain as no funds or reduced revenue may be returned to the value chain’s initial investment. These are the unknown factors in determining the rationale in wood furniture end-consumer buying decisions which weigh heavily on the value chain success. Respondents also conveyed that the cost of the furniture purchase as another important factor and the primary key decision-making determinant besides any emotional basis to purchase.
5.5.5  **Wood attributes in furniture**

The second section of the questionnaire addressed the attributes of wood in comparison to other materials and provided an opportunity for qualitative responses to wood as a furniture material.

End-consumers were asked if wood in their opinion held superior characteristics to comparable furniture construction materials, including metal or glass. A majority of respondents (71%) held the opinion that wood was a superior furnishing material in comparison to alternative materials, with one third disagreeing (29%).

This questionnaire section provided the option for those end-consumers supporting that wood held superior characteristics to alternative materials to describe any further reasons for elevating wood attributes ahead of those of other materials. The method used to interpret the data results from this component of the end-consumer survey questionnaire is discussed here.

The responses to open-ended questions were coded under primary classifications to reflect the emphases placed by the end-consumer on the successful characteristics of wood. Coding consideration was also given to secondary aspects as a survey response may be interpreted as a ‘touch’ characteristic when wood furniture is felt by the hand and seen ‘visually’ at the same time evoking a combined experience associated with an end-consumer sensation as one may experience from nature. The coding classifications included ecology [sustainable], manufacture [craft/build quality], touch [sensory], use [durability], and visual [sensory]. Each of the coding classifications was considered as secondary classification in partnership with a primary classification and heritage [personal meaning over time] and nature [wood grain character] were provided as additional secondary descriptors.

In total ninety-five qualitative responses to end-consumer valued wood attributes were received and coded, with four (4) responses classified under the ecology classification, ten (10) in manufacture, seven (7) as end-consumer valued wood touch characteristics, fourteen (14) as in use attributes, and a grouping of sixty (60) responses addressing valued wood visual factors influencing positive attitudes.
towards wood as a furniture material. The latter classification represented the majority grouping across all classifications.

The following classified response points summarise the wood quality attributes presented by surveyed end-consumers with one response per entry, or if more than one response received, number of responses shown in parentheses:

1. **Ecology**: Sustainable, environmentally safe, low eco-cost, renewable, easier to renew

2. **Manufacture**: Artistically hand crafted, can be cut/shaped, light depending on wood, ease of joining, easy to paint/decorate, easy to work with/sand/shape, malleable, versatility/easier to shape

3. **Touch**: Nice smell, the feel of wood, thermal properties/wood temperature constant / [in comparison to] metal-glass, warmer feeling associated with wood, warmer look and feel [visual], warmer to touch;

4. **Use**: Durable/durability (11), longer lasting [ecology] (5); can be restored and repaired (3), appears more durable, doesn’t break, hard wearing;

**Visual covered**: Warmth (6), ageless (6), natural [nature] (4), good looking (4), aesthetics (3), character (2), ability to achieve beautiful finish-patina, ability to age well, aesthetics – wood grain pattern/natural wood colour, ageing, ages well gets character [heritage], artistic, more so for an older market; classic look and feel, classic looking, colour/shape, compatibility with other home décor, considerably more options using wood, i.e. different species/properties, craftsmanship/aesthetics, expensive looking, flex[ible] appearance/antique/classic/light/dark, gains character with time, appearance/grain pattern, gives feeling of quality, craftsmanship [manufacture], good quality, grain appearance/colour variation, has appearance of prestige, has a nicer finish if manufactured correctly [manufacture], interesting appearance, has more character than other materials, inherent warmth, interesting appearance/grain, longer fashionable lifetime, looks expensive, looks more ornate/hand carved/lathed [manufacture], mellow and indeed timeless, more
attractive, natural appearance/beauty/character/lustre/colouring, natural grain looks
good, natural grain texture, natural/interesting it speaks, natural textured grain look,
nice appearance, organic relationship to humans, perceived value, prestigious,
prestigious and historical, prestigious and classical look, softer appearance than
glass, soft-ish warm feel, stylish, texture, timeless, unique grain, versatile, visual
appeal, warm and earthy compared to glass and metal [touch], warmth living, wear
and tear gives character [use], wood grain. The high proportion of responses focusing
on the visual aspects of wood in this survey section suggests that this may be one of
the more important drivers in addressing end-consumer demand. This may also
indicate that wood and the qualities of wood have significance for the value chain
well before the wood furniture retail showroom at those levels in the value chain
where wood is selected, the way the wood is processed and finished, and the way a
wood furniture design represents the best qualities of wood.

The decisions in the wood furniture value chain relating to wood type, the exposing
of wood grain features, and wood furniture design embracing the inherent qualities of
wood including functional, aesthetic, and wood craftsmanship appear to have an
impact on the competitiveness of the wood furniture value chain in meeting sought-
after end-consumer preferences.

5.5.6 Buyer preference

Part three of the survey addressed end-consumer interest in wood types and origin,
aspects of marketing to the end-consumer, and environmental issues that had become
a topic of discussion in aspects of sustainability. These are often presented in the
general press or professional practice or research and encouraged through standards
and government legislation.

When surveyed whether the wood name and species of wood may affect furniture
purchase there was resounding end-consumer support (72% - including 33% strongly
agreeing; 39% agreeing, Figure 5.4).
Figure 5.4: End consumer survey - Q20: Wood species affecting purchase?

The origin of the forest source for the wood was not as highly sought-after (36%), nor was the sourcing of wood preference from a forest plantation or ‘old-growth’ forest convincing, with less than one fifth strongly agreeing (19%) and an additional fifth with an interest in the forest type sourced (20% agreeing).

Wood characteristics and associated wood quality in wood furniture was perceived by respondents as very important (94%), as was the focus in quality issues related to elements in craftsmanship in detailing, including wood joints and use of wood grain as a wood furniture feature (92% including 62% in strong agreement). There was little end-consumer motivation towards limited edition exclusive wood furniture production, with only about one third attracted and only a small number more highly motivated to limited edition offerings (32% including 10% strong agreement and 22% in agreement).

Figure 5.5: End-consumer survey sample comparison for heterogeneity – Q23
Purchase cost was a factor in a high proportion of responses (82% including 35% in strong agreement) but the cost indicator thresholds were not requested in this end-consumer survey.

After-purchase wood furniture care instruction was supported by about half of respondents (53%), suggesting that wood furniture end-consumers regarded their investment in wood furniture highly and that the purchase may be held by the end-consumer for a considerable time. One third of respondents were less convinced of best care instruction for wood furniture (32% undecided) and only a small proportion opposed wood furniture care advice (15%).

5.5.7 Brand character

Part four of the end-consumer questionnaire contained questions related to perceptions of craftsmanship, sales assistance in the furniture retail environment, product literature and brand recognition.

Tradition linked to wood furniture production and manufacture was seen as desirable by about half of respondents (54%) with about one quarter undecided (26%), and less than one quarter not influenced by craft traditions held by the manufacturer (21%).

According to the survey results, respondents highly regarded the knowledge of the sales person about the wood furniture sold in the retail environment as a method of relaying the craftsmanship represented by the wood furniture (59% including 26% in strong agreement. About one quarter were undecided (23%) about the merits of well-informed sales assistance and there were a smaller number of end-consumers with little or no interest in the story behind the care taken in crafting wood furniture (18%).

A feature of end-consumer browsing of furniture retail showrooms is that most end-consumers require more than one visit to a furniture showroom prior to the wood furniture purchase decision, with a majority making a second visit (82% including 45% in strong agreement). A furniture retail interview suggested in one case a fifth visit was necessary prior to the final consideration of a wood furniture purchase.
Only a small number of respondents would consider a wood furniture purchase on a first visit (9% including 4% who strongly agree in a preference to buying wood furniture on a first visit).

To ascertain how an end-consumer could maintain their recollection of the wood furniture and the retail furniture showroom viewed from one visit to the next, a question regarding craftsmanship and product literature was presented. A significant number of respondents supported the concept that craftsmanship could be relayed through product literature (67% including 21% in strong agreement).

### 5.5.8 Wood certification

Part Five of the end-consumer survey contained questions related to end-consumer current knowledge or interest in gaining knowledge in aspects of the origin of the wood used in the wood furniture, the level of influence wood certification may have on future furniture purchase, wood sourced from plantation or ‘old-growth’ forests, and the end-consumer’s understanding on how long it takes to grow a tree intended for use as wood furniture.

When respondents were asked specifically of the level of importance in selecting furniture constructed from wood from an approved forest resource there was agreement from over half of respondents (53% including 23% in strong agreement), and about one third undecided (29%). In a closely related question respondents were asked if wood certification would influence their furniture purchase and less than half agreed (44% including 14% in strong agreement, Figure 5.6 below).

**Figure 5.6:** End-consumer survey - Q29: Does wood certification affect purchase?
The variance of less than ten percent in the difference in end-consumer support for either approved or certified wood may be particular to this study or an accepted variance within this relatively small sample (n=103). It may also respond to the need for emphasis in the promotion of wood certification, as certification may potentially carry a more highly perceived formal environmental endorsement process or standing from an end-consumer perspective. There were no prominent promotional references to wood certification in the retail environment where the data was gathered.

A high proportion of respondents agreed that wood furniture would be more difficult to purchase in the next ten years (67%), which highlights the level of influence that the popular media may have informing end-consumer buying perceptions. During visits to wood furniture retail showrooms and wood furniture manufacturers there were no immediate references to wood resource issues that may be construed by end-consumers as barriers to wood supply. End-consumers may be influenced by sales staff, an end-consumer’s own fact-finding, a level of end-consumer presumption, or references in the popular media toward the status of wood resources issues in general.

End-consumers were also asked how long it may take for a tree in a forest to reach maturity in readiness for use as wood for furniture. Survey questions relating to softwood (pine tree) and hardwood (gum tree) were posed in five tree age categories including five, ten, twenty-five, fifty and greater than fifty years. The keywords softwood [pine tree] and hardwood [gum tree] in describing wood may have influenced the respondents’ attempt to answer this question, as may be experiential learning from personal observation in watching a tree grow.

The results were as follows with each number representing the percentage of respondents per tree age category and totalling one-hundred percent per wood category (Table 5.1):
Table 5.1: End-consumer tree growth estimates - age to maturity

<table>
<thead>
<tr>
<th>Wood type</th>
<th>5 year growth to maturity</th>
<th>10 year</th>
<th>25 years</th>
<th>50 years</th>
<th>&gt; 50 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softwood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pine %</td>
<td>15</td>
<td>27</td>
<td>35 (accurate)</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Hardwood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gum %</td>
<td>2</td>
<td>22</td>
<td>47</td>
<td>16 (accurate)</td>
<td>13 (accurate)</td>
</tr>
</tbody>
</table>

The observation that seventy-one percent (71%) of the respondents could not estimate time to grow to maturity of a high quality hardwood, commonly found in high quality furniture in surveyed AWFVCs indicates a disconnection in end-consumer knowledge and a lack of understanding of the value of the natural growth process. This may translate to a devaluation of the efforts of the wood value chain and create an additional barrier affecting the provision of Australian wood furniture at an agreeable quality and cost to an intended wood furniture end-consumer. Tree growth periods are guided by results of the fieldwork surveys.

This disconnection is another indicator of the need to expand the relationship with the end-consumer on each level of the value chain and promote value chain thinking as a collaborative tool in building competitive advantage in the Australian wood furniture industry.

The value chain approach in seeking responses from each level of the value chain, importantly including the end-consumer, has exposed several value chain organisational learning opportunities. These were represented by knowledge gaps held by individual firms within a value chain and the value chain as a whole, including the wood furniture end-consumer.
5.6 Discussion of end-consumer survey results

5.6.1 Results: End-consumer survey

From the end-consumer survey results the following points can be summarised as aspects concerning end-consumer attitudes to wood.

(A) Wood as a furniture material: End-consumers supported wood as a recyclable material, but did not convincingly support wood as being environmentally safe. Wood was seen to be attractive to almost all respondents, and a furniture construction material that was practical with inherent timeless qualities. Wood was seen as highly durable and possessing inheritable qualities with intergenerational appeal. There was some disconnection in terms of wood as fashionable with wood seen as youthful and a material of the future, and also as an old-fashioned material with positive and negative associations related to furniture design.

(B) Successful end-consumer wood attributes: A positive end-consumer attitude was expressed that wood possesses superior qualities as a furniture material in comparison to alternative materials. Emphasis was placed on wood attributes in five key areas including: ecology; craftsmanship; touch characteristics; wood in use; and visual response characteristics. Successful visual characteristics account for the most favoured wood attributes - warmth, ageless, natural and good looking. The single most referred-to wood attribute was the durability of wood.

(C) End-consumer buyer preferences: Respondents were found to value highly the wood name (generic species name) and variety, although the forest source location was not of strong interest to end-consumers. Wood characteristics associated with wood quality were highly regarded by end-consumers, and there was strong agreement about levels of quality detail in wood exposing the qualities of the natural wood material.
(D) **Brand character:** Tradition linked to wood craftsmanship in production was respected by end-consumers, although not overwhelmingly. Having knowledgeable retail sales staff was in demand and post-purchase furniture wood care was also sought. More than one visit to the retail showroom was essential for an end-consumer prior to a furniture buying decision, with cost and wood quality factoring highly in end-consumer decision-making.

(E) **Wood certification:** Selection of wood from approved forest sources was supported by half of respondents with a quarter strongly agreeing that wood certification would influence their buying decision. Over seventy percent of end-consumers inaccurately described the time required for a hardwood timber to reach maturity prior to harvest, and were only moderately more successful in estimating softwoods.

5.7 **Relationship between the industry and end – Consumer survey results**

Encouragingly, two-way interest was found within the wood furniture value chains studies. That is, there was interest expressed by industry-level managers toward end-consumer needs, and interest from the end-consumer level of the value chain towards the forestry and furniture manufacturing levels of the value chain.

The wood furniture end-consumers appear to possess a genuine interest in the variety of and qualities in wood, but are less drawn to environmental issues than the industry level responses to the survey had expected. The industry has appeared to overestimate the level of interest of the end-consumer in wood certification by a considerable margin.

This study identifies a gap in the understanding of the potential gains of wood certification, both for industries contributing to the value chain and the associated commercial merits, and for the wood furniture end-consumer in the benefits of wood certification and furniture ownership. This may suggest that end-consumers may be experiencing a dilemma of environmental conscience where the end-consumer may need furniture, but may be reluctant make a decision that may ‘adversely’ impact on
a forest resource that appears to have a direct connection and resonance to overall planetary environmental health. This may be more a result of interpretations of general media than issues related to end-consumer understanding of strategic long-range forestry management.

The industry survey responses also linked more highly informed end-consumer purchasing decisions, including forest source, wood variety, and qualities in craftsmanship with higher industry profitability. This was supported in the end-consumer survey by the strong interest from some end-consumers to understand the forest product intended for purchase from both a wood variety and wood quality perspective. These are encouraging signs that, with this level of consensus on the key determinants in the process of development of new products, the value chain technique approach can advance as a legitimate evolution toward a well-planned (strategic) and connected (collaborative) industry focused on end-consumer requirements, and industry sustainability.

5.7.1 Discussion

It is also apparent that a strong emotional and empathetic connection to wood in general occurs all levels of the value chain, including the wood furniture end-consumer. End-consumers have indicated a keen interest in environmental issues and wood is a material that directly conveys its natural origin, the forest. The wood grain is associated with growth and is visible, the material can be touched, and at times, there is the impression that wood has a smell, which is linked to the freedom of the outdoors whether real or perceived.

This is a positive implication for the future of targeted wood use for particular industries, as all parties in the value chain converge ideally on the same level of agreement. This level of consensus may be represented by the following points:

(A) That wood holds unique qualities over alternative materials in particular applications including wood furniture products.
(B) That the use of wood in high profile applications in close visual, textural, and tactile contact with end-consumers holds long-term endearing qualities that impact on longer term social, environmental and economic aspects that few alternative end-consumer products can provide over time.

This has implications for the wood furniture industry in the ways in which end-consumer perceptions and experience may shape the emphasis placed by the Australian wood furniture value chain (AWFVC) activities in the future. The preparation of industry investments in forest management, the preparation of wood for furniture industries, the configurations of manufactured wood products, and the presentation of these products as valued to the end-consumer, can be important steps in the value chain.

5.8 Stakeholders and Relationships

The research aims to explain the value created by the overall value chain and the relevance of manufacturing and non-manufacturing inputs to the value proposition via a product presented to the end-consumer. The array of interconnections within a value chain make this a complex study and its results are likely to have the most validity in Australia, even though some of the value inputs include imported foreign value chain contributions, including materials and production machinery, therefore linking the AWFI to a dynamic global marketplace and exposure to international competitive forces.

5.9 Ethical considerations

All participation by the sample was voluntary and the relationship with those interviewed and the researcher was independent of any duress or influence, nor can the sample’s participants, individuals or companies, be identified by the data and analysis presented.
5.10 Concluding Statement for Chapter 5

This chapter presented the descriptive statistics from both the industry and end-consumer surveys undertaken as part of this study. Sections of the chapter specifically discussed the competitive Australian wood furniture industry environment, and levels of trust and collaboration found therein. Furthermore, an understanding of the value perceptions of the end-consumer towards desired wood furniture attributes was presented. The dynamics between the other membership levels within the value chain that affected the value proposition for the end-consumer were also discussed.

Data analysis in Chapter 5 interpreted and described the outcomes of both the industry and end-consumer survey questionnaires, and was able to draw more general conclusions for the Australian wood furniture value chain (AWFVC) and value creation interactions from the forest resource to the wood furniture retail environment.

The results were relevant towards the identification of superior value. The building of the competitiveness of the Australian wood furniture value chain is discussed in response to the key research questions and operational definitions as presented in Chapter 6.
6.1 Introduction

The previous chapter, Chapter 5, reported the results of the quantitative and qualitative data analysis by systematically reviewing the data relating to the research questions and operational dimensions and the relationship between the Australian wood furniture industry and the Australian furniture wood end-consumer.

This chapter, Chapter Six, presents the discussion of the research findings and discusses the relationships between industry and end-consumer analyses used in the mixed method research design. It presents the linkage strengths between end-consumer value and value chain activities and the effect on value chain competitive advantage.

The main purpose of this study was to identify and investigate specific areas for improving the global competitiveness of the Australian wood furniture industry (AWFI) and to examine the most promising mechanisms for collaborative industry value creation within Australian wood furniture value chains (AWFVCs).

It emerged that the level of interdependency of the actions of the Australian wood furniture industry in creating firm-level value with the value needs and perceptions of the Australian wood furniture end-consumer of wood as a furniture material may be integral in the prioritising of targeted value chain activities for maximum value; for end-consumers and the value chain. The sequencing of, and emphases placed on, commercial inter-relationships between firms within the wood furniture value chain, based on the attributes being sought by the wood furniture end-consumer, have a direct effect on the competitiveness of the Australian wood furniture value chain.
6.2 Value chain governance

Value chain success is hinged upon progressive levels of good communication, with transparent and timely inter-firm interactions across the entire value chain as described in the literature. As discussed in Chapter 2, trust is a key component in value chain effectiveness (Tyler, 2003). The decision to recognise, identify, and notionally and then more formally establish a functioning value chain is a synthetic process, although a process based on the best working aspects of inter-firm commercial relationships which aim for the collective economic gain of all participants.

The process requires the courage to commence value chain identification of a firm’s own value chain; the conviction to draft a sound commercial grounding to facilitate discussion on the merits of identifying, then evolving, a value chain to a more formal level; and to further build inter-firm discourse leading to enhanced relationships, with collaborative and competitive advantages over other value chains as the primary goal.

Australian wood furniture value chain activities, particularly the forestry and wood furniture manufacturer level actions, have emerged from the data as central to value chain decisions in the Australian wood furniture value chain (AWFVC) based on market information. This central role suggests that both the forestry and wood furniture manufacturer roles fundamentally drive end-consumer wood furniture attribute operationalisation of value in the wood furniture value chain by facilitating the value drawn by wood furniture end-consumers.

The forestry level of the furniture value chain plays a more passive role than the wood furniture manufacturer in the interaction with the wood furniture end-consumer, but is no less important as the forest is the commencement point for quality wood supply to the furniture value chain (FVC).

Australian wood furniture manufacturers act as intermediaries in the interpretation of value for wood furniture end-consumers and firms within the value chain and are sometimes guided by retailers. The effectiveness of the wood furniture manufacturer
is reliant on the success of the value chain in meeting end-consumer value challenges as defined by wood furniture end-consumers through the validation of wood product attributes.

The wood furniture manufacturer may be viewed as the arbiter of end-consumer value, especially in the finer aspects in furniture structural integrity and the communication of wood features relayed as important by the Australian wood furniture end-consumer.

6.3 The importance of value in the value chain
Value, particularly product-driven end-consumer value, was proposed in the literature as a key determinant of competitive advantage in intensified global markets (Barnes and Morris, 1999); and the value proposition made the end-consumer the driver of marketing and product management strategies and overall business strategy (Langbeer and Rose, 2001). Successful firms maintain very clear and unambiguous value propositions based on focused and refined developments of key competencies, including product leadership, operational excellence and customer intimacy, enabling value proposition delivery to suppliers and end-consumers (Bititci et al., 2004).

Previous studies had established the importance of a production pipeline approach in establishing the importance of key competencies on overall value chain performance, and the significance of inter-relationships between firms in the value chain in meeting the value needs of the end-consumer (Barnes and Morris, 1999).

6.4 Discussion of Theoretical Relationships
The literature and discussion that forms the basis of the relationship between the concepts of value, value chain approach, end-consumer value, and competitiveness was discussed in Chapter Two of the thesis.

The basic problem addressed by the study was; how can the Australian wood furniture industry become more globally competitive and what are the most promising mechanisms for Australian wood furniture sector growth?
In response, this study specifically addressed two research questions:

RQ1: *What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry (AWFI)?*

And;

RQ2: *How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?*

The study explored several wood furniture value chains highlighting ten operational dimensions for the exploration of value in the AWFI as the basis for theory building in strategic management:

**RQ1 Operational dimensions**
- External market characteristics (1)
- Performance assessment (2)
- Inter-firm relationships (3)
- Resource management (4)
- Wood furniture end-consumer buying motivations (5)

**RQ2 Operational dimensions**
- Exploring how firms compete (6)
- Exploring what constitutes value for end-consumers (7)
- Exploring which production pipeline activities convey the highest value to end-consumers (8)
- Exploring current firm-level strategies in conveying value to end-consumers (9)
- Exploring avenues of overlap in firm activities consistent with the value chain approach (10)

Three forms of data were collected for this study. Firstly, qualitative data was obtained from a study of the drivers and barriers in the Australian wood furniture industry and progressed using qualitative research methods. Secondly, additional industry data was obtained using a quantitative questionnaire. Thirdly, qualitative and quantitative data was obtained from wood furniture end-consumers using a separate questionnaire.
In the following section both research questions are addressed and the key findings which emerge from the research are identified within the context of previous research.

6.5 Responses to research questions and the operationalisation of value

6.5.1 Research Question 1

RQ1: What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry?

The factors involved in measuring the competitive environment in the Australian wood furniture industry in the industry study undertaken in the research design Phase 1 and included: stakeholder relationships within the value chain; geographic location; logistics and the benefit of location to the value chain; value chain resource management and core competencies; inter-firm communication; firm level-performance; the wood furniture industry business environment; furniture import and export; firm-level strategy; local and global competitive threats; quality, trade policy and market data perspectives; sustainable forest supply and wood certification; and end-consumer value.

The implementation of a value chain approach provided the framework foundations from which to identify, and then gather, micro-level data. Value chain methodology has been considered one of the more complex analysis methods used in the assessment of competitive advantage; as a methodology it presents one of the most promising opportunities to identify where competitiveness can be enriched and value created (Hill, 1989, Svensson, 2003, Walters and Rainbird, 2007, Kaplinsky et al., 2008).

The conclusion to Research Question 1 (RQ1) is gained from the analysis of the data collected in Phase 1 and 2 of the research design. The results exhibited characteristics in the AWFI which promoted the tenets of a value chain approach and identified those factors which may drive, or be a barrier to, value chain competitiveness.
Research Question 1 established linkages to the first five (5) of an overall ten (10) operational dimensions for research with the remaining five dimensions responding to Research Question 2 (RQ2). The research dimensions were summarised as: external market characteristics; firm-level performance assessment; understanding that end-consumer values are related to value chain performance; acceptance that the relationship to forest value management affects firm-level and value chain performance, and wood furniture end-consumer value in the sector. The dynamic and interactive processes containing both industry and end-consumers contain links from particular value chains to the external market. External market characteristics can be responded to by assessment of the forces of the external market and the plans made by firms and value chains to respond to these external challenges.

**Operational dimension 1: External market characteristics**

Previous studies have demonstrated that the competitive global marketplace exerts considerable pressure on the Australian wood furniture industry (AWFI) and that external market characteristics will continue to challenge the mode of operation of firms and value chains and the structure of the AWFI (BIS, 2004, FIAA, 2009). The analysis of industry study qualitative data from Chapter 4 provides evidence that external market characteristics are related to value chain performance. There was supporting evidence that: natural environmental factors played a role in wood quality during wood’s growth cycle and eventual wood products offered; reliable sourcing of wood species would play a future role in competitiveness; the small wood resource requirements of the Australian wood furniture industry gave it little leverage in comparison to a much larger building products industry despite of the high value-added capability of wood furniture (BIS, 2004); and increased pressure from cheap imported products sometimes utilising Australian wood could further erode market share and confuse end-consumers in regard to product origin.

**Operational dimension 2: Performance assessment**

Performance assessment metrics are traditionally measure production efficiencies, financial dimensions of organisations, and assigned quality measures and benchmarks.
The supply of wood and the associated quality of wood is an integral measure for the wood furniture value chain as forest sourced materials are located, wood prepared and classed for quality and then supplied to wood merchants or directly to furniture manufacturers. The management of relationships and frequent communications mostly by personal phone calls advances production exchanges in the chain as firms that supply satisfy those that buy. Wood quality therefore becomes a driver for development and requires periodic, often very frequent, wood quality performance assessment. Wood quality assessment parameters rely on the experience, subjective and objective judgement of the forester, the wood material certifier involved in attributing wood quality grades, the wood furniture manufacturer, the furniture retailer, followed by the wood furniture end-consumer. Wood quality decisions are only made by end-consumers mostly when there is a shift in market trend lead by design or by end-consumer reaction as defined by furniture purchase patterns.

Relationship strength which forms a critical aspect of wood quality performance assessment appears to reside on the last delivery given the quality of the natural environmentally affected wood material with inter-firm correspondence more frantic when the requested quality standards of the furniture manufacturer are not met by suppliers. This could be described as a mutually assessed performance metric as human judgements are at play as respect, trust, and wood integrity are brought together in the cooperative decision-making mix.

It is not uncommon for wood merchants or wood furniture manufacturers to stockpile particular wood grades for up to five years or more to supply exacting reliable customers prepared to pay premiums. Forest source location may indicate wood qualities yielded and wood furniture manufacturers may wish to return to particular regions for particular wood properties including wood colour, density, and hue, for wood furniture production. Correspondence communications will also be divided between discussion of wood qualities derived from particular wood drying regimes including air and kiln methods. Small variations may affect wood quality and wood furniture end-products especially in discerning high quality furniture markets. Specialisations in wood procurement and wood furniture processing are highly guarded within particular value chain as these production attributes are viewed as one of several primary competitive advantages for the furniture producer.
Production efficiency is practiced widely in the value chains surveyed with informal measures mostly craft-quality based for the low volume wood furniture manufacturer and quality management tools for the more progressive larger volume manufacturer with quality and volume assessed with equal stature. Sales to third party furniture retailers contain rewards and disincentives as retailers become the gate-keepers to new sales (positive) and guard the end-consumer closely leaving the manufacturer to second guess retail furniture trend forecasts (negative) therefore adversely affecting medium to long-range planning options for production facility investments.

**Operational dimension 3: Inter-firm relationships**

Effective cooperation across organisations resides in the level of trust present in relationships (Tyler, 2003) and organisational openness with trusted partners (Mollering, 2004). In support of positive inter-firm relations, evidence was found at all surveyed firms in the wood furniture value chain indicating the presence of inter-firm cooperation (Survey Phase 1). Evidence of the successful procurement of the highest quality wood with the cooperation of both wood merchants and wood furniture manufacturers was viewed as a firm-level strength based on wood quality consistency. The wood furniture industry respondents indicated a considerable amount of tacit knowledge based on life-long experience with wood and a genuine interest in wood as a natural material which was interpreted as wood as being not just any commodity but a material with certain inherent qualities, character, and personality in wood in its unique characteristics. This draws parallels with the reaction of wood furniture end-consumers to wood. Although this dimension was not part of the industry surveys, it does positively link a shared affinity to wood as a material which may further bond and inform interpretations of value in wood attributes.

**Operational dimension 4: Resource management**

Considerable economies of scale in the wood furniture industry are rare in the Australian furniture industry with a high proportion of firms falling within the category of the small or medium enterprise (SME) which is also a characteristic of many global markets including European furniture markets with a high proportion of firms; 80% with less than twenty employees (Lindman et al., 2008).
The Australian furniture value chain wood furniture manufacturers surveyed resided in factories which resembled an evolving environment comprising some purpose-built factory spaces but mainly a sporadic mix of efficient new and antiquated-though-functional buildings, sometimes divided between building in relatively close proximity (50 -100 metres) with little or no weather protection between buildings adding moderate difficulties to logistical processes. The furniture manufacturers had appeared to reach the higher end of their critical mass and capacity and either rented nearby premises or outsourced some activities. Resource management issues are largely a product of the performance assessment measures which take into account wood raw materials for furniture production and technological production issues across the value chain from forest to furniture manufacture.

**Operational dimension 5: Wood furniture end-consumer buying motivations**

Emerging the industry fieldwork study (Phase 1) there was an initiative to maintain the relationship with wood furniture end-consumers after furniture purchase in order to determine which wood furniture attributes draw the wood furniture end-consumer toward the wood furniture product. The firm enticed responses from end-consumers by assisting end-consumers with wood furniture care products and advice. The feedback could therefore be used to inform new product development which could assist short and medium term planning in the firm.

The results of the industry fieldwork questionnaire indicated forest sustainability was on the end-consumer agenda. This is mirrored by the discussion on the global trend in wood certification which has linkages to wood quality and wood furniture attributes. Based on the positive support that the quality and type of wood will have an effect on value, it can be concluded that there is support that firm-level and value chain performance, and wood furniture end-consumer value is related to forest value management of wood quality.

Almost half of the furniture manufacturer respondents believed that wood certification would have an effect on future firm-level profitability, and more than three-quarters of responding firms required more industry data to assist their strategic planning.
Only one-third of responding furniture manufacturing firms (33%) agreed that the emphasis placed by the end-consumer on wood certification would affect future furniture sales. In contrast, about one-half of furniture manufacturing respondents agreed (56%, including 22% strongly agreeing) that wood furniture would be more difficult to purchase in the next ten years. This position is further confirmed as only eleven percent of furniture manufacturing respondents (11% in agreement only) supported the view that government policy in forest management has had a positive effect on profitability to date.

There was a predominant undertone in firms surveyed that wood furniture manufacturers were disconnected from many decision-making processes related to end-consumer choice at the furniture retail level of the value chain and that this when added to other contributing downward cost pressures from the major furniture retailers it could have consequences for the survival of some smaller furniture manufacturing firms.

In terms of value, the furniture manufacturers were in agreement that the wood furniture end-consumer should be involved in the process of creating value (67% in agreement and 33% undecided). These results closely follow the objectives of the CRC in Wood Innovations (CRCWI, 2008) as a representative cooperative approach by promoting linkages between forest management and end-consumer value. Building upon relationship strengths between the forest source, manufacturing and end-consumer it can therefore be concluded to be a potent combination in building value in the sector.

6.5.2 Concluding statement about research Question 1 – AWFI drivers and barriers

RQ1: What are the drivers for and barriers to building competitive advantage in the Australian wood furniture industry (AWFI)?

Firms were very confident that they possessed very high levels of self-directed firm-level performance assessment, consistently good product offerings over competitors, strong brand names and reputations. The conclusion reached from the analysis of data collected, however, was that there were weaknesses present in firms holding
sufficient registered product designs or patents as intellectual property assets, presenting potentially low resistance to new market entrants.

In contrast to strong internal performance measurement within firms, firms held neither a formal method for assessing competitors nor strong links to end-consumers or end-consumer perceptions of value in wood as a furniture material.

Communication channels across the value chain were strong, usually built over time, and informal in structure. This did not appear to detract from the forging of commercial relationships across small firms with relatively low volume furniture output.

There were high levels of trust across wood furniture value chains surveyed but there was no impetus for more collaboration and therefore limited recognition of the potential of value chain thinking; indeed, exposure to the concept was limited to a basic understanding of the concept and dynamics of supply chains, production and logistics. The potential to base future informal and more formal collaboration on a value chain approach was very high given the strong rapport in the wood value chains surveyed. A greater collaboration with external bodies, namely industry over government, was sought by the respondents to the industry survey.

The concept of leveraging the relationships in the current AWFI from a value chain perspective has not formally been implemented, although the AWFI possesses several distinct features relevant to a value chain approach, including elements of trust, collaboration, and the search for FVC leadership. The question regarding the importance of governance in the wood furniture value chain has emerged through the industry survey results and as a desired feature of effective value chains as supported in the literature. The securing of reliable yet flexible Australian wood furniture value chain governance may define the success of future Australian wood furniture value chains (AWFVCs).

It was evident that governance could strongly influence the progression towards new innovation in the sector and that the producers of wood products could be influential in the development of a relationship framework for the AWFI towards capturing the
gains of collaboration and value innovation. This could complement the discussion on economies of scale, by building upon value chain initiatives in furniture industries and other industries, including the automotive and parallel-to-forestry-agribusiness sectors (Gifford et al., 1998, BIS, 2004, Barnes and Morris, 1999).

6.5.3 Research Question 2

RQ2 How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?

The research design Phases 2 and 3 were advanced with a line of inquiry based on a value chain approach in the identification of all contributing firm-levels to the production of a wood product, and then a survey of those firm-levels to explore the activity contribution at a micro-level. This was followed by a survey of wood product attributes as assigned by wood product end-consumers. The analysis progressed with the hypothesis that by better understanding the attitudes of the end-consumer to wood, the strength of relationship between firm-level and value chain activities and end-consumer attitudes to wood could be considered toward building theory on the value concept and the competitiveness of the Australian wood furniture value chain.

The measurement of end-consumer attitudes toward wood as a furniture material in the end-consumer study undertaken for this thesis included: wood as a furniture material; successful wood attributes; wood furniture end-consumer buyer preferences; wood furniture brand character; wood certification; and the demographic characteristics of the end-consumer survey sample.

The five remaining operational dimensions of value; 5 to 10 related to Research Question 2 and may be summarised as: how firms compete; value for end-consumers; production pipeline activities contributing high value to end-consumers; current value chain strategies; and activities consistent with a value chain approach. The following sections review the responses from Phase 2 analysis.
Operational dimension 6: Exploring how firms compete

The descriptive statistics from the industry survey sections in Chapter 5 provided some evidence to inform this operational dimension.

A total of seven of nine furniture manufacturers responding to the industry survey confirmed possessing a performance management system for benchmarking internal performance targets, with a high proportion of firms also periodically assessing competitor business strategy.

A smaller proportion of two of nine furniture manufacturing respondents believed that they were well informed by their suppliers’ business strategy, but better informed by their buyers’ business strategy, with five of nine firms supporting.

One third of the responding furniture manufacturing firms agreed that they were well informed of their buyers’ profit margins. The furniture manufacturers’ buyers are predominantly the furniture retailers.

The quantitative industry survey analysis found evidence to support that inter-firm sharing of firm-level process and performance data as a strategy is related to value chain performance.

Furniture manufacturer cooperation with suppliers and buyers was strongly present in furniture manufacturing firms, as were periodic communications with suppliers in maintaining quality.

Suppliers to furniture manufacturers were highly trusted with timely delivery, but only one-third agreed that suppliers could be trusted with maintaining quality. Despite this all respondents agreed that their relationships with suppliers and buyers were very positive. Future collaboration with suppliers’ purchasing staff was strongly supported by respondents and further assistance in assessing the market was sought from suppliers and buyers. A small proportion of respondents were not convinced that suppliers could assist the assessment of markets.
Some resistance was observed towards the advocacy of a cooperative approach in meeting end-consumer needs through inter-firm relations. Of the furniture manufacturing firms surveyed in the quantitative industry survey about one-third disagreed with such a collaborative approach.

None of the firms surveyed identified themselves as being co-located in a cluster of furniture manufacturing firms although one-third of respondents were undecided. The possession of effective communication technologies by a high number of surveyed firms may partially offset the geographic dispersion of firms in terms of inter-firm communication and linkage to performance effectiveness.

**Operational dimension 7: Exploring what constitutes value for end-consumers**

Responses in all three phases of the research design, as indicated in the statistics from Chapters 4 and Chapter 5 in the study found evidence to support that understanding wood furniture end-consumer buying motivation is related to value chain performance. In the results of the qualitative end-consumer survey questionnaire the comments made by wood furniture end-consumers toward their desired attributes of wood furniture and wood as a furniture material, indicated that emotional and practical factors played a key role in wood furniture end-consumer buying motivations and purchase patterns, therefore directly affecting activities assigned in wood furniture value chains. Until, these end-consumer attributes are considered for operationalisation, there can be no exploration of the effectiveness of the value chain approach.

The quantitative industry questionnaire returned positive responses to end-consumer oriented factors with respondents highlighting area of importance for end-consumer engagement: wood furniture brand recognition; wood certification; the significance of end-consumer interest in the wood furniture story of process and quality on FVC performance; the importance of end-consumer involvement in creating value; and impact made on the end-consumer in the wood furniture retail environment. The last engagement factor was particularly significant as wood furniture end-consumers rarely executed a purchase on the first visit to a furniture retail environment and some as high as five visits as reported in the industry survey interviews in Phase 1 of the study.
Operational dimension 8: Exploring which production pipeline activities convey the highest value to end-consumers

The results from the end-consumer questionnaire provided a guide to end-consumer’s relationship to wood and wood furniture attributes. The responses to the less tangible wood attributes were based on subjective dimensions including tactile feedback, and visual texture, and objective dimensions related to sustainable wood practice, manufacture quality, durability, and cost.

Even the basis of an objective dimension in end-consumer decision-making has its limitations as there is seldom any furniture data in the furniture retail showroom or enough time to experience the furniture to a degree to base a true objective judgement in regard to the wood furniture presented, therefore more than one visitation to the furniture showroom and at times as high as five visits prior to purchase has been required.

Promotion of wood certification credentials and offers of lifetime furniture quality guarantees only allude to the multiple dimensions of furniture ownership over time. The results presented in the Chapter 5 summary of end-consumer responses suggest that these results should influence the favoured wood indicators as a first draft of linkages to production pipeline activities. These linkages to end-consumer value may include the terms: recyclable; durable; natural; species type (name); crafted-quality; informed sales staff; post-purchase furniture care; wood certification; wood characteristic communication from furniture.

An interpretation of these sub-dimensions of end-consumer value can consider wood quality as overarching desired end-consumer oriented outcome which it influenced by raw materials, wood production finishing, retail presentation and service characteristics, and the design of furniture itself. The actual furniture design was not a dimension sought in the end-consumer questionnaire due to its indirect relevancy to wood value. This does not discount the importance of design in impacting end-consumer choice and therefore value chain performance.
In reviewing higher ordered end-consumer derived values based on the results of the end-consumer survey the following associations may be drawn. The linkage between raw materials and end-consumer interest promotes a focus on the wood source: the forest; the linkage between wood production finishing and consumer interest promotes a focus on wood construction: milling and wood furniture manufacturing; the linkage between retail presentation and service and consumer interest promotes an appreciation of wood and the retail experience as providing choice and need; the communication of the story of wood and the feature of wood; and presentation of integrated wood furniture designs: good wood and good design.

The next step in an extended end-consumer oriented value chain analysis of the Australian wood furniture industry would be to assign coding to each value chain activity or activity sets and align each wood furniture end-consumer derived value or value sets to each value chain activity with costings applied. This could be advanced through a process of objective, then subjective judgements toward identifying the more tangible and less tangible product attributes as defined by end-consumers. This would expose a wider understanding and a more accurate cost benefit comparison of value creation in value chains than we currently have in firms that collaborate at times but tend to historically act alone. The complexity of this approach although desirable cannot be achieved in this study but may be focus of future investigation.

**Operational dimension 9: Exploring current firm-level strategies in conveying value to end-consumers**

Value innovation discussed in Chapter 2 describes a strategic logic which focuses on creating new and uncontested market space and endeavours to build capabilities to fit the market instead of defining the market according to existing capabilities; it “places equal emphasis on value and innovation” (Chan Kim and Mauborgne, 2005b, p.12). The response to the research Phase 2 industry questionnaire indicated that there was a convincing alignment of firms possessing innovation strategies and unique offerings over competitors; and in terms of value creation, end-consumer orientation and the needs of the end-consumer were displayed as being of the highest importance in the results of the firm-level industry survey. Therefore, based on the
results of the quantitative industry analysis component in Chapter 5 the study found evidence to support that wood furniture end-consumer value is related to inter-firm collaboration and a focus on end-consumer oriented wood value attributes.

Collaboration between the forest, wood mill, wood merchant and wood furniture manufacturer levels of the furniture value chain (FVC), as indicated by the responses to the industry study interviews and industry survey questionnaire, represents one of two facets of the value innovation scenario, the other being wood furniture end-consumer interaction with value. The literature indicated that research at the interface between forestry research and wood furniture design and production could be characterised as value innovation, as evident from the approach and results of the CRC Wood Innovations (CRCWI, 2008) in the challenge to develop high value wood products. The Australian wood furniture industry is not independent from the contributions of forestry research or wood furniture production technology development and therefore is open to collaborative interactions with a relation to value innovation. The analysis of survey results revealed that current furniture value chain members were interested in collaborative initiatives especially with end-consumers which place the sentiment of the current value chain respondents well if a value chain approach pathway is drafted for pilot study.

The co-creation of value with the wood furniture end-consumer was seen as imperative by two-thirds of the wood furniture manufacturers who responded to the industry survey. Furthermore, wood furniture end-consumer interest in wood attributes suggests that a closer relationship should be developed between value chain members and the end-consumer in the future development of wood furniture.

The responses to the industry survey and quantitative component of the end-consumer survey in Chapter Five of the study also found evidence to support that governance of inter-firm relationships and management of end-consumer value in the value chain is related to value chain performance. The management of value can occur at the firm-level but the literature has been consistent that wider collaborative approaches can deliver the higher dividends. This requires a nomination, namely one
or more levels of the wood furniture value chain, to emerge to claim wood furniture value chain leadership. It is envisaged that this would be advanced through a consultative process including all identified value chain stakeholders.

The wood furniture industry analysis in Phase 2 of the research design concluded that firms (8/9) would welcome wider industry compliance with quality standards to enhance competitiveness, with all but one respondent agreeing with the statement. This may suggest a level of industry involvement in value chain governance is required if quality and value chain performance is to be captured on an industry level. How should or could a governance model effectively progress the decisions around identified end-consumer wood furniture value attributes would be a central reference point for wood furniture value chain-wide facilitations. The actual feasibility of the case for an end-consumer oriented value chain approach may be the focus of a pilot wood furniture value chain project initiated by an individual value chain member or in cooperation with an industry body.

**Operational dimension 10: Exploring avenues of overlap in firm activities consistent with the value chain approach.**

The results of the industry questionnaire in (Phase 2) of the study found evidence to support that high levels of trust and collaboration were present. This outcome is especially relevant to embarking or maintaining a value chain approach and is ultimately an underlying feature of successful high performing value chains.

Although firms overwhelmingly were seeking improved access to more reliable market information, a higher response was received from firms seeking more collaboration with industry bodies rather than government entities. Importantly, cooperation with suppliers and buyers was seen as integral to maintaining quality levels, with inter-firm communication a key attribute in strong relationships. Lower levels of trust also affected value chain relations with suppliers who were less trusted than buyers, although a very high proportion of firms indicated good status in all inter-firm relationships, therefore positively affecting future prospects for furniture value alliances and the search for improved firm-level and collective performance.
Higher levels of collaboration were sought from wood furniture manufacturers with furniture buyers, and there were indications that inter-firm information flow was present; it appeared, however, to be optimal in only one third of responding wood furniture manufacturing firms. This indicates that some firms perceive that improved information flow can positively affect wood furniture value chain performance. The characteristic of improved communication linkages supporting improved performance was stressed in the literature (Min et al., 2005) and should be part of future strategy formation.

6.5.4 **Concluding statement about Research Question 2 – Australian wood furniture industry (AWFI) value - a value chain approach**

RQ2: *How can a value chain approach improve value outcomes for both Australian wood furniture firms and wood furniture end-consumers?*

The conclusion to the second research question based on the analysis of the collected data indicates that an understanding of the buying motivations of the wood furniture end-consumer has considerable effect on value chain performance. This was confirmed in the both the industry and end-consumer questionnaires (Research Design Phases 2 and 3), with the industry supporting closer collaboration with wood furniture end-consumers. The attainment of end-consumer preferred wood attributes, as described in the end-consumer questionnaire, could only be achieved with the future enlistment and participation from all wood furniture value chain contributors, from the forest level of the value chain to the wood furniture retailer level.

This suggests that a level of interdependence between each level of the wood furniture value chain, and the value chain with the wood furniture end-consumer, is essential in building the foundation for enhanced collaboration and reaping the benefits of collaboration in meeting and exceeding end-consumer value expectations. The data indicates that there is a vast amount of tacit knowledge in the AWFI and that there are strong, trusted and long-standing relationships within the AWFI, on which further strategies and more formal value chain initiatives can be formed and advanced.
In meeting end-consumer value expectations the AWFI is, at best, maintaining their current market share levels. These current levels are unfortunately diminishing for many small, wood furniture manufacturing firms. If wood furniture end-consumer expectations are to be exceeded, the AWFI needs to change the current focus on imported furniture products and advance the concept of wood furniture exports from Australia. This will require a coordinated approach in further understanding the buying motivations of the Australian and global wood furniture end-consumers and the influence market frameworks in regard to price, wood quality, wood certification and other regulatory requirements including life cycle assessment from an international environmental standard perspective.

There is reassurance from the study that the wood furniture end-consumer values the story that wood can provide: through the natural texture and meaning held in wood; the journey from the forest which has links to external historic and personal memory; and the longevity of wood products, all of which draw parallels to a growth experience not dissimilar to one’s own life journey and associated value. This underscores the concept of the value chain approach in blending the story of wood experience and the journey of the value proposition of a wood product through a collaborative approach from the forest to the wood furniture end-consumer.

A successful value chain approach ultimately contains a transparent collaborative process with successful chains able to guide the prioritisation of investment in their value chain and influence the AWFI. Such a process would assist in perfecting the composition of firms required to optimise each wood value chain, as well as highlight those aspects of the highest priority in harmonising the wood furniture value chain to the value proposition for the wood furniture end-consumer.

The prospects for value innovation in the Australian Wood Furniture Industry are present, especially given that both the value chain through the wood furniture manufacturers and the wood furniture end-consumers are highly motivated to make collaborative contributions to the development of future wood products. They are, however, yet to have the opportunity for further development of the relationship to a level of consequence to affect the fortunes of the AWFI.
Exemplars in the Australian wood research are influencing value creation in several sectors including wood furniture design and manufacture. The most recent value leap is closely associated with the value innovation outcomes of the CRC Wood Innovations as an interdisciplinary research and practice exemplar (CRCWI, 2008). The CRCWI shares many of the tenets of the value chain approach in linking forest researchers and forest research outcomes with wood furniture manufacture, and furniture designers to wood furniture end-consumers. These interdisciplinary attributes combine to form a strong relationship between the value chain and the wood furniture end-consumer and lead to the prioritisation of value chain activities through enhanced communication and common interests; value for end-consumers; and economic value for firms.

Advancing the value chain concept through achieving an end-consumer-focused dynamic industry, requires a nominee or nominees to come forward and establish a draft consultative process where wood value chain governance can democratically evolve. This prospect is shared across both research questions and taking action on the information derived from this thesis.

### 6.6 Concluding statement about the theoretical framework

From the data analysis results of this study, reasonable support was demonstrated for deriving a theoretical value relationship framework centred on end-consumer expectations to guide future study of the value concept (Figure 6.1). The diagram highlights the key areas emerging from the study of the wood furniture industry and wood furniture end-consumer value dynamics.
This indicates that end-consumer value is dependent on the effectiveness of the value chain in coordinating and tethering all activities in the value chain to the value proposition presented to the wood furniture end-consumer. The end-consumer is influential to firm-level performance and firm-level performance is a product of value chain effectiveness in meeting end-consumer requirements, responding to market forces and subject to forest value management in providing the highest quality wood raw materials for furniture production. Collaboration in value chains and value innovation are viewed as the drivers for communication and also the outcomes that can differentiate value chains from rival chains. Forest value management has a distinct effect on all value chain levels, including the wood furniture end-consumer, in the attribution of wood features in cooperation of foresters, wood milling, wood furniture design, wood furniture manufacturing, and furniture retail levels of the value chain. The end-of-life cycle component of the value chain approach was not able to be operationalised due to the focus of this study and the resources available but is will factor strongly in planning for effective responses to future environmental standards compliance.
Market knowledge, trust and collaboration were shown to impact on value chain performance, but there was not comprehensive support for further detailed exchange of proprietary information from wood furniture manufacturers with other levels of the value chain. However, there was enough support to consider drafting a value chain approach with the more enthusiastic value chain players.

### 6.7 AWFVC interdependence to Australian wood furniture end-consumer value

The interdependence of value in the Australian wood furniture value chain has been discussed earlier in the study as a mechanism through which to assess the performance of the value chain while meeting Australian wood furniture end-consumer expectations of value. The following table (Table 6.1) summarises AWFVC inputs through FVC activities against Australian wood furniture end-consumer expectations of value. The number of positive responses (✔) is an approximation of the strength of the respective finding. Parentheses denote anecdotal information or information that does not form part of this study.

**Table 6.1: FVC interdependence - Prioritising End-consumer value**

<table>
<thead>
<tr>
<th>FVC Levels</th>
<th>FVC Sub-sets</th>
<th>End-consumer value barrier</th>
<th>End-consumer value driver</th>
<th>AWFI research / investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood furniture product</td>
<td>Quality</td>
<td>✔ ✔ ✔</td>
<td></td>
<td>Urgently required</td>
</tr>
<tr>
<td></td>
<td>Wood character</td>
<td>✔ ✔ ✔</td>
<td></td>
<td>Urgently required</td>
</tr>
<tr>
<td>Wood retail furniture</td>
<td>Communication</td>
<td>✔</td>
<td>✔ ✔ ✔</td>
<td>Urgently required</td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>✔ ✔ ✔</td>
<td></td>
<td>Urgently required</td>
</tr>
<tr>
<td>Wood furniture design</td>
<td>Market trends</td>
<td>✔</td>
<td></td>
<td>Needed</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>✔</td>
<td></td>
<td>Needed</td>
</tr>
<tr>
<td>Wood furniture manufacture</td>
<td>Finishing</td>
<td></td>
<td>✔ ✔</td>
<td>Essential</td>
</tr>
<tr>
<td></td>
<td>Production</td>
<td>✔</td>
<td>✔ ✔</td>
<td>Essential</td>
</tr>
<tr>
<td>Wood merchant</td>
<td>Quality</td>
<td>✔ ✔ ✔</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>✔ ✔ ✔</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>Wood Mill</td>
<td>Quality</td>
<td>✔</td>
<td>✔ ✔ ✔</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Yields</td>
<td>(✔)</td>
<td>(✔ ✔ ✔)</td>
<td>Required</td>
</tr>
<tr>
<td>Forest source</td>
<td>Quality</td>
<td>✔</td>
<td>(✔ ✔ ✔)</td>
<td>Urgently required</td>
</tr>
<tr>
<td></td>
<td>Yields/equipment</td>
<td>(✔)</td>
<td>✔</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Wood certificate</td>
<td>✔ ✔</td>
<td>✔</td>
<td>Essential</td>
</tr>
<tr>
<td></td>
<td>Research</td>
<td>✔</td>
<td>✔</td>
<td>Essential</td>
</tr>
<tr>
<td>FVC logistics</td>
<td>Efficiency (+/-)</td>
<td>✔ ✔ ✔</td>
<td>(✔)</td>
<td>Needed</td>
</tr>
</tbody>
</table>
The objective of the FVC summary is to assist the visual mapping of value against a wood furniture product, end-consumer aligned wood furniture attributes that convey the greatest connection to wood, and providing guidance for FVC governance in stakeholder identification and FVC decision making.

6.8 Concluding statement about the research problem

Using the results of the operational definitions of value in the wood furniture value chain, as discussed in the above section, it is concluded that the integration of a value chain approach process can significantly and positively impact firm-level and collective value chain performance outcomes as defined and used in this study.

It is further concluded that the collective management of inter-relationships in the Australia wood furniture industry (AWFI) will act as drivers for industry development.

The ability of the industry to advance a consultative process will be integral in reviving the industry. This will happen by building awareness of the benefit of a value chain approach, both for those firms which in this study support the progression of value chain discussion, as well as for firms which are yet to be introduced to the wider benefits of collective value chain agreed performance assessment metrics and collaborative advantages that a value chain micro-level assessment approach can provide in building firm-level and industry level wealth, while meeting wood furniture end-consumer value needs.

6.9 Australian wood furniture industry survey findings

The need to improve the alignment of activities within the wood furniture value chain to the needs of the end-consumer has been identified as important in assessing the performance and competitiveness of the overall value chain. In seeking advanced performance management solutions, value mapping has been suggested as a means to integrate performance management and continuous improvement as a part of the value creation process.
The value creation process is represented in value mapping as value needs, value drivers, and value outcomes. The resultant value maps may provide visual representations linking performance measures, strategic objectives and stakeholder needs. The value chain approach promotes these strategic objectives through a staged performance assessment process based on collective knowledge, collaboration and an end-consumer focus.

The value chain approach represents a compelling industry evaluation model with which to prioritise the advancement of more firm-level and industry value.

Wood furniture end-consumer value needs can be met by advancing:

- Better understanding of wood furniture end-consumer buying motivations
- Forestry management – evaluation of needs for targeting of AWFI and FVCs
- Continued collaborative wood milling and wood preparation processes with FVCs
- Improved and coordinated wood distribution and communication channels for the AWFI and FVCs
- Better understanding of the status and needs of Australian wood furniture manufacturers in local and global markets
- The influence of wood furniture retailers on the AWFI and FVCs
- The benefits of an enhanced planning approach to assist firm-level and industry levels strategy development

6.10 Concluding statement about discussion: Chapter Six

This chapter presented the research questions in the study and reviewed the concepts of competitiveness and value guided by ten related operational definitions. The following chapter, Chapter 7, is the final chapter of the thesis and presents the final conclusions, implications and future research directions.
Chapter 7

Conclusion: Implications and future research

7.1 Introduction

The previous chapters of this thesis have described the introduction to the research and the results of a detailed literature review; presented the research questions, the research design, results of data analyses and discussion of the key research findings. This chapter presents the relevant contributions, implications and future research recommendations.

7.2 Contributions of the Study to knowledge

The research findings from this study specifically address identified research gaps in the literature. The major contributions to knowledge made by this study are summarised in Table 7.1.

As identified in Table 7.1, the study has advanced knowledge concerning value chain approaches generally and specifically the Australian wood furniture value chain (AWFVC) within the Australian Wood Furniture Industry (AWFI). The study has also contributed significantly to existing knowledge regarding how a wood product value chain may be defined, engaged, and explored. The study has contributed to academic knowledge by widening the value chain concept to include a direct linkage between value research and end-consumer value at multiple levels of the value chain. The extended view of the value chain enhances the recognition of interdependence of contributions and the importance of collaborative advantages as a challenge for strategic management theory.

The recognition of the interdependence of the various value chain levels in the forest and wood products sector may guide application of the end-consumer oriented value chain value management model to industries beyond furniture in linking theory and practice. This study advances the need for greater collaboration in improving value outcomes for both Australia wood furniture firms and wood furniture end-consumers.
Table 7.1: Summary of advances and contributions of this study

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Addressed in existing literature</th>
<th>Advance or contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enhance understanding of Australian wood furniture value chain</td>
<td>To a very small extent</td>
<td>Advance</td>
</tr>
<tr>
<td>2. Identifying the motivations of Australian wood-furniture end-consumers toward wood as a furniture material</td>
<td>To a very small extent</td>
<td>Advance</td>
</tr>
<tr>
<td>3. To strategic management theory in defining the importance of intangible sources of value and the interdependence to value chain research, performance, and value chain theory and practice</td>
<td>To some extent</td>
<td>Advance</td>
</tr>
<tr>
<td>4. Broadening the understanding of micro-level activities in the Australian wood furniture value chain</td>
<td>To a small extent</td>
<td>Advance</td>
</tr>
<tr>
<td>5. Improve understanding how the Australian wood-furniture end-consumer affects wood value chain performance and the Australian wood furniture industry</td>
<td>Limited</td>
<td>Contribution</td>
</tr>
<tr>
<td>6. Building understanding of levels of trust and collaboration present in the wood furniture value chain within an Australian wood furniture industry context</td>
<td>To a very small extent</td>
<td>Contribution</td>
</tr>
<tr>
<td>7. Explored the role of environmental wood certification on Australian wood furniture end-consumer buying motivations and the actions of the Australian wood furniture value chain</td>
<td>Limited</td>
<td>Contribution</td>
</tr>
<tr>
<td>8. Extension of the value chain concept to encompass a co-creation of value model linking forestry research, wood furniture value chain, and wood furniture end-consumers</td>
<td>Limited</td>
<td>Contribution</td>
</tr>
<tr>
<td>9. The extent to which a value chain approach can assist the prioritisation and weighting of relevance of value chain activities in contributing wood furniture end-consumer value</td>
<td>To some extent</td>
<td>Contribution</td>
</tr>
<tr>
<td>10. The provision of a framework for management of an Australian wood furniture value chain</td>
<td>To some extent</td>
<td>Contribution</td>
</tr>
<tr>
<td>11. Provision of a wood furniture end-consumer-oriented methodological approach to observe the buying motivations of wood product end-consumers</td>
<td>To some extent</td>
<td>Contribution</td>
</tr>
<tr>
<td>12. Improvement to the operationalisation of the value chain concept</td>
<td>Limited</td>
<td>Contribution</td>
</tr>
</tbody>
</table>

The findings of this study conclude that the wood furniture end-consumer has considerable impact on the current and future success of the firms involved in Australian wood furniture value chains (AWFVCs) and therefore of the Australian wood furniture industry (AWFI). The wood furniture end-consumer also has an effect the Australian wood furniture industry and on the wood product sector forestry supply level but to a less critical degree due to the many industries supplied by the
forest level. However, the AWFI is very much reliant on the forestry level of the wood furniture value chain, as wood furniture manufacturing can attest, in the quality standards for wood ascribed by wood furniture manufacturers for their wood furniture products.

The end-consumer is unaware of the efforts occurring beyond the retail showroom in contrast to many furniture manufacturers who appear removed from the relationship with end-consumer. The end-consumer is hidden from the value chain endeavours in relation to the efficiency and inefficiency at the various wood product production levels and the implication of the associated costs of inefficiency. The Australian wood furniture industry to an extent is also therefore precluded from understanding the wider interdependence and effect of value chain actions by not possessing reliable market data upon which to base planning for industry investment.

This study encompassed several different discipline areas, including forestry, manufacturing, strategic management, design, marketing, and psychology, and elements of several more. The involvement of the myriad of disciplines draws attention to the complexities involved in assessing value chains and attempts to improve the competitive advantage of particular value chains over others, especially in dynamic global markets.

The emergent central role commanded by the wood furniture end-consumer in all end-consumer oriented value creation decisions in the value chain, and subsequently in the AWFI, serves as a challenge for targeting of efficiencies in the AWFI and the closely aligned forest and wood products sector. The focus on the entire process from wood raw material to wood end-consumer suggests that end-consumer-oriented outcomes should continue to be further studied to uncover the complexities of wood value chains and the factors affecting competitive advantage and sustainable business practices.

The results from this study indicate that the success of the wood furniture value chain is inextricably linked to the motivations of the wood furniture end-consumer and is reliant on the interdependence of multiple levels of the value chain. The theoretical framework value chain relationship model, as presented in Chapter Six, is presented
in Figure 7.1 in a visually modified form, to recognise the central role of the wood furniture end-consumer in influencing the relevance of each wood furniture value chain input. Figure 7.1 assists researchers and value chain practitioners by introducing the organisational steps in sequence.

**Figure 7.1:** Visual mapping of value chain relationship framework model
Entitled: End-consumer wood value management model (ECW-VMM)

The configuration of the four quadrants in Figure 7.1 is supported by the findings of the study, commencing with the quadrant of paramount importance to the wood furniture value chain, the wood furniture end-consumer (top-left quadrant). This is consistent with the survey findings in survey Phases 2 and 3; then clockwise; the consultative engagement process with end-consumers is found to be consistent with the value construct in the search to locate end-consumer value; the end-consumer oriented value chain with suggested governance includes primary governance candidates described as ‘(1)’ in parentheses, secondary contributors as ‘(2)’ and with linkages to the findings related to value chains and their management; and finally, quadrant four, the culmination of consultative processes and innovation steps toward the creation of new markets for Australian wood furniture as identified in Phase 3 survey results and in the literature.
The theoretical framework remains unchanged except that the framework becomes visually mapped to assist the understanding of the overall placement of end-consumer value, value innovation and value chain processes. It is consistent with the findings in the literature where the visualisation of value inputs into the value chain, and value mapping of the value chain broadens the understanding of end-consumer value creation and where it occurs.

7.3 Implications for practice – Value chain approach adoption - The contribution to Australian wood furniture industry (AWFI)

The findings of this study provide the Australian wood furniture industry with a fresh viewpoint towards the drivers of value creation within the sector, as well as the barriers to achieving sustainable competitive advantage. The study confirmed the vital importance of the wood furniture end-consumer as the key driver in prioritising all industry process inputs within the wood furniture value chain for enhancing economic return. The recommendations include that the targeting of the most highly regarded wood furniture attributes, as described by the end-consumers themselves, be integral in the further development of new Australian wood furniture products and the Australian wood furniture industry.

The findings showed that for the characteristics of competitive advantage to be further identified, the overall breadth and effectiveness of the value creation system in the Australian wood furniture industry in meeting wood furniture end-consumer value would need to be better understood, and a process methodology would need to be selected, developed and further tested.

In regard to this study a methodology was sought which promoted a reflective performance assessment model understood by all firms contributing to the delivery of a value proposition to the end-consumer. A value chain approach could promote a study of the industry channels of contribution to collectively self-diagnose the level of interdependence between the value received from a wood furniture article by the end-consumer, and the appropriateness of all industry inputs in maximising returns
and minimising waste for all industry participants. The concept of the value chain was presented in the literature as a potential contender for a suitable industry-diagnostic approach.

Value chain analysis, using a production pipeline investigation approach, was described in the literature as a particularly useful approach in the identification and assessment of firm-level competencies, inputs and outputs within a value chain. Such analysis should be focused on effectiveness and relevance to the end-consumer, as the end-consumer is the prime source of revenue to any chain. Despite the support for the value chain concept in the literature, such support had not been accompanied with guidance towards putting the value chain concept into operation in order to deliver the espoused theoretical objectives; the failure to take the next step was criticised in the literature. This study has addressed some of these shortcomings in the value chain literature.

This study has established that although the Australian wood furniture industry is motivated to create the most popular wood furniture products for end-consumers, the key decision makers within the value chain, namely the wood furniture manufacturers, were often isolated from their end-consumers. In light of the considerable and continual increases in furniture imports to Australia, this lack of vital market intelligence could prove commercially fatal for some areas of the Australian wood furniture industry and affect a considerable number of contributing commercial inter-firm relationships.

This suggests that a closer orientation to the needs of the Australian wood furniture end-consumer should provide important insights into the motivation to purchase Australian wood furniture products and therefore potentially positively affect the local Australian wood furniture industry. However, having direct access to the wood furniture end-consumer is not necessarily a recipe for commercial success, as the benefits for each value chain contributor rely on inputs from every level of the value chain, from forest-to-end-consumer.
The need for value chain governance emerges as the key challenge for the implementation of an extended value chain approach. The highest value added to the base raw material commodity prior to the final end-consumer retail experience is presented by conversion at the manufacturing level from wood to wooden furniture. This transformation to product is also the defining milestone, where raw materials are converted and the transformation becomes tangible to the members of the value chain and the end-consumer. To date there has been little understanding of this process. For a value chain to flourish a mode of operation and effective governance is required to be established, and all value chain members need to understand what is required of them, how progression toward open dialogue may occur, what actions should be taken, and which actions are to be avoided.

As external market forces represented by competitor value chains continually develop and present new competitive challenges, organisational learning will be central to the evolution of an Australian wood furniture value chain in the search for new ways to identify and capture sustainable competitive advantage.

### 7.4 Limitations of the Research

The study considered only selected production pipelines rather than representative samples from each level of the Australian wood furniture value chain (AWFVC), as the complexity of value chain studies meant that large scale sampling is not possible. The study therefore cannot be considered as representative of all value chains, since it focuses only on the AWFVC. However, the results are probably informative for many other natural-product-driven value chains. Despite good response rates for furniture industry interviews and for the end-consumer survey, the lower than anticipated response rate in the industry survey is a limitation to generalisation of these quantitative results.
7.5 Limitations of the methodology

7.5.1 Limitations: Phases 1 & 2 – Industry interviews and survey

The sample size of Phase 1 of the industry interviews experienced a favourable participation rate of firms across the main value chain levels, but the Phase 2 industry survey questionnaire received poor responses. Anecdotal evidence suggests furniture industry research has experienced low response rates based on previous Australian study attempts (FIAA). The high question count in the Phase 2 survey, foreshortened questionnaire design consultative process given the wide array of stakeholders and needs in the value chain, and combined with a traditional low response rate in the sector was not an ideal offering in a mail-out format.

The low response rate achieved for the industry survey limits the ability to generalise from the research findings and represents a limitation of the study. While low responses to surveys in the furniture industry have been experienced in previous studies, it is believed the reason for such low responses are more widespread; the following reasons for the low response rate are proposed.

Firstly, the complexity of the value chain cannot be underestimated, and the low response rate may be due to: (i) the guarded, protective nature of most firms and their general unwillingness to share proprietary knowledge of their firm with a third party irrespective of confidentiality statements and ethics approvals; or (ii) that the number of questions contained within the questionnaire presented too onerous a task for a small business. Anecdotal evidence generated during discussion with industry managers suggests that a combination of these issues is the most likely reason for the lack of response experienced.

Secondly, the number of small business surveys of recent years may have contributed to the tiring of the small business operators or led to a suspicion of prior research outcomes which may have had limited effect on the industry. A future study may benefit from a more highly detailed case study methodological approach to further widen the understanding of wood product value chains.
It is suggested that future studies employ newer technologies including online surveys to augment the response rate or at least provide more timely feedback to the data collection process aiding the deployment of alternate data collection counter-strategies.

7.6 Implications for further research

The future prosperity of the Australian wood furniture industry (AWFI) resides in new strategies for competitive advantage through advanced end-consumer orientation of Australian wood furniture value chains (AWFVCs).

The findings of this study indicate that current level of understanding of the interdependence between the industry-level inputs to the needs of the wood furniture end-consumer is not optimal, nor clearly understood by the firms in the furniture value chains explored in this study.

Further work is required to better understand which particular industry level inputs in the value chain contribute the most value to the end-consumer, and what particular value chain activities require further improvement. This can also extend to assisting firms in understanding what participation in value chain membership may entail and the consequences of not implementing a collaborative and information sharing approach to uncovering new collective value creation opportunities.

Successful value chains are able to establish equitable dialogue with as many value chain members as possible; assess the value chain’s performance in meeting end-consumer and firm-level demands; and then periodically assess their effectiveness against competing value chains where possible. In light of the existing literature and the findings of this study, the following areas are recommended for future investigation:

1. The constant in each wood value chain, whether it resembles a wood furniture value chain or a structural wood building product value chain, is the role of forest level management. The forest level management foundation is the
starting point for linkages to identifying diverse wood value chains and therefore a reference point for the identification of potential wood product governance partnerships and research infrastructure development.

The governance of value chains in general is problematic due to complexities in defining the scope for value chain membership, the role of each participating firm, how short, medium and long term (as well as daily) performance will be measured as is the case with maintaining wood quality standards, under what type of governance structure will the new value chain operate in how value will be managed, and the relevance of actions in creating value for their end-consumers. This study identified gaps that suggest there is an imperative need to undertake further study of stakeholder roles in wood value chains and champion those value chain processes which contribute the highest end-consumer value.

2. This study can be extended to encourage more formal dialogue among a range of Australian wood furniture value chain stakeholders toward building collaborative advantage strategies and industry scale to offset risks in highly competitive markets. The prominence of the wood furniture manufacturers in the wood furniture value chain suggests that future studies may encourage wood furniture manufacturers to engage with the managers of forest value to discuss the concerns of the wood furniture industry in regard to high quality wood supply into the future for high value-added wood product outcomes.

The discussions with forest managers should also include issues concerning emerging forestry research and development activities affecting wood qualities especially given the high profile marketing and public relations potential opportunities for future globally respected Australian wood furniture products exports and the promotion of Australian forestry industries.

There is also the potential that wood furniture manufacturer knowledge could influence wood strategies in unrelated-to-furniture wood product categories. Innovation advances may be encountered when a professional stranger without industry sector pre-conceptions is engaged and contributes to creative capacity
in new product development (Ruef, 2002, 2003) and is consistent with potential \textit{value leaps} through value innovation (Chan Kim and Mauborgne, 2005).

This may also be true of other value chain members as value chains grow in confidence and new dialogue on a range of value chain issues emerges. The challenge for industry is how to recognise progress through value chain derived performance metrics and build versatile strategy contingencies when markets change, usually rapidly.

3. Following the initial identification and convening of like-minded firms around a value chain framework, the wood furniture value chain can engage with the wood furniture end-consumers to further expand the market intelligence toward wood furniture end-consumer \textit{valued wood attributes} in order to assist the focus and prioritisation of investment in the sector. This should provide the opportunity to focus on firm-level and value chain-wide competency building activities to enhance end-consumer experiences with wood. Inter-firm communication and production efficiencies within the furniture value chain (FVC) should be revisited periodically to further refine performance metrics for the sector and the economic return potential through inter-firm collaboration, with the best practices of each firm shared to influence improvement in formal alliances of firms within recognised value chains. The challenge for the sector is: who makes the first steps in discussing value chain potential and what type of incentive will encourage the liaison to continue.

4. The results of this study can be extended to include further targeting of end-consumers interest in wood as a furniture material in cooperation with the growth in associated environmental benefits in wood furniture ownership currently receiving wider community and legislative acceptance (Stenger, 2009). Current wood promotion strategies capitalise on the scientific claims of beneficence in respecting wood as a good environmental choice and linkages to good design in wood as a combined strategy ([http://www.naturallybetter.com.au/](http://www.naturallybetter.com.au/)) which meld tangible and intangible qualities of wood and respond to end-consumer misunderstandings experienced in the labelling of environmentally certified forest products (Teisl, 2003). The adoption of this study’s derived \textit{End-consumer wood value management model}
(ECW-VMM) can assist the further building of the profile of good wood utilisation principles based on sound environmental credentials and challenge future wood furniture industry strategy as environmental compliance issues continue to focus international momentum in forest industries. The study has provided the foundation for more research in the area of the intangible or less understood qualities of wood as a furniture material which rely on emotional and psychological dimensions, and functional and financial decisions.

5. Having identified the value chain and approached its stakeholders, there remains the issue of building competitive advantage against rival value chains and the decision as to which firm(s) takes a key governance role or how this role may be convened across the value chain. Despite the strength in relationships identified between suppliers and those firms supplied in the Australian wood furniture industry, and the combined wealth of tacit knowledge, the problem remains in sharing proprietary market and firm-level data without more formal commercial arrangements, and identifying how value chain profits can be equitably divided once the value chain’s sustainable competitive advantage gains traction and evolves.

6. The literature review concluded that a value chain approach can assist in providing a detailed understanding of the competencies and activities within the chain that require improvement in the creation of value for the end-consumer but little advice was found on how to operationalise the value chain approach drawing criticism in the literature (Svensson, 2003, Walters and Rainbird, 2007). Building upon the findings of this study in advancing the operationalisation of value, further research is required to expand knowledge in the dynamics of inter-firm relationships in the AWFI, and between low cost and high value added wood products and the linkage to collaborative strategy and value chain performance. To overcome the complexity of governance within existing and new formed collectives as may be found in wood furniture value chains it is suggested that once end-consumer attribute requirements are defined to a stakeholder-wide approved checklist or classification methodology of the value contributions of each activity in the value chain each contribution should be reviewed against each end-consumer oriented wood product attribute.
and critiqued from a value analysis perspective; wood furniture functional, emotional, financial, and rival value chain competitive robustness testing in response to end-consumer needs.

7.7 Challenges for the Australian wood furniture industry

The research found many differences and similarities shared by both the current AWFI and the proposed AWFVC approach. The differences provided critical insights into the opportunities for future research.

The reported asymmetrical power relationship, between smaller Australian wood furniture manufacturers and the Australian wood furniture retailers who interpret and directly influence wood furniture end-consumer value choices, indicates that further investigation is required if a value chain approach is to be effective in this industry. The results from the qualitative components of the study provided encouragement regarding the strength of relationships between the smaller wood furniture retailers and the smaller wood furniture manufacturers. The interaction between firms has shown in the literature to have benefits for the value chain in the building of common goals, inter-firm transparency and a collective building of competitive advantage for the value chain and evidence of this is supported in the results of this study into Australian wood furniture value chains.

The study found that the dependence on the forest value management level responsible for the initiation of new forests, the management of existing forests in the management of forest health toward premium forest yields, wood quality, and environmental sustainability cannot be underestimated today or in the future by the wood furniture value chain or by other industries utilising the forest and wood products sector.

A higher level of importance and interdependence should be conveyed to all levels of the wood furniture value chain, including the forest value management level, as to the critical and significant industry role the wood furniture end-consumer holds in the prosperity of the wood furniture value chain. It is for this reason that an end-
consumer-oriented wood furniture value chain is the most promising strategy for testing the relevancy of all activities in future wood furniture value chain analysis and the subsequent ranking of activities delivering the highest value to end-consumers.

The following provides an overview of the main findings discussed in Chapters Four, Five, and Six and the challenges for industry:

(a) Although the linkages between the various levels of the Australian wood furniture value chain are not well understood, the level of inter-firm dialogue and trust present is very encouraging for the formulation and development of collaborative interactions within the Australian wood furniture industry (AWFI) and Australian wood furniture value chains (AWFVC). In response, the industry should more formally capture and build upon the concept of collaborative advantage through further investigation sponsored privately or institutionally;

(b) The opportunity for Australian wood furniture value chains to possess a clear and advantageous global competitive advantage via the combination of natural resources, wood processing, and innovative new product development within firms has not yet been fully explored and the challenge remains to facilitate and encourage the development of a pilot Australian wood furniture value chain study of wider commission than this study to explore and further this potential;

(c) The role of end-consumer orientation in successful value chain strategies leading to gains in value creation in the sector has yet to be fully understood and industry is encouraged to forge new strategies in engaging end-consumers. The development of challenging new wood product designs and new retailing models may be beneficially influenced by future research centred on improving end-consumer relationships with wood as a furniture material focusing on end-consumer attitudes to wood from functional, emotional, and new value perspectives. This could act as a point of reflection for new investment in the sector and the development future wood furniture value chain or industry initiatives;
Wood certification is not universally understood by participants in Australian wood furniture value chains or the Australian wood furniture end-consumer. Both manufacturers and end-consumers in the Australian wood furniture value chain believe, however, that such certification may have an increasingly negative impact on future access to wood and wood furniture products. Therefore, should the pressures grow in regard to stricter guidelines for forest utilisation, the challenge will be to establish which products are the right products to construct from wood given the significance of wood attributes to end-consumers and forest source to the wider community, and which recognises the long journey wood accomplishes from the forest to the end-consumer. The products which may be more suitably made from alternate materials, and what price premium may be realised for more exclusive wood products is a topical area of discussion today and for future study. Exclusivity should not necessarily place wood furniture out of most end-consumer’s reach but a long-held and desired purchase outcome consistent with the respect wood has received from this study from those that work with wood and wood end-consumers. This also introduces a further design dimension in how well wood can work aesthetically as a primary construction material or merged with other materials where smaller wood content is leveraged toward new design-driven innovative products.

In conclusion, the literature suggested strongly interdependent linkages between the needs of end-consumers and the success of value chains. This study’s theory building research indicated that there was such a link; it found that the characteristics of wood and the attributes desired by the end-consumer should be the foundation reference for decisions made both at the forestry level of the wood value chain in regard to wood qualities and characteristics that add value to wood products, and at the wood furniture manufacturing level in the configuration of a tangible wood product attributes. The study also found that end-consumer orientation formed a key part of the innovation process from forest to end-consumer, and has set a challenge for further research about the structure of the Australian wood furniture industry and configurations for Australian wood furniture value chains.


Barnes, J. and Morris, M., 2000. *Value Chains, Production Pipelines and Systemic Efficiency*. Authors’ manuscript, South Africa.


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Teisl, M.F., 2003. What we may have is a failure to communicate: Labelling environmentally certified forest products. *Forest Science*, 49, 5; 668.


Appendix 1:  Industry Fieldwork Study – Interview proforma – Cover 1 –
Phase 1 (IFS)

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s.alexander@uws.edu.au

1 February 2007

Dear Sir / Madam,

My name is Sasha Alexander and I am a research student engaged in doctoral studies at the University of Western Sydney. I would value your consideration and would also be grateful should you agree to take part in this survey as it is intended to assist the future prosperity of the Australian furniture industry.

Researcher’s Introduction
I am conducting a study on the Australian furniture industry and in particular timber furniture production. I am interested in the value added in each process of production and the identification and measurement of procedures in the supply of raw materials; the saw-milling and conversion of raw material; manufacture, distribution and sales of Australian timber furniture products in Australia and overseas. The research procedure will use a ‘value chain’ approach that has presented benefits in sectors external to the furniture and woods and forest products industry in addressing collaboration and competition in the marketplace and issues related to sustained industry growth.

Parameters of study and anonymity
The research studies a furniture product from raw material through to the retail environment and seeks to establish value creation and waste along the ‘value chain’ and the most promising mechanisms for building your competitive advantage drawing from local and global markets.

This study is conducted to meet the requirements for the Ph.D. Philosophy (Commerce) degree under the supervision of Professor Ross Chapman and Associate Professor Terrence Sloan of the College of Law and Business, School of Management at the University of Western Sydney and Associate Professor Barbara Ozarska University of Melbourne in cooperation with the Furnishings Industry Association Australia (FIAA) and CRC in Wood Innovation. The outcome of the research report will be submitted to the Forest and Wood Products Research and Development Corporation (scholarship sponsors of this research) for wider industry comment and recommendations.
The survey will take **20 minutes** in most cases, or up to 30 minutes for more detailed responses. *Please note that there is no reference on the survey questionnaire or return envelope which can identify your firm.*

College of Law and Business  
Mr. Sasha Alexander  
PhD candidate  
Tel 02 9852 5070  FAX 02 98525741  
s.alexander@uws.edu.au

Participation in this study is entirely voluntary and anonymity is ensured by names not appearing on any raw data or in any written report.

The return of the surveys will be regarded as consent to use the information for research purposes. Data will be kept in a locked filing cabinet on University of Western Sydney premises for the duration of 5 years after the study is finished, then destroyed.

*This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the UWS Research Office (tel: 02 9852 5222). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.*

The additional surveys enclosed may be completed by those firms that you are supplied by, or sell to as referred by you. Value chain levels are indicated on Page 1 of the survey. I am also pleased to send surveys directly to other firms you may nominate as important to your value creation.

Thank you for your consideration. Survey returns would be appreciated this month if possible.

Telephone: 02 9852 5070  Email s.alexander@uws.edu.au

Yours Sincerely,

Mr. Sasha Alexander  
PhD candidate
Appendix 2: Industry fieldwork study – Interview proforma – Phase 1 (IFS)

Furniture Industry Research Survey (Interview Participants)

Structured Interview No. 1: Timber furniture products

Addressed to: Wood and Forest Products Sector - suppliers and manufacturers

Date: / TVC -

The following interview includes open-ended questions that are presented to assist the identification of activities of each stakeholder in the timber furniture value chain. It is anticipated that the answer provided, will enhance an understanding of most frequent and reliable linkages and those linkages that could benefit the economic strength of your business or sustain prosperity in the timber furniture sector, – in short what drives your business and what is a barrier to competing more favourably.

This survey includes the following segments to aid discussion:

- Stakeholders and relationships – trust and commitment to mission
- Geography and logistics – benefits of location
- Production and technology investment – supporting growth
- Communication – frequency and methods
- Profitability or Waste – knowing where value is added
- Business environment – past, present, future.
- Combating imports and increasing exports
- Consumer as driver of change – quality and value

Stakeholders and relationships

Strength of relationship with members of your supply chain

Question 1

Which category best describes your activities?
If more than one, place number 1 at highest priority.

- forestry
- milling
- manufacture
- retail
- consumer

Question 2
Could you please describe what is your company’s mission/profile and the types of activities you participate in the supply of your services to others?

Question 3
Considering the stakeholder categories in Question 1 with whom do you have the best relationship and what are these characteristics?
Please be specific i.e. pay on time / quality service / high level of trust:

Question 4
How often have you met your competition in your supply level and in what circumstance? Do you consider the aspect of discussing some issues with your competitors beneficial? If you were to meet what would you like to discuss?
Stakeholders and relationships (continued)

Selling services in your supply chain

Question: 5 - Sales

What motivates or dictates the purchasing of your firm’s product or service? Is this understanding specific or notional?

Question: 6 - Orders

Is there something tried and proven about the pattern for orders and who are the primary influencers? Do you have any thoughts related to a secondary influence i.e. consumer / government?

Question: 7 - Communication

How are you notified by purchasers and how do you plan to meet order obligations? What steps are involved?

Improving Profits

Question: 8 - Profit Increase

Do you have any thoughts on way(s) to improve the way other firms interact with yours towards building better relationships in the pursuit of better profits for all concerned? This would be either at your supply level e.g. manufacturing or amongst other service providers or customers i.e. retailers or consumers.

Question: 9 - Market Intelligence

In your understanding of the stakeholders or players in your sector e.g. manufacturing or other, do you have a good financial picture of how profitable you are in comparison to competitors in your sector? Is this information distributed by a third party (government / industry group) or do you estimate the profitability of other firms at your supply level? Would this information of advantage to you or do you suggest other recommendations?

Question: 10 - Enhancing Competitiveness

Can you think of ways you could be supported toward better profits? Is it related to one specific task in your opinion or several?

Geography and logistics – benefits of location

Location and profits

Question: 11 - Location affecting profitability

Where is your geographic location and is it in the most favourable position to serve your supply base? Could you think of a better location or are the benefits negligible?

Question: 12 - Co-location / Cluster Formulation

In terms of geography could you see a concentration of furniture companies a benefit to your day to day running of the firm or as a promotion to consumers or government for example?

Question: 13 - Location and Competitive Advantage

To your knowledge can you think of the more prominent locations in Australia and the reason why they may have a modest advantage over your firm? In a cooperative world could you see other firms gravitating toward your region or you to theirs or is the state of the industry evolved on the basis of where the wood is or the investment in plant which can not be feasible moved for example?

Logistics

Question: 14 - Transport logistics

Are there aspects of transporting goods that affect your business favourably or adversely? Describe the positive or negative reasons for impact on profits.

Production and technology investment – supporting growth

Question: 15 - Production
Is your production conducted entirely in house or are some activities sub-contracted? If so which activities and the reasons for doing so.

**Question: 16 - Process**
Are there processes you wish could be conducted in house to enhance the value of your product?

**Question: 17 Institutional Support**
Do you receive any support from government or a third party either directly or indirectly? If not what do you see could be a legitimate request for assistance?

**Question: 18 Barriers to competition**
Can you think of any reasons why your production is at a disadvantage i.e. proximity to customers or value you receive for services? Who applies the pressure on profits?

**Communication – frequency and methods**

**Question: 19 - Frequency**
How often do you communicate with your suppliers and your customers and what methods do you use to maintain a healthy business relationship?

**Question: 20 – Communication method**
Do you have a preferred communication model or suggestion which could enhance your firm’s profitability?

**Question: 21**
Given your placement in the timber furniture industry could you describe any possible benefits in knowing more about the profitability of firms either at the forestry, milling, manufacture, retail or consumer level or firms you directly compete with?

**Profitability and Waste – knowing where value is added**

**Question: 22 - Value Adding**
Are you aware of the value added by your firm at each process stage and is value at its maximum level? Please describe the indicators for maximum value i.e. the standard as derived by retailers / consumers or by other standard.

**Question: 23 - Increasing Efficiency**
Part (a) Can you describe what steps your firm has taken in identifying value or waste in your process and ways to enhance value or reduce waste?
Part (b) Are these methods sought from external sources or by investment or evolution internal to your firm?

**Question: 24 - Value Creation**
Are you aware of the value or waste at other levels of the furniture production process outside your firm and is this or would this be of any assistance to your firm?

**Question: 25 – Waste Reduction**
Are you aware of the activities other firms have implemented to enhance value or reduce waste be they competitors or current supply chain relationships?

**Business environment – past, present, future.**

**Question: 26**
Are there factors that have had either a positive or negative affect on your profitability? Please list past and current factors and any thoughts you have about the future of the furniture industry and its profitability and viability. You may wish to refer to local, state, national and international factors.

**Import replacement and increasing exports**

**Question: 27 - Competitive Advantage**
Are you of the opinion that imports are a threat to the Australian furniture industry? Please describe the reasons for your position and factors you believe essential to enhancing Australia’s position.
Question: 28 - To export or not export
Are you of the opinion that the increase of exports will assist your firm’s profitability and sustained growth and do you see it as essential to the firm’s survival or the wider industry context?

Question: 29 - Identifying Competitiveness
What are the key industry indicators which assist you in confirming the strengths and weaknesses of your firm or that of the Australian timber furniture industry as a whole? Are these sources marketing, technical, regulatory or other?

Question: 30 - Market Intelligence
Is there a peak industry source you seek information or assistance from when you wish to build your knowledge for building competitiveness? Could more be supplied / identified to assist you or the industry.

Consumer as driver of change – quality and value
In the end the consumer decides what type of furniture and the timber they prefer which in turn has an affect on activities in the supply / value chain. The following questions address the importance of the consumer.

Question: 31 - Consumer thinking about timber
Are you aware of the emphasis the consumer places in purchasing a timber furniture product? Please describe the attributes you believe may be foremost in the consumer’s mind and would you be aware of any formal reporting of the meaning of wood to consumers.

Question: 32 - Market Intelligence
How could / does information arising from furniture consumer market research assist the profitability? If you do receive existing data please describe the benefits or shortcomings in the information received.

Question: 33 - Frequency of Market Intelligence
How often could this type of information be circulated to assist your activities?

Question: 34
Have you ever received commendations or criticisms of your contribution to the production of timber furniture from any level of the supply chain? Describe how you consolidated or changed your practices.

Conclusion
Thank you for your cooperation in contributing to the understanding in the creation of value in the Australian timber furniture industry.

Yours Sincerely,

Sasha Alexander
Research Student

Address : Sasha Alexander
University of Western Sydney
Locked Bag 1797
Penrith South DC
NSW 1797

Telephone : 02 9852 5070 / Fax 02 9852 5741 / mobile 04 04 04 7556
Email s.alexander@uws.edu.au
Appendix 3: Industry fieldwork study – Worksheet 1 – Generic – Phase 1 (IFS)

<table>
<thead>
<tr>
<th>Research</th>
<th>Timber Value Chain</th>
<th>worksheet</th>
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<td>Date</td>
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<td>TVC</td>
<td>HEC 02/183 exp.3/2005</td>
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<td>add - L (Te - Ti)</td>
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<tr>
<td>Location</td>
<td>Level</td>
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<tr>
<td></td>
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</tr>
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Activity Schedule / Metrics

Signature
Appendix 4: Industry Fieldwork study – Worksheet 2 – Value chain levels – Phase 1 (IFS)

<table>
<thead>
<tr>
<th>Research</th>
<th>Timber Value Chain worksheet 2 levels</th>
</tr>
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**Location**

WA - SA - VIC - TAS - NSW - QLD - ACT - NT

**Value Chain Levels**

<table>
<thead>
<tr>
<th>F-Mi-D-Ma-Mk-Rt-C-Re / add / embed - L (Te-Ti)</th>
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<table>
<thead>
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<td>D</td>
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</tr>
<tr>
<td>9</td>
<td>L</td>
</tr>
<tr>
<td>10</td>
<td>Ti</td>
</tr>
<tr>
<td>11</td>
<td>Te</td>
</tr>
</tbody>
</table>

- **F**: Forest
- **Mi**: Mill
- **D**: Design
- **Ma**: Manufacture
- **Mk**: Marketing
- **Rt**: Retail
- **C**: Consumer
- **Re**: Recycle / After-Use
- **L**: Logistics
- **Ti**: Transport (internal)
- **Te**: Transport (external)

**F**

Seed, grow, log, equipment, transport, store, buy, sell, contact, order, liaise, strategise / plan

**Mi**

Mill, equipment, transport, store, buy, sell, contact, order, liaise, strategise / plan

**D**

Design, prototype, equipment, refine, market, contact, sell, liaise, strategise / plan

**Ma**

Construct, equipment, transport, store, buy, sell, contact, order, liaise, strategise / plan

**Mk**

Market, contact, sell, liaise, review, strategise / plan

**Rt**

Store, market, contact, sell, liaise, review, strategise / plan

**C**

Consumer travel to retail, select, purchase, receive, use, recycle

**Re**

Maintenance or after-use recycling

**L**

Planning, flow control, related information, storage control

**Ti**

Transport within premises, forklift, trolley, carried

**Te**

Transport external to premises, all movements
## Appendix 5: Industry fieldwork study – Worksheet 3 – Cost function- Phase 1 (IFS)

### Research | Timber Value Chain

#### COST-FUNCTION worksheet 3

<table>
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<th>Sub assembly name</th>
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## Appendix 6: Industry fieldwork study – Worksheet 3 – Cost function – Phase 1 (IFS)

### Research | Timber Value Chain

#### DRIVER-BARRIER worksheet 4

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#### Efficiency DRIVER

#### Efficiency BARRIER
Appendix 7: Industry fieldwork study – Worksheet 5 – Master code – Phase 1 (IFS)

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<th>Research</th>
<th>Timber Value Chain master codes</th>
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UWS Ethics Protocol Approval No. HEC 02/183 exp.3/2005

WA - SA - VIC - TAS
NSW - QLD - ACT - NT
Appendix 8:  Industry fieldwork study – Interview consent form – Phase 1 (IFS)

Locked Bag 1797
Penrith South DC  NSW  1797  Australia

COLLEGE OF SCIENCE, TECHNOLOGY & ENVIRONMENT
School of Engineering & Industrial Design

Furniture Industry Research Survey  (Interview Participants)

Consent Form 1

Date:

Researcher’s Introduction
I am conducting a study on the Australian furniture industry and in particular, timber furniture production. I am interested in the identification and measurement of procedures in the supply of raw materials, the saw-milling and conversion of raw material, manufacture, distribution and sales of Australian timber furniture products in Australia and overseas.

The focus of this study is to follow and document the path of a single timber chair (simple dining room variety of wooden construction for example) from the forest to the consumer noting each activity involved in the process.

Supervision and Outcomes
This study is conducted to meet the requirements for the Ph.D. Philosophy (Commerce) degree under the supervision of Associate Professor Ross Chapman and Dr. Terrence Sloan of the College of Law and Business, School of Management at the University of Western Sydney in cooperation with the CRC in Wood Innovations with Dr. Barbara Ozarska CRC Wood Innovations Program Director as an external supervisor. The outcome of the research report will be submitted to the Forest and Wood Products Research and Development Corporation (scholarship sponsors of this research) for wider industry comment and recommendations.

I would be grateful if you would agree to participate by answering questions about your impressions of the industry and the contribution your firm’s activities make to adding value in the timber furniture production process. An interview of 30 – 60 minutes duration may be conducted in a group or on an individual basis.

Recording of Interview
The interview will be taped for analysis purposes and your anonymity will be protected by your personal details not appearing in any raw data or in any written reports. I am personally responsible for the security of the tapes and they will be kept at a secure location at the University of Western Sydney until the tapes can be transcribed, then erased. Records will be kept for a period of 5 years.

This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 4570 1136). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Signature for Statement of Consent required on Page 2 please.
Statement of Consent
I would be grateful if you would agree to take part in this study and sign the following statement:

I (the participant) have read and understand the information above, and any questions that I have asked have been answered to my satisfaction. I understand that my participation is voluntary and I agree to participate in this research, knowing that I can withdraw at any time. I have been given a copy of this form to keep.

Participant’s Name:…………………………………………………………………………………………(print)

Participant’s Signature……………………………………………..date……../……./…….

Investigator’s Name:    Sasha Alexander  Signature…………………………..

Thank you in anticipation.

Sasha Alexander
Research Student

Address:    Sasha Alexander
            University of Western Sydney
Locked Bag 1797
            Penrith South DC
            NSW 1797

Telephone :  02 4620 3235
Email        s.alexander@uws.edu.au
Appendix 9:  Industry Survey – Cover letter 1 – Phase 2 (ISQ)

Locked Bag 1797
Penrith South DC NSW 1797 Australia

College of Law and Business
Mr. Sasha Alexander
PhD candidate
Tel 02 9852 5070   FAX 02 98525741
s.alexander@uws.edu.au

April 2007

Dear Sir / Madam,

My name is Sasha Alexander and I am a research student engaged in doctoral studies at the University of Western Sydney. I would value your consideration to take part in this survey as it is intended to assist the future prosperity of the Australian furniture industry.

Researcher’s Introduction
I am conducting a study on the Australian furniture industry and in particular timber furniture production. I am interested in the value added in each process of production and the identification and measurement of procedures in the supply of raw materials; the saw-milling and conversion of raw material; manufacture, distribution and sales of Australian timber furniture products in Australia and overseas. The research procedure will use a ‘value chain’ approach that has presented benefits in sectors external to the furniture and woods and forest products industry in addressing collaboration and competition in the marketplace and issues related to sustained industry growth.

Parameters of study and anonymity
The research studies a furniture product from raw material through to the retail environment and seeks to establish value creation and waste along the ‘value chain’ and the most promising mechanisms for building your competitive advantage drawing from local and global markets.

This study is conducted to meet the requirements for the Ph.D. Philosophy (Commerce) degree under the supervision of Professor Ross Chapman and Associate Professor Terrence Sloan of the College of Law and Business, School of Management at the University of Western Sydney and Associate Professor Barbara Ozarska University of Melbourne in cooperation with the Furnishings Industry Association Australia (FIAA) and CRC in Wood Innovation. The outcome of the research report will be submitted to the Forest and Wood Products Research and Development Corporation (scholarship sponsors of this research) for wider industry comment and recommendations.

The survey will take 20 minutes in most cases, or up to 30 minutes for more detailed responses.
Please note that there is no reference on the survey questionnaire or return envelope which can identify your firm. Participation in this study is entirely voluntary and anonymity is ensured by names not appearing on any raw data or in any written report.

The return of the surveys will be regarded as consent to use the information for research purposes. Data will be kept in a locked filing cabinet on University of Western Sydney premises for the duration of 5 years after the study is finished, then destroyed.

This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the UWS Research Office (tel: 02 9852 5222). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

The additional surveys can be forwarded on request to those firms that you are supplied by, or sell to as referred by you in order to widen the survey response. Value chain levels are indicated on Page 1 of the survey – from raw materials to retail.

Thank you for your consideration. Please return survey in reply-paid addressed envelope.

Telephone : 02 9852 5070 Email s.alexander@uws.edu.au

Yours Sincerely,

Mr. Sasha Alexander PhD candidate
Appendix 10:  Industry survey – Phase 2 (ISQ)

Table: Primary supply level and secondary "supply" descriptor identifying the responsibility your firm has. You are welcome to circle more than 1 primary and more than 1 secondary but place ✓ tick by 1st choice as well.

<table>
<thead>
<tr>
<th>Industry Level</th>
<th>Primary supply level</th>
<th>Secondary descriptor - place number 1, 2, 3 in order of most descriptive of your activities/services if more than 1 descriptor is relevant, otherwise please circle one</th>
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<th>Secondary descriptor</th>
<th>Secondary descriptor or please list</th>
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<td>Transport</td>
<td>Forest manager/ licence/ owner</td>
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</tr>
<tr>
<td></td>
<td>Mill</td>
<td>Receive log</td>
<td>Track log</td>
<td>Manage sawlog</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Timber merchant</td>
<td>Receive and store sawn-timber</td>
<td>Liaise with forest supply and manufacturer</td>
<td>Proceed design</td>
<td>Process sawn-timber</td>
</tr>
<tr>
<td>4</td>
<td>Manufacturer</td>
<td>Receive and store sawn-timber</td>
<td>Procure design</td>
<td>Proceed design</td>
<td>Process sawn-timber</td>
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<td>Design</td>
<td>Develop project brief</td>
<td>Develop design details</td>
<td>Prototyping involvement</td>
<td>Procure new product</td>
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<td>Receive finished timber article</td>
<td>Liaise with final consumer</td>
<td>Procure new product</td>
<td>Procure new product</td>
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<td>Coordinating transport logistics on behalf of your customer</td>
</tr>
<tr>
<td>8</td>
<td>Recycler</td>
<td>Receive end-of-life-cycle furniture</td>
<td>Salvage furniture materials</td>
<td>Redeploy recycled materials</td>
<td>Redeploy recycled materials</td>
</tr>
<tr>
<td>9</td>
<td>Other: please specify</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Strategy

Please circle the number that accurately reflects your firm’s PRESENT position in relation to organisational capabilities and monitoring of value creating strengths:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Possess a strategy for New Product or service development</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Possess a unique offering over competitors</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Possess superior product or service offerings over competitors in at least one area</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Possess registered product design(s)/patented processes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Possess recognised brand name</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Possess a unique production or process feature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Possess industry good reputation for products or services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Maintained superior product or service offerings for more than 1 year (last 5)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Annual growth in personnel is an ambition of our firm</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Outsourcing of services is growing trend in our firm</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Acquiring of firms to enhance competitiveness is a future strategy of our firm</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Periodically assess our competitors business strategy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. Existing performance measurement system for benchmarking internal performance targets</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Assess competitors using own formal method</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Assess competitors using own informal method</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Assess competitors using formal method (external source)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If yes, what method i.e. benchmarking

18. Assess market with organizational assistance                  | 1                 | 2        | 3       | 4     | 5             |
If yes, with professional, university, other

19. Assess market with government assistance                       | 1                 | 2        | 3       | 4     | 5             |
20. Access to new suppliers could be improved                     | 1                 | 2        | 3       | 4     | 5             |
21. Access to new buyers could be improved                        | 1                 | 2        | 3       | 4     | 5             |
22. Access to more reliable market information                    | 1                 | 2        | 3       | 4     | 5             |
23. Improve access to more development funds                      | 1                 | 2        | 3       | 4     | 5             |
24. Advocate for industry recognition of excellence               | 1                 | 2        | 3       | 4     | 5             |
25. We seek more collaboration with industry bodies               | 1                 | 2        | 3       | 4     | 5             |
26. We seek more collaboration with government bodies              | 1                 | 2        | 3       | 4     | 5             |

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Locked Bag 1797 Penrith South DC NSW 1797    Telephone 02 9852 5070 e: s.alexander@uws.edu.au
Inter-firm Relations

Please circle the number that accurately reflects your firm’s PRESENT position

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>Cooperate with suppliers in maintaining quality</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28.</td>
<td>Cooperate with buyers in maintaining quality</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29.</td>
<td>Periodic communications are initiated by our firm with suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30.</td>
<td>Periodic communications are initiated by our firm with buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31.</td>
<td>Periodic communications are initiated by suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32.</td>
<td>Periodic communications are initiated by buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33.</td>
<td>Trust suppliers in maintaining quality</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34.</td>
<td>Trust suppliers in timely delivery</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35.</td>
<td>Trust suppliers in negotiating terms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36.</td>
<td>Trust buyers in negotiating terms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37.</td>
<td>Good status of relationships with suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38.</td>
<td>Good status of relationships with buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39.</td>
<td>We seek more collaboration with suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40.</td>
<td>We seek more collaboration with buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>41.</td>
<td>Assess market with assistance from suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>42.</td>
<td>Assess market with assistance from buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>43.</td>
<td>We are well informed of our suppliers business strategy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>44.</td>
<td>We are well informed of our suppliers profit margins</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45.</td>
<td>We are well informed of our buyers business strategy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>46.</td>
<td>We are well informed of our buyers profit margins</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>47.</td>
<td>Advocate for ‘cooperative’ approach in meeting consumer needs through inter-firm relations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

List further comments on current inter-firm relations and future development of relations:

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Resources / core competencies

Please circle the number that accurately reflects your firm's present STRENGTHS:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Appropriate communication technologies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>49</td>
<td>Appropriate manufacturing technologies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>50</td>
<td>Access to skilled human resources</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>51</td>
<td>Materials handling efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>52</td>
<td>Warehousing efficiency / handling</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>53</td>
<td>Inventory control efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>54</td>
<td>Technological efficiency (machine-based)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>55</td>
<td>Packaging efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>56</td>
<td>Order processing efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>57</td>
<td>Marketing of services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>58</td>
<td>Level of service</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>59</td>
<td>Effective selling of products or services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>60</td>
<td>Procurement effectiveness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>61</td>
<td>Utilisation of advanced processing equipment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>62</td>
<td>Ability to purchase newer technologies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>63</td>
<td>Inbound logistics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>64</td>
<td>Outbound logistics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>65</td>
<td>Conduct regular efficiency audits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Competitive threats / local and global

Please circle the number that accurately reflects your organisation's PRESENT position:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>Difficulty is experienced in maintaining a reliable supplier base</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>67</td>
<td>Difficulty is experienced in maintaining a reliable customer base</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>68</td>
<td>Difficulty may be experienced sourcing new suppliers in future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>Difficulty may be experienced sourcing new customers in future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>70</td>
<td>Difficulty is experienced developing new products or services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If so, why ________________________________

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>State government policy affects our profitability adversely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>72</td>
<td>Federal government policy affects our profitability adversely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>73</td>
<td>International trade policy affects our profitability adversely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

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Competitive threats / local and global  (continued)

74. Limitations to the expansion of our firm in the last 5 years include:

75. Strategies that have assisted our firm's competitiveness in the last 5 years include:

76. Please list new firm or industry level initiatives you believe will contribute to a competitive future for your firm in the next 5 years: *Please continue overleaf if required*

Competitiveness / quality, global influences, policy, market data

Please circle the number that accurately reflects your firm's present position:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

77. Our firm utilises standards to maintain or improve quality

Please list standards adopted i.e. ISO / Australian Standards / other

78. Our suppliers use the same standards to maintain or improve quality

79. Our buyers use the same standards to maintain or improve quality

80. Our firm would welcome wider industry compliance to quality standards to enhance competitiveness

81. Imported products have an adverse effect on our competitiveness due to COST?

82. Imported products have an adverse effect on our competitiveness due to DESIGN?

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255
Competitiveness / quality, global influences, policy, market data (continued)

Please circle the number that accurately reflects your organisation’s PRESENT position:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td>Imported products have an adverse effect on our competitiveness due to TIMBER CERTIFICATION?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>84</td>
<td>Certified timbers have been a part of our product offering (at one time last 5 years)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>85</td>
<td>Certified timbers will be a part of our product offering (next 5 years)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>86</td>
<td>Timber certification will have a positive future profit effect</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>87</td>
<td>Government policy in forest management has had a positive effect on profitability to date</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>88</td>
<td>Today’s Government policy in forest management will a positive effect on profitability in the near future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>89</td>
<td>Firms overseas are generally more competitive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>90</td>
<td>We require more data on competing Australian firms to assist strategic planning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>91</td>
<td>We require more data on competing overseas firms to assist strategic planning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>92</td>
<td>In developing new products or services we consult our suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>93</td>
<td>In developing new products or services we consult our buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>94</td>
<td>In developing new products or services we consult the end-consumer (End-consumers are in the furniture retail environment)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Please expand the basis of some of your opinions if you have time in regard to your competitiveness (i.e. positive / negative experiences):

Please continue overleaf if required.
**Assessing efficiency / firm level performance**

Please circle the number that accurately reflects your organisation's PRESENT position:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agreed nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.</td>
<td>Interest in understanding supplier/buyer efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>96.</td>
<td>Interest in assisting supplier/buyer efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>97.</td>
<td>Interest in understanding own firm efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>98.</td>
<td>Prefer meeting suppliers face-to-face (and why / why not)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(why / why not)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99.</td>
<td>Prefer meeting buyers face-to-face</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(why / why not)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100.</td>
<td>Prefer to confirm orders by email</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>101.</td>
<td>Prefer to confirm orders by FAX</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>102.</td>
<td>Satisfactory meeting / communication frequency with suppliers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>List preferred communication method i.e. phone / email / fax</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103.</td>
<td>Satisfactory meeting / communication frequency with buyers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>List preferred communication method i.e. phone / email / fax</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104.</td>
<td>Our internal performance measurement system requires improvement</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>105.</td>
<td>What aspect of your FIRM do you believe is the most EFFICIENT and what is the characteristic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106.</td>
<td>What aspect of your FIRM do you believe creates the most WASTE and what is the characteristic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107.</td>
<td>What aspect of your INDUSTRY do you believe is the most EFFICIENT and what is the characteristic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108.</td>
<td>What aspect of your INDUSTRY do you believe creates the most WASTE and what is the characteristic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOLD and Return confidential industry survey in supplied pre-addressed envelope to:

Sasha Alexander  University of Western Sydney
Locked Bag 1797 Penrith South DC NSW 1797  Telephone 02 9852 5070 e: s.alexander@uws.edu.au

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### Consumer value / firm level understanding of end-consumer value

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>109. Needs of end-consumers are of PRIMARY importance to our firm (End-consumers are in the furniture retail environment)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>110. Needs of end-consumers are of PRIMARY importance to our suppliers (End-consumers are in the furniture retail environment)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>111. Needs of end-consumers are of PRIMARY importance to our buyers (End-consumers are in the furniture retail environment)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>112. End-consumers have an interest in your firm's efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>113. End-consumers have an interest in environmental issues</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>114. End-consumers believe that WOOD has superior attributes over other furnishing materials i.e. metal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>115. End-consumers have an interest in the origin of timber i.e local or imported</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>116. End-consumers have an interest in the origin of timber i.e. plantation or old-growth?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>117. End-consumers are influenced by timber certification</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>118. Do you believe that timber furniture will be more difficult to purchase in the next 10 years?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>119. End-consumers are appreciative of the process from forest to retail environment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>120. End-consumer recognition of the process could lead to higher profits through more informed purchases</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>121. End-consumer should be involved in the process of creating value</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please list any further comments on how your firm or industry may be improved to assist your competitiveness:

**Firm level**

---

### Final 3 questions on next page

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Sasha Alexander  
University of Western Sydney  
Locked Bag 1797 Penrith South DC NSW 1797  
Telephone 02 9852 5070 e: s.alexander@uws.edu.au

---

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Profitability Trends

123. Please indicate your recent year-on-year profitability trend (in real terms, relative to profit performance in the previous year). Please tick relevant column

<table>
<thead>
<tr>
<th>Year</th>
<th>Increased</th>
<th>Stagnant</th>
<th>Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

124. Please provide a breakdown of the following as a percentage (%) of your total sales?

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2002</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour (direct)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital (incl. overheads, royalty fees, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

125. How many employees work at your firm? (please circle)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In Australia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

129. Please estimate the total number of sales generated by your firm.

<table>
<thead>
<tr>
<th>Total number of sales in Australia</th>
<th>AUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of sales overseas</td>
<td>AUD</td>
</tr>
</tbody>
</table>

130. Please indicate who owns your firm; (circle all that apply)

<table>
<thead>
<tr>
<th></th>
<th>1:</th>
<th>2:</th>
<th>3:</th>
<th>4:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>publicly owned</td>
<td>privately owned</td>
<td>State owned</td>
<td>Foreign ownership</td>
</tr>
</tbody>
</table>

Thank you for your participation

FOLD and Return confidential industry survey in supplied pre-addressed envelope to:
Sasha Alexander. University of Western Sydney
Locked Bag 1797 Penrith South DC NSW 1797  Telephone 02 9852 5070 e: s.alexander@uws.edu.au
Appendix 11:  End-consumer survey – Cover letter 1 – Phase 3 (ESQ)

Locked Bag 1797
Penrith South DC  NSW  1797  Australia

College of Law and Business
Mr. Sasha Alexander
PhD candidate
Tel  02 9852 5070      FAX  02 98525741
s.alexander@uws.edu.au

Dear Sir / Madam,

My name is Sasha Alexander and I am a research student engaged in doctoral studies at the University of Western Sydney. I would value your consideration and would be grateful if you would agree to take part in this study as it is intended to assist the future prosperity of the Australian timber furniture industry.

Parameters of study and anonymity
Participation in this study is entirely voluntary and anonymity is ensured by names not appearing on any raw data or in any written report. The return of the questionnaires will be regarded as consent to use the information for research purposes. Data will be kept in a locked filing cabinet for the duration of 5 years after the study is finished, then destroyed.

Thank you for your consideration.

This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 4570 1136). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Telephone :  02 9852 5070     Email  s.alexander@uws.edu.au

Yours Sincerely,

Mr. Sasha Alexander
PhD candidate
Appendix 12: End-consumer survey – Cover letter 2 – Phase 3 (ESQ)

Survey questionnaire: Consumer Value

This survey forms part of my research into what consumers value in wooden furniture and anticipates that you may either be:

(a) intending to purchase, or
(b) have previously purchased, a wooden kitchen or dining chair.

The results of this survey will contribute to understanding consumer value in relation to furniture products and is an essential stage in planning for future quality, price and choice offerings to consumers in the furniture sector.

The return of the questionnaires will be regarded as consent to use the information for research purposes and is independent of manufacturer, or retailer, or any third party.

The results will be confidential and pooled for analysis which means you will not be identified in any way in research outcomes.

The survey will take about 5 minutes.

Thank you for participating in this survey and place in the reply paid envelope supplied in store upon completion.

This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 4570 1136). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Yours Sincerely

Mr. Sasha Alexander
PhD candidate
Appendix 13: End-consumer survey – Phase 3 (ESQ)

Locked Bag 1797
Penrith South DC  NSW  1797  Australia

College of Law and Business
Mr. Sasha Alexander
PhD candidate
Tel  02 9852 5070   FAX  02 98525741
s.alexander@uws.edu.au

Survey questionnaire: Consumer Value

1. Wood as a furniture material

What is your opinion of the following statements describing wood as a furniture material? Circle the number that best describes your opinion.

<table>
<thead>
<tr>
<th>As a furniture material wood is</th>
<th>Totally disagree</th>
<th></th>
<th>Totally agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recyclable</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmentally safe</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good-looking</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good quality</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to repair</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sought-after</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fashionable</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youthful</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impractical</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material of the future</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timeless</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expensive looking</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durable</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prestigious</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old-fashioned</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inheritable</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. **Timber attributes**

If you compare wood to other materials used in furniture (i.e. glass, metal) does wood have superior attributes in your opinion?

**Superior attributes: YES NO** (Circle one)

If YES, please list two characteristics that describe wood’s superiority:

**Own characteristic:**
1. ___________________________________________________
2. ___________________________________________________

3. **How might the following affect your purchase of wooden furniture?**

<table>
<thead>
<tr>
<th><strong>Not at all</strong></th>
<th><strong>Very Important</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name and type of timber used</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Forest origin (geographic location)</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>History associated with manufacture</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Timber characteristics / qualities</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Sourced from plantation or older-growth forest</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Best care instruction</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>‘elements of craftsmanship’ in detailing i.e. quality / joints / timber grain</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Limited edition production i.e. less than 100 sets of 4 chairs?</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Timber used from approved forest sources</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Timber certification influence your purchase</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>1</td>
</tr>
<tr>
<td>I generally require several visits to more than one furniture retail showroom prior to deciding to purchase?</td>
<td><strong>Disagree</strong></td>
</tr>
</tbody>
</table>
4. The following relates to your knowledge consuming wooden furniture

<table>
<thead>
<tr>
<th>Would you like to be informed of the ‘elements of craftsmanship’ by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) retail sales person</td>
</tr>
<tr>
<td>(b) through product literature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

Can you recall any furniture **brand names** - YES NO

If Yes, please list:

1. ____________________ 2. ____________________ 3. ____________________

Do you believe that timber furniture will be more difficult to purchase in the next 10 years? YES NO

Estimate time for tree to mature to be ready for furniture production? Circle one for each wood type:

**Gum tree**

- 5yrs
- 10yrs
- 25yrs
- 50yrs
- >50years

**Pine tree**

- 5yrs
- 10yrs
- 25yrs
- 50yrs
- >50years

5. **Demographic characteristics**

Please circle one of list in each category:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>15 to 24yrs</td>
<td>25 to 44yrs</td>
</tr>
<tr>
<td>Education</td>
<td>Secondary school – TAFE - University education</td>
<td></td>
</tr>
<tr>
<td>Occupation (please state)</td>
<td>Private sector</td>
<td>Public sector</td>
</tr>
</tbody>
</table>

END This is the end of the survey. Thank you.

Your effort is very much appreciated.

PLEASE FOLD IN HALF AND PLACE IN REPLY PAID ENVELOPE supplied – Please note this information is confidential to this furniture retailer.

Sasha Alexander / UWS