Public Sector Supplier Value Characteristics

A thesis presented in partial fulfilment of the requirements for the degree

of

Master of Supply Chain Management

Massey University

Palmerston North

New Zealand

Michael Alistair Blanchard

2015

Abstract

Post the global financial crisis there is a need for organisations to extract more value and productivity gains through innovation, supplier availability and efficiency. Key supplier value characteristics and associated supplier relationship management are important parts of supply chain management. In fact effective supplier relationship management and improving qualitative and quantitative levels of supplier measurement could be a competitive advantage of every company (Cusumano, 1991). Understanding Value from key supplier is not a new concept however customer of choice (Bew R., May 2007) is a relatively new concept which has superseded traditional views on key supplier management (Ming-Huei & Wen-Chiung, 2011) and is limited in its insights due to immaturity. The purpose of this study is to extend the knowledge not only in New Zealand and Australia Public Sector but other jurisdictions in the field of supplier value. This Thesis focuses on determining value priorities for public sector procurement. The research design is a quantitative study through survey using a control value set determined from pilot workshops in both jurisdictions. The delivery of a Value Characteristics Model (VCM) for the Public Sector extends the current body of knowledge. The framework developed can be used to determine the value priorities of a key supplier for the public sector.

Acknowledgements

I would like to offer my sincere thanks to all those who have helped me during my research and study into the topic of value.

To my supervisor, Professor Paul Childerhouse always an inspiration and has put me right on so many times teaching me how to move from my commercial bias back into academia.

A special acknowledgement is due to the following people who without their support this research would not have even past first base;

- John Ivil, General Manager Government Procurement, Murray Heyrick Principal Advisor Government Procurement of the Ministry of Business, Innovation & Employment New Zealand.
- The workshop and input provided by Procurement Functional Leadership Group Public Sector New Zealand.
- In Australia Paul Dobing Executive Director, NSW Procurement.
- The NSW Government Procurement Leadership Group for their thought leadership during their workshop.

To all my colleagues and friends when I couldn't see the wood for the trees; you helped me get back to gaining a full understating of basic statistics after 30 years or so away from some of these concepts a big thank you.

All respondents of the survey without your feedback none of this would have been possible.

A special thanks to my wife Fiona who has supported me through may hours and late nights reading literature, investigating and preparing proposals, developing models and surveys and analysing the data received.

And to Clare Archer who spent her valuable time taking me through the nuances of the IBM SPSS statistics program.

Finally, I acknowledge the research approval obtained from the Massey University Ethics Committee on 26th February 2014. In doing so I make the following statement:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research".

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, email: humanethics@massey.ac.nz.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1 Introduction

Post the Global Financial Crisis, organisations in both the Private and Public Sectors focused on cutting costs and the lens of value for money was illuminated in many board and executive level hierarchy. Many public sector administrations have either commenced reform or the reform agenda is now a key focus in delivering sustainability. (New Zealand 2009, Australia 2006

With the focus on value for money, this thesis explores the concept of value from a key supplier with the aim to confirm if there is any correlation between the Public sector view taken from the feedback of research of two jurisdictions (New Zealand [NZ] and New South Wales [NSW] Australia). This Thesis will outline the method and approach taken using quantitative analysis from data extracted through a survey questionnaire of procurement professionals from NZ Government and NSW State Government Organisations.

1.1.1 Chapter introduction

This chapter introduces the NZ and NSW Public Sectors and focuses on the aim and objectives of this research. The chapter also introduces through a high level discussion, the importance of the research giving clarity of why this research is being conducted and the approach taken. Finally the chapter thesis structure summarises the construction of this thesis, how information flows within each chapter connecting to its final conclusion.

1.2 The Public Sector of New Zealand and New South Wales

Public Sector reform was kicked off in NZ and NSW Australia as part of the drive for sustainability and the reaction to the need to become more efficient and save money post the global financial crisis. Government had been borrowing money to fund public programs and the new focus was to reduce government debt by minimising their borrowing and supplier based saving reform initiatives as the cost of money had exponentially increased. The NZ Public Sector comprises approximately 288 organisations. It spends approximately $30 billion per year on the goods, services and works needed to deliver its commitments to the public. The NSW Public Sector has approximately 220 organisations which are grouped into departments and agencies. The NSW government spend in goods and services (exclusive of construction and major projects) are approximately $16 billion per year.

1.3 Research Aim

This research was prompted by the need to understand if there is a common set of value characteristics chosen by organisations when they determine and classify a supplier as a Key Supplier. The intention is to focus on a defined group within NZ and NSW Australia that can be accessed with a breadth and scale to ensure statistical significance. The study will also seek to uncover if there is any correlation between countries, tenure within procurement and determine

the importance of these characteristics when entering into key supplier relationships. The study through its research method will enhance but not be limited to previous research into supplier relationship management (SRM), customer relationship management (CRM) and key account management (KAM).

The concept that other than cost benefit, value can be characterised and defined is explored throughout this thesis and referenced and compared with past literature. This is further extended into two jurisdictions in order to obtain a focal lens that potentially could deliver results that demonstrate a high correlation, limited correlation or no correlation. Analysis and discussion of the data will enable exploration of potential reasons behind the similarities or differences between countries and the research population's experience. Combined with the comparisons derived from the literature reviews, this thesis could expand on the previous research of supplier value by identifying the most commonly used characteristics that determine value from suppliers. The determination of value could be influenced by culture, the market dynamics, the economic environment, individual's drivers and motivations or the organisations objectives. Although this is not an exhaustive list, identification of influencing factors and correlations taken from previous literature in supplier relationship, customer relationship and key account management will be compared with the outputs taken from the inductive research completed from workshops (pilots) in stage one, combined with stage 2, the quantitative analysis derived from the research questionnaire responses.

The richness of all this data will inform and derive a value set that could be clustered into a Public Sector framework or be determined as a more generalisable set of characteristic frameworks across all industry.

Once developed and realised, the accelerated method framework (Value Characteristic Model) defined and explained in future chapters of this thesis; gives investigators the opportunity to practice the concepts delivered as derived from this research and continuously develop the techniques leading to value maturity and "best practice" key supplier management.

The detailed objectives are listed in Chapter 3 Methodology.

1.4 Scope of Research

Key supplier value characteristics and associated supplier relationship management are important parts of supply chain management. In fact effective supplier relationship management and improving qualitative and quantitative levels of supplier measurement could be a competitive advantage of every company (Cusumano, 1991). Focus on the New Zealand and New South Wales Public Sectors will lead to revision of buyer- supplier relationships in order to promote supply chain capabilities, reduce supply chain costs and increase delivery to the NZ & NSW public. (Rahimi & Imanipour, 2008) through a focused lens and (Imanipour, Rahimi, & Akhoni, 2012), looked at the correlation between buyer and supplier relationship characteristics in the Iranian automotive industry and developed a framework for supplier relationship promotion due to the results of the dyadic questionnaire not proving a strategic relationship between buyer and supplier.

1.5 Significance of Research

Past research has focused on areas qualitative and quantitative measures to determine lucid frameworks for research areas such as; Supplier Relationship Management (SRM) (Che, Chiang, & Che, 2011) key account management (KAM) (Masell & Rangone, 2000) and customer relationship management (CRM) (Svensson, 2004). Given that supplier relationship management is a competitive advantage to each company (Cusumano, 1991) and (Heizer & and Render, 2001) presented the importance of integration between the supplier and customer delivering profitable outcomes; the proposed study has significance to the academic field of research. To date in New Zealand other than the descriptive nature of authoritative studies in supply chain research (Childerhouse, Deakins, Bohme, & Banomyong, 2011) and from the literature reviewed demonstrates that there is limited research in the focused topic area. Deliberate specificity via the focused significant population of the NZ and NSW Public Sectors will extend the research and proffer conceptual frameworks. This important research will add to its field, in business and the wider global economy. The development of a Value Characteristic Model (VCM) can be extrapolated. The current paper aims to study key supplier status, determine a consistent set of common value characteristics and develop a simple model that can be utilised by organisations.

Further to this from a NZ Government perspective on the 19th December 2012 a cabinet paper was approved with a view to deliver the next stages of the reform; the key focus being the delivery of Procurement Functional Leadership (PFL). Extracts from the cabinet paper (Cabinet, 2012) clearly state that there is an opportunity to determine the characteristics that demonstrate value,therfore value characteristics are the core focus of this research.“The PFL will work to engage agencies, to effectively communicate the benefits of participation, in order to maximise the level of involvement and uptake of initiatives” , “Increase performance, add value and maximise results – create the right culture and capability” and “improving supplier performance –

encouraging innovation, driving efficiency, productivity and increasing competitiveness. Suppliers need to believe that it is worthwhile to seek Government business and rewarding to innovate and continuously improve. This involves changing how the state services views and values suppliers."

In New South Wales (Australian) the 2006 reform requirements were for agencies to use the State Contracts Control Board whole-of-government contracts, where they are available, when procuring goods and services. (Premiers memo M2006-11 NSW Procurement Reforms).

Since 2006 further stages of reform have been implemented when the NSW Government reviewed, in consultation with agencies and other key stakeholders, it's procurement operating model. Having regard to contemporary practice in other jurisdictions, both in the Public and Private sectors, it has implemented an overarching governance structure and operating framework for its procurement system that:

- allows for contemporary means of sourcing government goods and services
- brings the form and content of government contracts in line with modern practice
- expands the ways that small and medium enterprises can effectively gain opportunities to supply goods and services to the government, and
- introduces greater innovation into government procurement to stimulate a more vibrant New South Wales economy.

The Government Reform highlighted that sourcing and procurement is more efficient and effective if it is devolved to agencies that have specialist knowledge of the category supply chain and supply sector and that have proximity to both business requirements and the end-point of the supply chain. Strategies for procuring goods and services are also more effective if developed by those with direct interests in the service delivery and financial outcomes.

Under the new operating model that has been implemented, sourcing and procurement strategies will is led by the best positioned government agency with the necessary specialist expertise in particular procurement categories. Where required, these lead agencies will operate on behalf of all government agencies.

The framework for agencies in NSW is implemented with a continued focus on achieving value for money from their procurement activities whilst being fair, ethical and transparent.

With the NZ Procurement Functional Leadership Team and NSW Government Procurement focus on delivering value to the Public Sector a key determinant for this is to gain clarity on the characteristics that determine value. Value can be viewed often as subjective dependent on

environment, demand and desire. To be able to measure the value that suppliers deliver to government relationships it would be prudent to first determine and define what the key characteristics of value are. In the supply chain delivery of products, services etc. almost always have economic measurements and performance measures (Key Performance Indicators) that can be validated against the stakeholder's requirements / needs.

(Parmenter,2010) discusses how he can bridge the gap between balanced score card methodology and performance measures by introducing winning key performance indicators (KPIs). Performance indicators tend to be hard quantitative empirical data that reflect economic outcomes (return on capital employed, cost of sales etc.). Supplier value can deliver benefits outside direct economic ratios to organisations. It is expected that within the New Zealand and New South Wales Public Sectors there will be common characteristics that define value delivered from a key supplier relationship. The public sector drivers are separated from the commercial framework of creating shareholder wealth by the political agenda and the delivery of goods and services required by its citizens from the government purse.

The importance of this study can transcend jurisdictions, organisations and sectors and provide additional frameworks and knowledge in the research subject area.

1.6 Research Questions

The Public Sectors focus on reform and cost saving illuminates that there is a potential gap in the determination of value from suppliers. Therefore value characteristics from Suppliers and the concept of being able to cluster into a framework is the main research question this thesis will address. Limiting the research to Public Sector Procurement Professionals defines a precise sampling population. The inclusion of 2 Jurisdictions (New Zealand and New South Wales Australia) is designed to expand further research variable elements inclusive of culture, experience and market dynamics for comparison and review.

A key objective is that the primary data output obtained from the questionnaire will highlight levels of correlation between jurisdictions with the ability to cluster into a common set of variables. If this is achieved can a Value Characteristic Model (VCM) be developed by using principle component (factor) analysis? The VCM delivers a replication model for the public sector. Once compared with variables and attributes taken from previous literature is there the ability to determine if there is any commonality?

Linking back to previous research, comparing, discussing and concluding relevance has the potential to contribute to the knowledge of this subject.

1.7 Thesis Outline

The structure of this Thesis comprises 7 chapters set out in the following order:

Chapter One- Introduction: Introduces the background to the case study and the reasons why the research was conducted. This includes a background to the environment setting the context of the two jurisdictions of New Zealand and New South Wales (Australia) Public Sectors., scope and significance of the research, research objectives, framework and questions and the thesis layout (outline).

Chapter Two- Literature Review: Discusses the most relevant literature from the past 2 years of reading and research from the exiting body of knowledge that relates to the topic of supplier value and relationship value. This will assist with the clarification and provide a focused lens to the research questions that are addressed through this document. Synthesizing the literature will enable the research to focus on expanding the body of knowledge with respect to the value relationship between the supplier, customer dyad.

Chapter 3- Methodology: Provides details about the chosen research methodology and the methods used to address the questions derived through this case study. The Aim, Methodology and Design are explained in addition to the overall philosophy behind the research methodologies and the ontological / epistemological considerations. Final and important considerations looked at are based on an ethical review of this type of research and the safeguards in place to maintain anonymity during the research process.

Chapter 4- Stage 1 Inductive Research Analysis and Findings: Describes the method used through the workshops (pilots) process and the high level analysis determining a “core” set of value characteristics that was used for stage 2 of the research, the questionnaire.

Chapter 5- Stage 2 Quantitative Research Analysis and Findings: Analyses the data collected in relation to the research questions. This chapter includes the significant findings and the interpretations based on the results of the data analysed from the questionnaire. This chapter comprises: Introduction to the chapter, Data Transformation through coding, input into the statistical analysis tool SPSS, descriptive statistics describing population and profile of respondents and the hypothesis tests 1-5.

Chapter 6- Discussion and Recommendations: Discusses the findings from the previous chapter and looks at trends, outliers and tries to determine reasons and implications of the results achieved.

Chapter 7- Conclusions and Further Research: Summarises the research findings and draws conclusions from the findings based on the research objectives. It also considers any limitation of the study and proposes possibilities for further research in the field to further expand the body of knowledge.

Chapter 2: Literature Review

2.1 Introduction

The literature review will look at past research in the areas of Key Account Management (KAM) characteristics of key supplier relationships, customer of choice, customer value and relationship value; to inform and crystallise the methodology, approach and expected findings / limitations in the research proposed. Even though from this research there is limited to almost no research based on these elements directly associated with The New Zealand, Australian Public Sector and Public Sectors globally, the following will show informed interested parties the importance of the research to date taken from the commercial sectors; with the expectation that specific elements of these findings can be extrapolated across these boundaries. This study will also look at value not just being an economic benefit driven via financial ratios and accounting practice. This area of research is based on the epistemological belief based on natural science with a formal functionalist dominant research methodology.

2.2 Definition of Key Supplier (Customer of Choice)

Tabulated below is a selection of definitions taken from the literature reviewed;

	Authors				
Definition / Key Factors	Herman & Hodgson 2001	Choi & Hartley 1996	Kraljic 1983	Svensson 2004	Massella & Rangone 2000
	Cost	Quick	Profit	Supplier	Trust
	Reductions	Distribution	Impact $	Commitment	
	Expertise Sharing	Sharing Resources	Supply Risk	Importance Commodity	Commitment
	Procurement	Reduce			
	Coordination	Cost			

Table 1 Key Supplier Definitions/Key Factors

The preferred definition is a combination of definitions cited by (Gartner, 2013) and (Bew R. , May 2007). Customer of choice can be defined as “Consistently receiving competitive preference for scarce resources across a critical mass of suppliers, symbolised by Productivity Improvements, Preferential Supply Availability and Service Innovation.”

2.3 Customer of Choice and Key Account Management

There is limited research on the specific topic of "customer of choice" although prior to the late 1990's there are many examples of papers discussing the merit of being a key customer, a partnership relationship and alliance partnership. The strategic partnering handbook (Lendrum, 2004) discusses how you recognise strategic partnerships and alliances and how to implement them in business. Profitable Purchasing Strategies (Steele & Court, 2000) discusses and demonstrates tools for Supplier Preferencing and how key account management principles that suppliers use to determine the profitability of a customer.

(Lambert & Knemeyer, 2011) in the Harvard Business Review, Managing Supply Chains, discussed their propensity to partner model when determining compatibility and alignment to forming a closer supplier / customer relationship. Latterly journals and papers have emerged highlighting more research in the area of "Customer of Choice". (Huttinger, 2010) presented a paper at the International IPSERA workshop on customer attractiveness, supplier satisfaction and customer value in November 2010 and makes reference to (Bew, 2007) highlighting the importance of being "customer of choice". A survey that demonstrated that 75% of suppliers gave their preferred customers preferential allocation to materials, 82% gave first access to new products and 87% argued that their customers of choice got unique cost reduction opportunities. (Bew, 2007) also estimated that this equates to 2-4% of cost savings. This, however, has not been corroborated by further quantitative analysis.

The term customer of choice is a relatively new term. However suppliers have always segmented their customers and the term key account is something all suppliers relate to. Determining the classification methods to segment these customers could be seen as an immediate challenge. Suppliers will not necessarily inform their clients of their relative position to other customers in fear of losing any potential development opportunities. Also the segmentation methodology and the management process for key customers is something that is held onto as competitive advantage.(Kraljic, 1983) has developed a simple 4 box matrix that segments suppliers measuring market risk and relative spend. See Figure 1 and 2 below:

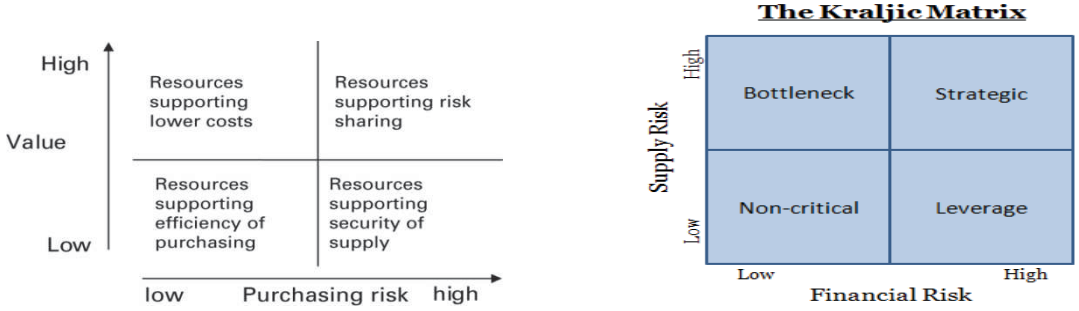


Figure 1 & 2 Kraljic 4 Box matrix

Using simple definitions you can segment your suppliers into 4 areas to determine the engagement philosophy. These are low/value-low risk known as routine non critical suppliers, high / value – low /risk known as leverage suppliers, low/value-high risk known as bottle neck suppliers and finally high/value- high/risk known as strategic / critical. Behaviours, interaction, engagement methodologies and resource allocation will be determined by the segment the supplier is placed in with detailed focus emanating from a supplier that is known as Strategic / Critical. Although at first this research and tool is based on a positive deductive methodology the actual generation of the data is derived from a mixed methodology that involves elements of an inductive strategy through exploratory questioning. This methodology is based on a more formalised deductive measurable outcome with a clear framework in how you perceive your suppliers determined on risk and spend. This does not highlight the value characteristics that the author is proposing to research but demonstrates the potential to extrapolate theory into tools and measurement.

(Humphreys, Williams, & Goebel, 2008) define the concept of supplier orientated purchasing behaviour (SOPB), looked at creating a valid measure, then discussed the managerial implications with a view to construct possible further research in this area. The finding resulted in a 17-item five–factor measure for SOPB. It recognised that as the maturity of purchasing continues to grow, the effectiveness has moved from traditional time, cost, and quality triangle to more soft / interpersonal skills while managing the supplier relationship.

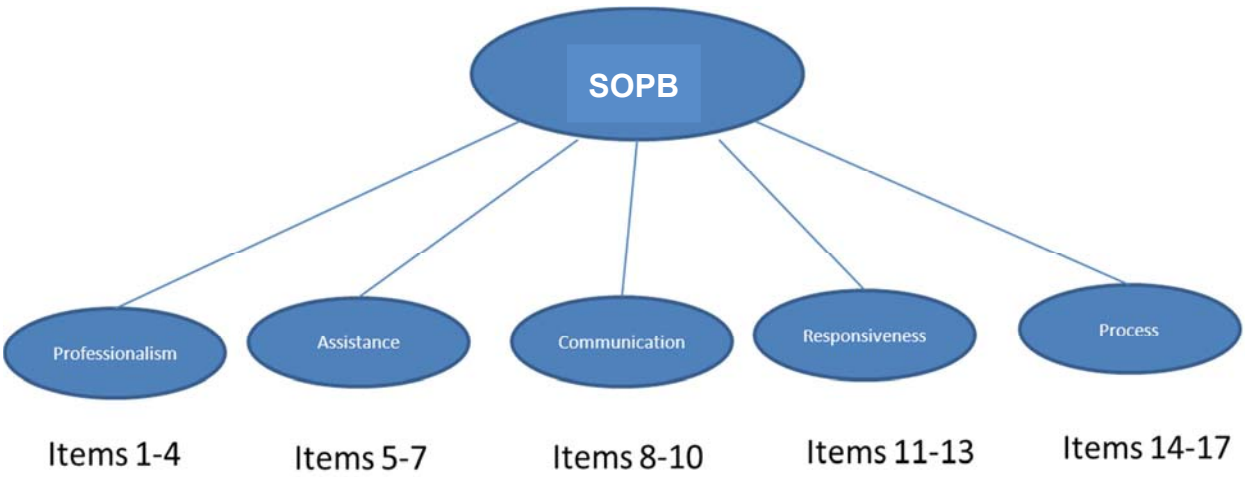


Figure 3 17 item five factor measure

One of the limitations highlighted from (Humphreys, Williams, & Goebel, 2008) research was that the sample used was regional in scope and may have contained an element of regional bias- therefore recommendations are to widen the scope in future research. SOPB has contributed to the current research on key account management or buyer-supplier effectiveness through managing relationships and has provided an expanded measure that can be used by purchasing

practitioners. Using the methodology of mixed method research is process that the author wishes to emulate.

(Friend & Johnson, 2011) Looked at the drivers and outcomes of key account relationships and identified that from a supplier perspective their most important customers were the ones that represented the highest share of sales and profits. These customers are treated differently to other customers through the delivery of customised solutions and high involvement. From interviewing 99 executives from 52 separate key accounts, (Friend & Johnson, 2011) found that there were 7 primary determinants that determined either a key or vulnerable (not important) relationship; commitment, trust, adaptation, customer orientation, communication and partnership. These primary themes had positive and negative sub themes. Lack of consistency of measurement due to the variances of the subthemes in a repeated exercise would be an issue, although the main themes can determine high level segmentation.

(Kuzmanovic, Gusava, & Maric, 2012) provided insights into how companies can examine customer value through assessing the desired value map of the customer and using methods of conjoint analysis. A benchmark can be achieved to determine value of that suppler relationship through the products or solutions being delivered to that customer. Although this was a strong methodology in product orientation the overall relationship value within the supply chain lifecycle was not addressed sufficiently. The hypothesis that value is determined through qualitative and quantitative factors reinforces the need to research both factors. (Harrison & Wicks, 2013) argue that the concept of value in a relationship in rarely measured outside economic returns. Organisational focus is based on what gets measured and so to the related performance. The unintended consequences of the trade-off between that which creates economic value against other forms of stakeholder value can diminish or erode the bases of support, meaning an impact on sustainable economic performance. They also looked at a sampling of relevant notions of value taken from (Hausman & McPherson, 2006) which further expands the theory that value is not purely economic returns.

In their argument, (Hausman & McPherson, 2006) study the research of (Kaplan & Norton, 1992) who introduced the concepts of the balanced scorecard due to the awareness by senior executives that traditional financial accounting measures give misleading signals for innovations and continuous improvement. Their reference to (Elkington, 1999) who introduces the concept of triple bottom line brings into light the areas of social and environmental value and add as further determinates of value alongside the traditional economic factors. (Porter & Kramer, 2011) also introduced a similar concept “shared value” approach. This research has defined 4 factors to determine value, physical goods and services (the value these bring to organisational success), organisational justice (the benefits of positive reciprocity), organisation affiliation (benefits from aligned vales and behaviour), Opportunity Cost and the Interconnectness of factors (the

importance of the effect of the factors overlapping from a stakeholder perspective). Again this highlights that value is not determined by financial instruments (quantitative) measures alone.

Research into the measurement of relationship benefit was key element of research driven by (Porter M. , 1985). In figure 4 (Porter M. , 1985) uses a model to try and define the value chain showing how each function or management team can either contribute to or diminishes the operating margin of an organisation. Here in this model you can see that Porter lists procurement as a support organisation, whereas new thinking sees procurement having a more functional leadership role being a key determinant in organisational competitiveness and growth.

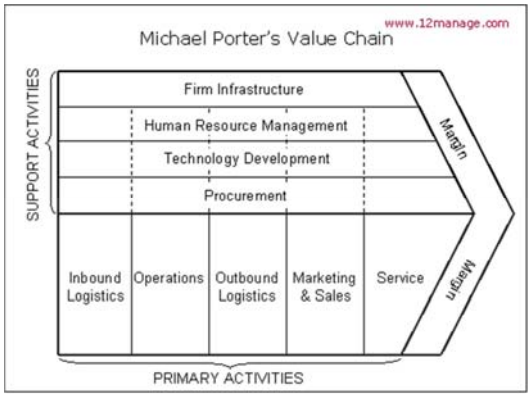


Figure 4 Porters Value Chain

2.4 Economic Benefit = Value

From a purely financial perspective the CFO and financial departments of most organisations use standard accounting financial instruments to determine value. These can range from Return on Capital Employed (ROCE) which is how much profit have their assets generated before interest and tax to Net Present Value (NPV) or Internal Rate of Return (IRR) which is used particularly extensively in major capital projects that are delivered over a period of time measuring the time and use of money over that time. Another financial method commonly used in procurement is the Total Cost of Ownership (TCO) (Ellram, 1995). This methodology is used throughout the purchasing community to determine the lifecycle cost of a particular purchase and is the summation of purchase price, cost of acquisition, cost to operate and cost of disposal. This clearly does not measure the other value and benefits (outside financial instruments) that the purchase or acquisition delivers to the organisation. The focus is purely cost.

(Karğın, 2013) looked at the value relevance in financial statements from an International financial reporting standard (IFRS) view. He stated that," Value relevance is being defined as the ability of information that is presented by financial statements to capture and summarize firm value". Using past literature reviews that contradicted evidence, Kargin used a formal quantitative approach by looking at financial reports of stock exchange companies in Turkey. The study was consistent with studies that revealed an increase in value relevance of accounting information

after implementation of (IFRS). He did also found that on earnings per share, the value relevance decreased sufficiently in post implementation of (IFRS). Therefore, from this literature review is financial reporting a sole method for determining value, or are there apparent opportunities for inconsistencies?

A determination will be considered through questions of methodology used outside pure $ spend when determining key supplier status. (Steele & Court, 2000) used the 4 box matrices methodology (figure 5) to determine supplier segmentation and supplier positioning. This takes into consideration $ spend on the horizontal access and determination of risk and exposure on the vertical axis. Sets of descriptors identify each of the categorised quadrants.

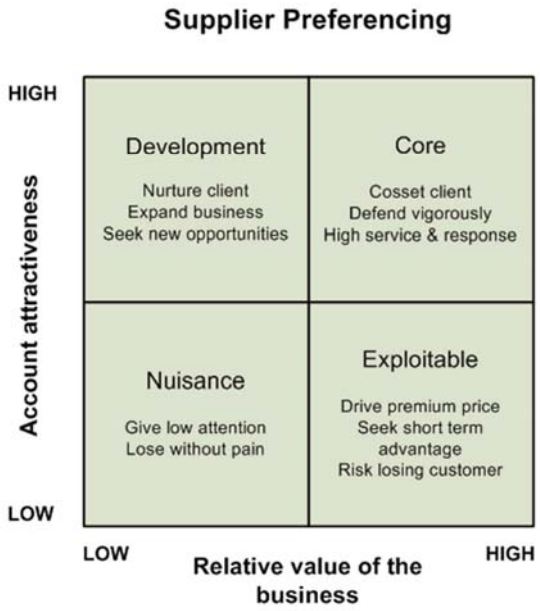


Figure 5 Supplier Preferencing Model (Steele & Court, 2000)

(Baily, Farmer, Crocker, Jessop, & Jones, 2008) in Procurement Principles and Management highlighted that there are many determining factors that equate to relationships and sourcing strategies. There is limited view on the potential of a supplier with a small spend or even a supplier that is a 3rd party contracted by the main supplier, as to how these could be determined as critical to the success of the customer delivery cycle. This is prevalent throughout the OEM environment in the motor car manufacturing process. The tiering methodology used is described as delivering simplicity however is absent in the review of managing the criticality of the relationship. This is a further example that economic benefits are not the sole determinants of value derived from Key Suppliers or being a customer of choice.

2.5 Relationship Value Creation - Supplier and Buyer Dyad

(Zsidisin, Ellram, & Ogden, 2003) reviewed cost management and resourced based views (RBV) focusing on exploiting environmental opportunities exploiting knowledge and the development of human capital to gain value and thus competitive advantage as a form of evaluating total cost of ownership (TCO)

Previous TCO philosophy did not include the mutual sharing of information both from the purchasing function and supplier. The need for openness and trust a requirement that required full organisational commitment was apparent. Review of literature Perceptions of Purchasing Supply Management (PSM) from prior studies (Degraeve & Roodhooft, 1999) highlighted the importance of TCO across both supplier and purchaser organisation and the commitment needed for it to be communicated throughout the organisations, supplier and purchaser.

(Zsidisin, Ellram, & Ogden, 2003) hypothesis tested the perception that value of PSM is positively related to PSM's involvement in TCO. Through a questionnaire two exploratory factor analyses was conducted. Three key factors were extracted using principle component analysis followed by a varimax rotation. The factors were labelled Importance of PSM, Accountability of PSM and Strategic Integration of PSM. A second factor analysis was run on items labelled Total Cost of Ownership, Supplier Cost structure Analysis and Target costing.

The research showed that there was a positive correlation between the perceived value of PSM and PSM's involvement in Total cost of ownership. Significant resources in terms of terms of managerial time commitments are often required to peruse strategic cost management activities such as TCO and this could be seen as a potential constraint.

Supplier selection decision making was considered and TCO analysis was highlighted as a crucial activity reinforced by a case study by Smith and Zsidisin in the aerospace industry and by (Ellram & Siferd, 1998) that proactive purchasing organisations within their supplier evaluation processes use strategic cost management tools such as Total Cost of Ownership.

The research did not explore the impact of PSM's involvement in strategic cost management on overall corporate profitability and this can be seen as a limitation.

From this literature review and knowledge gained through this process another key limitation is the impracticality at selection phase for the need to work closely with suppliers to analyse the whole TCO. There are limitations due to the resource levels required to initiate these reviews and also the need to be transparent and fair to all bidders under the Public Sector Policies and Guidelines.

(Chatain, 2010) from the management department at The Wharton School University argues that a firm's ability to capture value depends on the extent of its added value. He empirically tested

the link between added value capture using a longitudinal dataset of a United Kingdom law firm's performance, capabilities and client relationships. Like (Zsidisin, Ellram, & Ogden, 2003), Chatain explored the resource based view (RBV) of the firm highlighting that previous research suggested that competition matters to value capture. Competition among stakeholder, for example shapes the distribution of value captured by a firm (Blyler & Coff, 2003).

The hypotheses were based on two dimensions of value creation, expertise advantage and client specific economies of scope. The empirical analysis used fine grained data on law firm expertise, client base and performance in the U.K corporate legal market. The 3 components that were focused on were service or product line capability, client specific knowledge and client specific economies of scope. The first set of empirical analysis examined the determinants of buyer's choice of supplier when a new need arises. The results highlighted those suppliers that currently serve buyers other needs would be more likely to be chosen if being part of the supplier base provides an advantage for value creation.

The second set focused on the determinants of relationship termination. The relationship that creates less value relative to others in which a supplier is engaged and more vulnerable from competitors and therefore more likely to be terminated.

The overall empirical analysis suggested that in the setting researched suppliers that do not currently provide services to a buyer are at a severe disadvantage with respect to doing business with that supplier. This has implications for competition amongst suppliers. A supplier's most relevant competitors are those with which it shares a buyer. A competitor with average expertise that currently provides services to a common buyer creates a greater threat than a highly competent supplier that is new to the buyer.

The conclusion provides an insight into value capture and its consequences and is consistent with the theory proposed throughout this research, however it was subject to a number of limitations measurement error arising from information being aggregated either to a higher or lower level and the relatively low sample size limiting the statistical power of the analysis.

Chatains findings do contribute to the knowledge of buyer-supplier relationships and the capture of value and suggest that a supplier's ability to capture value from relationships depends not only on its own characteristics (levels of expertise etc.) but also how it's clients exploit competition. (Baker, 1990) concurred and highlighted that choosing suppliers is not only on their intrinsic competencies but also on the competition they provide to others.

This could be an important consideration when determining a common set of value characteristics that describe a key supplier and could be contributing factors in any further research concluded post this thesis.

(Catarina & Carlos) from the University of Porto researched the buyer-supplier relationship as a mechanism for the coordination and development of capabilities on both sides of the dyad. They emphasised due to the reinforcement of vertical disintegration there is an increasing reliance on purchasing and supply management to extract value from the supplier-buyer relationship (dyad). Increasingly the great proportion of value is now being created outside the boundaries of the firm by suppliers. The objective of their research was to understand the relationship between company's configuration and how this is established with their suppliers through a process of value creation.

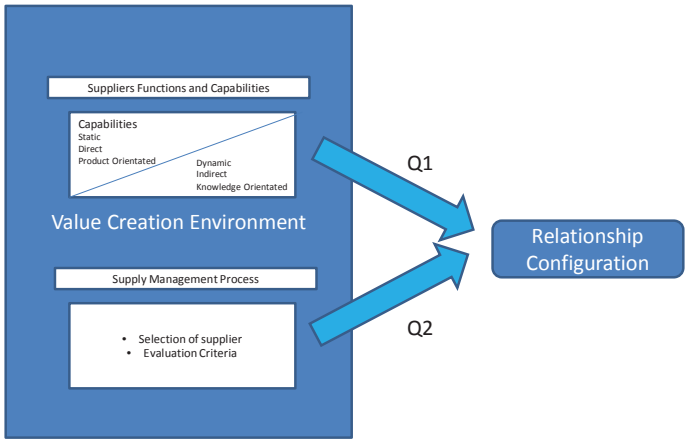


Figure 6 (Catarina & Carlos) Frame work for analysis

Figure 6 above represents the framework that guided the analysis. The link between value creation and relationship configuration is achieved through 2 questionnaires Q1 and Q2.

Two firms were used for the analysis Adria and Vulcano post capability interviews. The initial analyses proved insignificant from a high level comparison of dyads characteristics. Further in-depth research looked at a comparative analysis of the cases, focused on the link between configurations and the perception of supplier capabilities usefulness to the customer, taken from the previous research comparative suggested by (Mota & Castro, 2005). The study concluded that empirically the suppliers profiles of capabilities are just one set of factors, among others, that are likely to affect the functions. They also looked at the impact of the relationship between static/direct capabilities with direct functions and dynamic/indirect capabilities with indirect functions. This may contribute to a better understanding of co-value creation. The limitation of the research size and sample of only two cases is potentially offset by the greater more in-depth

research of the 2 cases and potential of the research (Dubois & Araujo, 2004) even if it cannot be generalised.

(Yu-I Lee & Ya-Chu Chan, 2011) investigated automotive repair and maintenance franchise industry constructing a chain store relationship value scale which ensuring both reliability and validity. The data was retrieved through interviews from a sample of 5 small medium enterprises of auto repair companies that had been in business over 9 years. From the concept they developed items from 80 questions as shown in table 2 below;

Dimension	Type of Value	Operational Definition
Product Quality	Relationship Benefit	Headquarters Provide Excellent Products, quality and stability, allowing buyers to feel safe using products
Image Design	Relationship Benefit	Headquarters Provides Franchises with comprehensive Store design, space and flow
Service Support	Relationship Benefit	Headquarters Provides Franchises with logistics Services, hardware and emergency support
Technology Assistance	Relationship Benefit	Headquarters Provides Franchises with maintenance Support, Training and information
Marketing Assistance	Relationship Benefit	Headquarters Hosts Marketing Events and provides Promotional items and materials
Equipment Assistance	Relationship Benefit	Headquarters Subsidises Franchises with Operational equipment and Expands and improves Automobile repair and maintenance Equipment
Stock cost	Relationship cost	Headquarters requires basic inventory levels, orders and Sales volume
Product Cost	Relationship cost	Headquarters cancels promotional items on larger orders
Managerial Elasticity	Relationship cost	Headquarters requests Franchises to support only One Brand and Follow Guidelines

Table 2: Operational Definition of Relationship Value Dimension

To reduce the data factor analysis was used and a model created to fit the research objective. Items were grouped into value dimensions between a factor loading of 0.511 and 0.905. The Table 3 below highlights the 8 factors and Eigen values achieved.

Dimension	Eigenvalue	Explained Variance %	Total Explained Variance %
Product Quality	6.4	17.8	17.8
Equipment Assistance	5.2	14.3	32.1
Technology Assistance	4.9	13.6	45.7
Image Design	4.3	11.8	57.6
Managerial Elasticity Lost	3.4	9.5	67.1
Marketing Assistance	2.5	6.9	74.0
Service Support	1.9	5.3	79.3

Table 3: Exploratory Factor Analysis

The study can be used as a reference tool with respect to relationship and value although a limitation is based on the need to complete further research to generalise the study and results due to sample size.

(OBLOJ & Zemsky) studied how the key contracting parameters such as efficiency, transactional integrity, indicative alignment and gaming affect outcomes when buyers face competing suppliers. They analysed the determinants of value creation and value capture in a situation where a buyer selects a contracting partner from among competing suppliers. From the analysis they designed a model that provided a general framework allowing for analysis of value creation and value capture with suppliers holding any combination of transactional integrity and productive efficiency. The analysis was limited to one buyer and two suppliers and although they stated that the results hold for multiple actors it was limited by the constraint of the number of tasks. The model does uncover interesting determinants of value creation and value capture and supports the need to complete further research to expand the knowledge of supplier value.

(Joshi & Chebbiyyam, 2011) presented a new technique that we have devised to identify the opportunities for Value co-creation based on priorities for value drivers in an IT enabled B2B services contract. They used a seven step process that we have developed helps to identify value creation opportunity for service provider (supplier) and the client.

The outcome was that both the service provider and the client identified strategic value as the common measure that they can co-create.

Figure 7 below details the model and relationships determined from Analytic Hierarchy Process AHP mapping drivers and outcomes from the research.

.

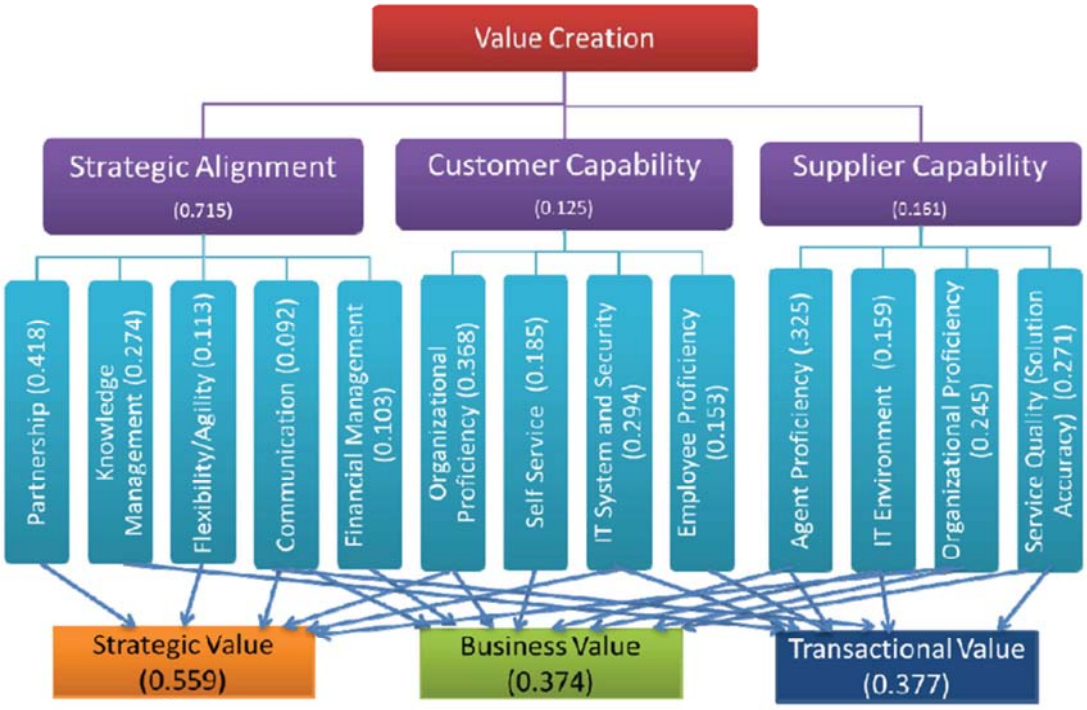


Figure 7 Strategic Value Model using AHP

2.6 Identifying Key Suppliers

(Wicks, 2012) article highlighted that the global market place sees businesses becoming more reliant on supplier for the provision of key process, activities, products and services that support their strategic goals. With the boom in Business Process Outsourcing there is an increasing potential for supplier to damage the company's reputation, productivity, compliance and financial performance and therefore a need to have a standardised process for identifying a key supplier. (Wicks, 2012) takes a risk based approach to identify key suppliers with a focus on understanding business and revenue impact of supplier failure rather than the traditional approach of Top-Spend and Top threat approaches.

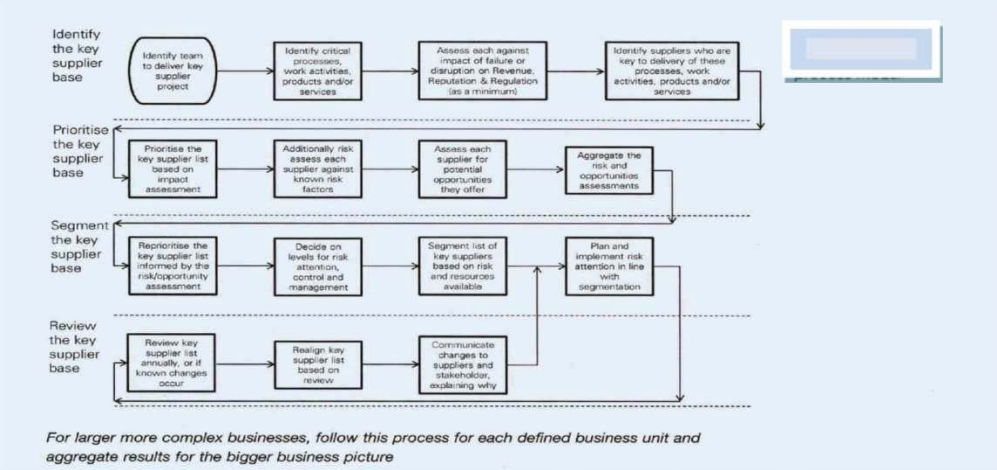


Figure 8 Wicks high level framework model

(Wicks, 2012) concludes that due to the importance of suppliers within the delivery of business continuity for organisations and the ability to build and deliver effective response plans to critical events; there is a important need to build a process to identify the suppliers capability in enablement of impact identification, capability and ability to build deliver and implement business continuity. This will assist in accepting or mitigating business risk when identifying Key Suppliers.

2.7 Public Procurement

(Dos Santos, 2002) highlighted through his literature review that procurement's responsibility is to source and select goods and services at the least cost and best quality for organisations. Although there were many similarities, the public procurement environment is extremely different to private sector procurement. (World, 2015) shows that different and even more extensive processes required for public procurement;

"The Bank gives equal importance to supporting the management and reform of public procurement systems in borrower countries. Increasing the efficiency, fairness, and transparency of the expenditure of public resources is critical to sustainable development and the reduction of poverty".

Similarly if you look at the (Procurement N. Z., 2015), The New Zealand Government web site the guidelines and principles demonstrated a more rigorous methodology for procurement;

1. Plan and manage for great results
2. Get the right supplier
3. Be fair to all suppliers
4. Get the best deal for eve
5. Play by the rules

NSW Government Procurement has a similar methodology and was based on the NSW Government Legislation (LEGISLATION, 1912) demonstrated the importance of Public Sector procurement through the setting up of a Procurement Board. The objectives of the Board are as follows:

1. to develop and implement a Government-wide strategic approach to procurement,
2. to ensure best value for money in the procurement of goods and services by and for government agencies,
3. to improve competition and facilitate access to Government procurement business by the private sector, especially by small and medium enterprises and regional enterprises,
4. to reduce administrative costs for government agencies associated with procurement,
5. to simplify procurement processes while ensuring probity and fairness

Overall the process must be conducted with open and transparent processes, with integrity, avoiding any potential improper, wasteful, corrupt and fraudulent practices and accountability with a high degree of public scrutiny. The purpose for public procurement is to protect companies from unfair competition and to avoid corruption and bribery (Ohashi, 2009).

2.8 Customer Value

(NDREGJONI & GEGA) researched the concept of value and its dimensions, value determiner variable, customer and loyal customer, behavioural approach of loyalty and eventually, customer loyalty and value key dimension interaction in organisation. They determined 5 key value dimensions;

1. Functional - economic view
2. Social – product used by friends and other counter parts a peer relationship
3. Sensitive – sentimental and psychological outcome – the feeling it provokes
4. Recognition – novelty and newness
5. Conditional – set of conditions at the decision to purchase

From the data retrieved and analysed through the field method via a questionnaire they found a significant difference between various levels of key dimensions of value and loyalty and government companies' customer loyalty. However there was a correlation between customer loyalty and customer consumption.

Post Global Financial Crisis there has been an enduring pressure for procurement organisations to focus on driving costs down. There is a possibility that by being pressured into focusing on this single lens that price becomes the sole determinant. How does a supplier ensure that a customer

sees all other extrinsic value from its offerings and what constitutes customer value? (Anderson, Narus, & Van Rossum, 2006) classified 3 kinds of value propositions being, all benefits, favourable points of difference and resonating focus. All benefits simply list all the benefits that a customer maybe seeking. This approach requires an in-depth knowledge in the customer environment and your competitive position. This is labour intensive and like earlier reference to (RBV) is not financially sustainable to complete this for all customers. Favourable points of difference is a great opportunity to deliver a visible distinction however like all benefit is resource intensive and required a greater understanding of competitor positioning and target customers value requirements. This has been seen as the favourable approach as it allows the customer to extract the value without focusing on the price point.

The resonating focus should be the gold standard, though as it is considered that the approach acknowledges that managers who make purchase decisions have major increasing levels of responsibility and are often pressed for time. They are keen to do business but don't have time to fully grasp all the critical issues. The focus on one or two points of difference that resonate with the managers value will enable quicker decision making without need to pause for contemplation of a comparable supplier. (Anderson, Narus, & Van Rossum, 2006) Have called this Distinctive Value Proposition (DVP)

This thesis explores a common set of Value Characteristics for suppliers in the Public Sector, managers may be able to focus in on their purchasing decisions and thus hone their decision making.

2.9 Literature Summary

The literature reviews to date point to the issue that defining value is subjective and many of the research topics have based their initial theoretical foundation on the epistemological premise of constructionism. Based on my limited research of current literature in almost all cases this has moved from an inductive method of data collection to a deductive analysis of the data captured. (Crotty, 1989) stated that "few pieces of research are ever 'pure' examples of any one paradigm, fitting unequivocally into one category at the exclusion the others". Mixed research methods to be used are therefore endorsed through the concepts highlighted by (Crotty, 1989).

The conceptual model seeks to develop the values outlined in the model diagram below in Figure 9. However this is not limited to the model and the outcome may highlight potential new inputs that determine value from the surveyed research actors.

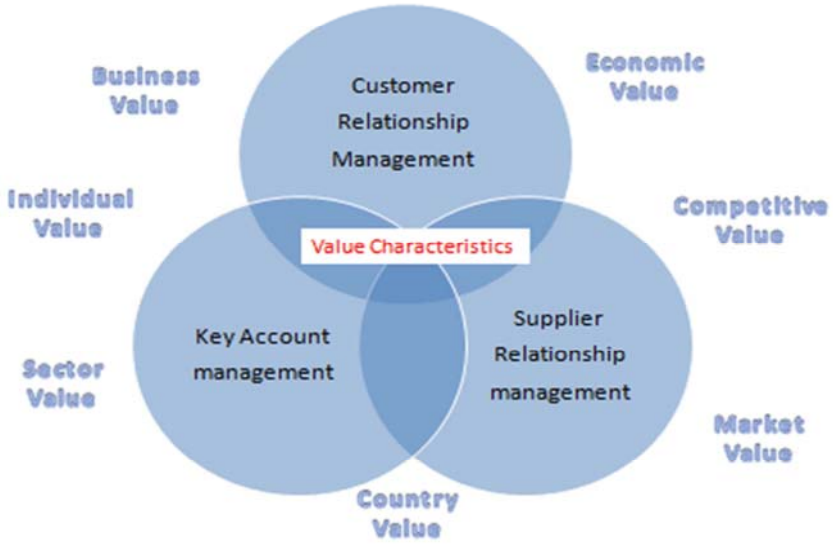


Figure 9 Conceptual research model

The Table 4 below has been extracted from Appendix 1 summery of literature values reviewed. You can see that they have been grouped into the areas that have been highlighted in the conceptual model. If you compare the research value elements within the table although the nomenclature may appear on the surface to highlight inconsistencies and difference, many of the concepts and attributes can be clustered into a common set of values under a common language. Therefore it is possible to take the correlated values from previous research and group them into a set of expected value characteristics that will be consistent with this extended research.

	Joshi & Chebbiyam	Catarina & Carlos	Humphreys, Williams & Goebel	Kaplan & Norton	Lamber & Knemeyer	Lendrum	Steele & Court	Lee & Chan	Zsidisin, Ellram & Ogden	Wicks	Ulga & Eggart	Porter & Kramer	Chatain
Customer			Professional, Assistance, Communication Responsive Process		Planning, Measure, Communication Risk Reward, Commitment ,Fairness		Commitment Trust, Risk/Reward, Benchmark Measure, Capability, Efficiency, Innovation		Communication Measures Cost Savings, Continuous Improvement			Economic, Social, Quality, Yield	
Key Account	Partnership, Knowledge Management Flexibility, Communication Financial, Competency, Proficiency, Service Quality					Strategy, Alignment, Customer Satisfaction Innovation Capability Financial , Trust, Responsive Flexibility, Quality				Cost, Quality, Financial, Innovation, Risk, Specialist resources, ethics , CSR			Existing Supplier, Expertise, Designed Scope
Supplier		Production Knowledge Efficiency, Innovation		Financial, Customer, Internal Business, Innovation, Learning				Product Quality, Service, Professional Cost,			Product, Service, Know-How, Time to Market, Social, Process Costs, Price		

Table 4: Comparison of Literature Captured Values

The common set of value characteristics taken from literature can be presented in a similar format to the conceptual model in figure 9 below in Figure 10;

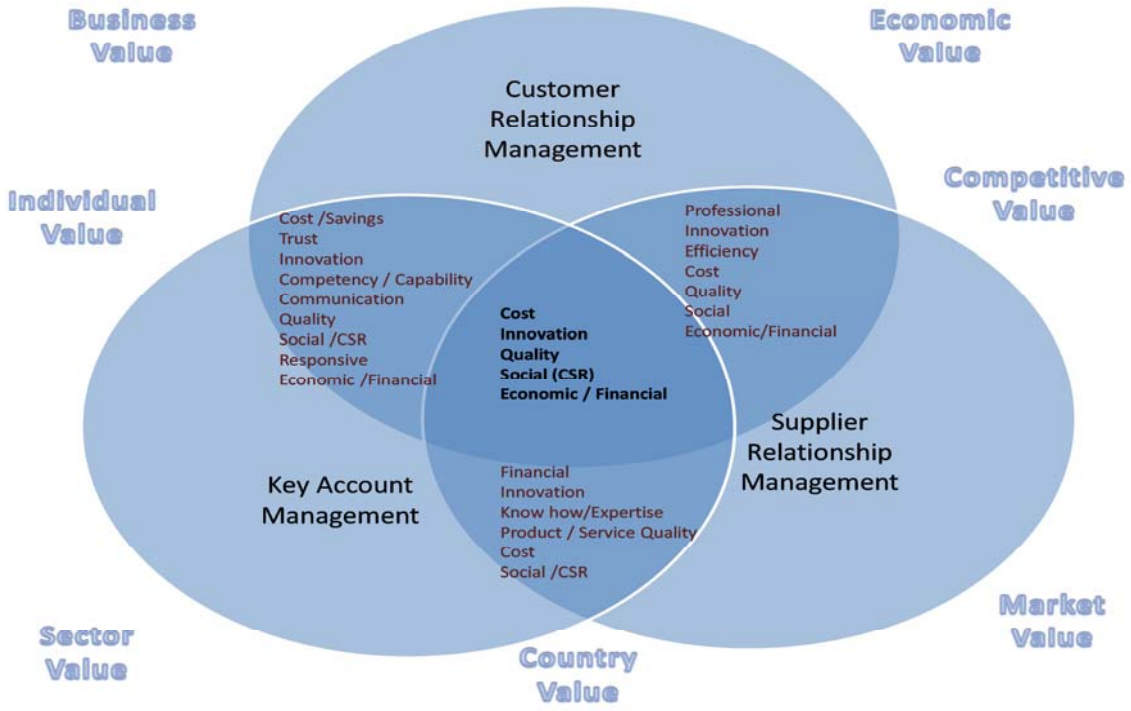


Figure 10 Literature review through conceptual research model

It is clear to see that from each prospective of literature there are common themes and characteristics that have been researched. By grouping these as per figure 10 into the original concept model it can be seen that the cross over points from the different lenses of recipient research will enable the development of a common referenced value set. Therefore from the literature reviewed of previous research it is expected to find many of the values represented in the model above as Public Sector supplier value characteristics.

Chapter 3: Methodology

3.1 Introduction

This chapter provided details about the chosen research methodology and the methods used. It also sets out the objectives of the research and the rationale for selection of methodology & design. In the third section we discuss the philosophy of research and then how this has influenced the research framework, design. The fourth section discusses qualitative v quantitative research outlining the chosen method of the writer. The final section of this chapter outline the methods the development of the questionnaire, the data collection, data analysis and methods and the research process.

3.2 Research Objectives and Supporting Hypothesis

The following are the core objectives that determine the context for this research;

- Objective 1; Obtain a control set of characteristics that determine value from key suppliers in the New Zealand and New South Wales Public Sector.
- Objective 2; Rank the control set in order of significance (A reference benchmark)
- Objective 3; Determine the appropriate value characteristic from a Key Supplier
- Objective 4; Determine the value priorities for public sector procurement.
- Objective 5; How do these priorities change by country?
- Objective 6; Determine how they are influenced by experience
- Objective 7; Obtain a common set of value characteristics for NZ and NSW by grouping into clusters.

The methodology chosen to deliver this research set of objectives will be expanded throughout this chapter.

The specific research questions to be addressed are listed in section 3.6 of this chapter and the questionnaire transcript from the Cloud based Software application is detailed in Appendix 2.

Hypothesis leads the method for the analysis of data. This provides further and more detailed insights into the output obtained through the questionnaire.

The definition of Hypothesis (ses); a proposition, or set of propositions, set forth as an explanation for the occurrence of some specified group of phenomena, either asserted merely as a provisional conjecture to guide investigation (working hypothesis) or accepted as highly probable in the light of established facts, (House, 2013). Therefore if the main research question is “What are the value priorities for public sector procurement?” the following hypotheses are used to guide the investigation;

Hypothesis 1: The value characteristics can be selected by the frequency of choice.

Hypothesis 2: The value characteristics in the Public Sector can be ranked in order of priority.

Hypothesis 3: The country of origin will influence the priority ranking of the value characteristics.

Hypothesis 4: The length of time a person works in procurement will determine the value characteristic priority.

Hypothesis 5: If value characteristics are ranked, then they can be clustered into common value characteristic sets determining homogeneity.

3.3 Research Philosophy

Traditionally supply chain and logistics research has been founded on a systems approach and therefore based on a positivism epistemological belief. (Frankel, Naslund, & Bolumole, 2005) investigated the methods used in logistics research and corroborated the theory that the systems approached was based on a more quantitative philosophy.

3.3.1 Epistemological

Epistemology is concerned with defining knowledge and explaining how it works. (Bryman & Bell, 2011) stated that epistemology deals with issues of what is acceptable knowledge in a field of study and (Lincoln, 2000), highlighted that epistemology is a philosophical belief system about who can be a knower. Basically the theory of knowledge and these beliefs will determine the research process, method design and method selection. Positivism assumes that the social world can be studied in a similar way to natural science using statistical analysis of imperial data like a quantitative analysis of natural science. (mertens, 2005) stated that there is an objective reality that transcends the participants; therefore measurement can be made by deductive processes. The counter argument to positivism is the interpretive view; Intepretivism posture revolves around the study of human interactions and the causal explanation through the understanding of the social phenomena know as human behaviour. This involves people who attach, meaning and affect to what is continually affected by what is happening around them (Scultz, 1962). The research and theory behind these philosophical beliefs is through strong inductive learning's.

Table 5 below is taken from (Bryman & Bell, 2011) highlights the clear differences between the epistemological beliefs;

	Positivism	Interpretivism
Basis	Natural Sciences	Human Interactions
Approach to Social Science	Explanation and Generalisation of Human Behaviour	Causal Explanation and Interpretive Understanding of Human Behaviour
Subject Matter	Nature	Social Reality
The Subjects Actions	Inanimate and Unmotivated	Meaningful and Engaged
Data Collection	Observation, Codification and Measurement	Comprehend the Perspective of the Human Subjects
Research and Theory	Mostly Deductive	Strong Inductive Learning

Table 5: Epistemology (Bryman & Bell, 2011)

3.3.2 Ontological

Ontology is a philosophical belief system about the nature of reality. This is focused round the social context of what can be known and how. Every human being has biases and preconceptions that are inculcated into us from birth onwards through socialisation, acculturation and learning (Bradley, 1995). the comparison between the social world being patterned and predictable and tangible, known as Objectivism and the social world being continually constructed through human interactions rituals, behaviours through and evolving order known as Constructivism. (Jupp, 2006) noted these assumptions represent two very different ontological perspectives. The table 6 below is taken from (Bryman & Bell, 2011) and their presentation of the differences between objectivism and constructivism ontological perspectives;

	Qualitative	Quantitative
Nature of data	Soft Data	Hard data
	Cases and Contexts	Variables and Hypotheses
Research Path	Non-Linear, Iterative	Linear, fixed
Reasoning	Logic in Practice	Reconstructed Logic
	Authentic interpretations (sensitive to social-historical contexts) to construct a meaning	Precisely measured variables to test hypotheses that explore general causal relationships
Human Factor	Embraced, Valued, Central	Control or Eliminate affects
Preference	Female	Male

Table 6: Ontology (Bryman & Bell, 2011)

(Frankel, Naslund, & Bolumole, 2005) did discover that there were trends in greater application of case methodology and increased application of a mixed method approach but still predominately in the positivist camp. (Frankel, Naslund, & Bolumole, 2005) recommend that "If we truly want to develop logistics, to make it broad and rich, to develop and test new theories, then we need to question our paradigms, methodologies, and choice of methods." From the paper you can conclude that the mixed method approach is proposed. From an adaptation of the philosophical elements and basic research viewpoints (Vaishnavi & Kuechler, 2005), table 7 below provides further clarity to the author's philosophical approach. It also introduces Axiology which concerns research values "truth" in a positivist sense and of the understanding the phenomenon in an interpretivist.

Philosophical beliefs	Research Paradigms	
	Positivism	Interpretivism
Ontology	Separately, external reality, single	Interrelated, socially constructed, multiple
Epistemology	Objective, excluded from research reality	subjective, interaction between researcher and the phenomenon
Axiology	Truth and prediction	Understanding from different view
Methodology	Observation, quantitative research, statistical analysis	Interaction, qualitative research, dialectical analysis

Table 7: Authors Philosophical approach and method

Note: The Research paradigms demonstrated in this table cross from the positivist into the interpretivist paradigm hence mixed method approach.

3.4 Research Design – Quantitative v Qualitative & Mixed methods

3.4.1 Research Philosophy

The common approaches in research methodology are quantitative and qualitative. The strategy is based on the epistemological and ontological beliefs within the research actors. Although today authors such as (Bryman, Social research methods, 2012) and (Frankel, Naslund, & Bolumole, 2005) questioned the choice of only one method and preferred the mixed method approach philosophy which is gaining currency in today's research. The following sections outline of the different methodologies with a summary of the approach taken for the proposed research.

3.4.2 Quantitative Research

Quantitative research is the generation and testing of a hypothesis (theory) related to an identified phenomena. Comprise a process of inquiry based on testing the theory containing variables measured using statistical tests of numerical analysed data. In terms of research design quantitative researchers rely on collection and analysis of numerical data. Statistical Analysis is the main tool used to discover the relationship between the variables of the data and this provides the generalisability of the findings. These variables can be categorised base on type; univariate being a comparison of a single variable against a benchmark, bivariate being a comparison of two variables and multivariate a comparison of multiple variables (Zikmund et Al (2010). As stated previously quantitative researchers tend to adopt the natural sciences model when studying social phenomena (mertens, 2005), the research tends to be associated with the realist epistemology, the approach to knowledge that maintains the real world exists. The descriptive analysis techniques that are often used are average, variance and comparison

(Zikmund et Al 2010). Whether the data collected is produced in the form of numerical values or was subsequently converted as part of the analysis process (Jupp, 2006) the statistical analysis stems from the positivist inductive approach that natural science is measured.

3.4.3 Qualitative Research

Qualitative research is concerned with obtaining deep understanding of social reality viewed through the eyes of the actors and developing appropriate theory. Research builds a complex and holistic picture of the phenomenon of interest conducted in natural settings. The qualitative method instigates the why and how of decision making and not just the what, where and when. Qualitative researchers largely follow an inductive approach in contrast to the deductive orientation of quantitative researchers. Qualitative research is grounded on the epistemological belief that the natural sciences model cannot be applied to the study of social phenomena as humans attach meaning and interpret their environment (Scultz, 1962). Qualitative research is therefore by definition exploratory, and it is used when we cannot predict the outcome to define a problem or develop an approach to a problem. It can also be used to deepen the research by exploring the nuances related to the problem that is being looked at (Walsh, 2012). The common method of data collection is via focus groups, interviews and observation. This is why interpretive techniques are used and the emergent reality is constantly being constructed or re-constructed. The research process is often seen as relatively unstructured and the emphasis is based on the breadth of the data captured. Criticisms centre on the lack of generalisability, influence from researchers or interviewers and many instances no new tangible theory is developed (Bryman & Bell, Business Research Methods 3rd ed., 2011). Table 8 below;

	Quantitative	Qualitative
Theory and Research	Deductive (testing out theory)	Inductive (generating new theory)
Epistemology	Positivism (natural science)	Interpretivism (social science
Ontology	Objectivism (tangible and measurable)	Constructionism (social interactions)

Table 8: Comparison Quantitative v Qualitative (Bryman & Bell, 2011)

3.4.4 Mixed Method Research

Mixed method research is a combination of both qualitative and quantitative research techniques in a single study. The argument against mixed method research is centre on the epistemological commitments and that qualitative and quantitative researchers are separate paradigms. Therefore the embedded argument highlights that each study is inextricably embedded in the

commitments to particular versions of the world and to knowing of the world. The paradigm argument continues to argue that the epistemological assumptions, values and methods are inextricably intertwined and are incompatible between the paradigms. Even those it could be seen as contentious, studies have shown that about 17% of articles published in business and management fields consisted of mixed methods methodology (Bryman, Social reserach methods, 2012). Specialist's journals such as International Journal of Mixed Methods for Applied business and policy research are now available leading to a plausible reason for adoption.

There is little doubt that mixed method research is more common and there is growing preparedness to think that research methods as techniques of data collection or analysis and not encumbered by the epistemological or ontological baggage. There is also a perceived softening to quantitative research amongst feminist researchers breaking down perceptions and barriers. Table 9 below highlights the gender preference (Nueman 2006).

	Qualitative	Quantitative
Nature of data	Soft Data	Hard data
	Cases and Contexts	Variables and Hypotheses
Research Path	Non-Linear, Iterative	Linear, fixed
Reasoning	Logic in Practice	Reconstructed Logic
	Authentic interpretations (sensitive to social-historical contexts) to construct a meaning	Precisely measured variables to test hypotheses that explore general causal relationships
Human Factor	Embraced, Valued, Central	Control or Eliminate affects
Preference	Female	Male

Table 9: Comparison Quantitative v Qualitative (Gander preference) (Nueman 2006)

3.5 Research Methods.

The research objectives will be through the high-level process detailed below using a framework similar to the DCR framework detailed in figure 15 Section 3.5 Research Methods.

Method 1; Stage 1 Workshops (Pilots) key procurement leaders (PFLAG) in NZ and CPO's from the Procurement Leadership Group of NSW Government. A qualitative approach was used, requesting each individual to independently derive 10 value characteristics. Presentation of the results was agreed via consensus and the results were grouped into characteristics. The groupings will be consolidated from the 2 pilots to deliver a control set of value characteristics. The control set of value characteristics derived from the pilot phase will be embedded into the questionnaire.

Method 2; Stage 2 of the research once a control set of characteristics has been derived from the pilot phase involved a stratified questionnaire across the NZ & NSW Public Sector. The questionnaire comprised; 8 questions with 4 questions aimed at determining a common set of value characteristics and the ability to rank in priority order of significance. The 4 further questions are used to collect characteristics of the population being sampled.

3.5.1 Selection of Research Methodology

The research methodology chosen and highlighted in the DCR framework in figure 15 uses Pilot workshops, focus groups, discourse and questions. This is a form of Qualitative methodology through constructivism epistemology. However the data will be formed into numerical statistics to obtain a quantitative output and therefore objectivism in its epistemological beliefs.

Further extrapolation of this approach is contained in Table 10 below. This forms the authors schema used in interpreting and synthesizing the theoretical framework to be used for the research study (adapted from (Crotty, 1989)).

Epistemology	Theoretical Perspective	Methodology	Methods
Constructionism	Interpretivism	Workshop	Focus Group
Subjectivism		Discourse	Questionnaire
Objectivism	Positivism	Survey	Sampling
			Measurement
			Correlation
			Statistical Analysis
			Data Reduction

Table 10: Synthesis of Research Method

The methodology and methods contained in table 13 will be expanded on further and discussed in more detail throughout this chapter.

Figure 11 shows the main outline of the steps used through the quantitative research method.

Figure 11 main steps in this quantitative research

Since a quantitative approach has been chosen for the value characteristics study via the input produced from the questionnaire; four main areas, methods or strategies will be adopted for this research are outlined as follows:

1) **Measurement-** this will be achieved through various methods, commencing with the measurement of focus group discourse tabulating the data by grouping the output of each individual participant into agreed common characteristics. The next measurement stage will be based on the output of a simple questionnaire that will be exercised across the whole of the public sector.
2) **Causality –** From the outputs of both the Focus Groups and Questionnaire relevance to variables may be obtained and measured.
3) **Generalisation –** this is a key factor within the quantitative research approach and the focus will be to deliver a representative sample through the 284 & 220 organisations in NZ and NSW respectively with an added lens on priority ranking within the public sectors.
4) **Replication –** the research methods used through focus group discourse and survey sampling and measuring will be able to be reproduced and delivered from any jurisdiction.

Extending the research from NZ to include the NSW Government sector in Australia increases validity of this research method.

3.5.2 Review of selected research methodology

The qualitative design and approach adopted for this study will provide accurate and credible findings that will extend the current research in the topic area. The linear path approach with formalised structures through questionnaires and statistical analysis, limits issues around objectivity and integrity and the opportunities for being biased and dishonest. To this extent below will detail the potential design issues with quantitative research and the abilities to minimise impact.

(Bryman, 2012) viewed these constructs as leaning toward criteria such as credibility, transferability (replication previously referenced in this text), dependability and conformity.

The variable by its nature is not necessarily fixed and determining a set of fixed value characteristics from 288 variables may be illuminated as a complex solution. Testing and refining the hypotheses defined in 3.0 will be required so that consistency can be repeated and thus gain broad acceptance. Another challenge area is the size of the research population post collection of respondent data. If a miss matched set of units of data is collected across each individual sector then there is a potential issue for imprecise reasoning about the evidence- known as Reductionism. Linked to Internal reliability (Neuman, 2006) noted that how research is designed in terms of questions, data collection methods, measurement techniques and data analysis and outcomes will determine the stability and correctness of the outcome. This will challenge the notion that this has extended the research delivery genralisable outcome. (Sackett & Larsen, 1990) highlighted this as an external validity issue when considering qualitative analysis.

Spuriousness is also a factor that traditionally researchers get excited about when performing quantitative research. This is when 2 variables are associated but not causally related as there is an unseen third factor that is the cause and an independent variable. The challenge for this research is to illuminate any potential of spuriousness prior to the questionnaire being released. (e.g. and unforeseen agenda that is being promulgated thorough out the NZ & NSW Public Sector that may influence the answers to the questions).

3.6 Research questions.

The study will attempt to deliver a greater understanding of the Value characteristics that determines a key supplier for the NZ & NSW public sector through the following structure and template questions;

1) Introduction Letter (and or internet based)
    a. Explain the request and context of the requirement

b. Define and introduce what a Key Supplier is to set framework
c. Detail time line to fill in questionnaire and dates for response

2) Questionnaire
   a. Maximum of 8 questions
   b. Questions 1 – Type of procurement your key suppliers deliver.
   c. Questions 2 from the control list of value characteristics – respondents required to tick most appropriate
   d. Question 3 rank in order of priority 1-10 with 1 being most important
   e. Question 4 will introduce a new set from the respondent's experience
   f. Question 5. As to add to the ranking data
   g. Question 6 Time in procurement – years
   h. Question 7 Any General Comments like to make
   i. Question 8 Agency or Organisation represent

Simplicity of questioning and the multiple levels that the data can be collected through this option will deliver data that can be coded into various formats and analysed as detailed in section 3.7 Data Analysis and Problems.

The actual letters and questionnaire are contained in Appendix 2 Questionnaire Template and Letter

A cloud based application "FreeonlineSurvey" was purchased under a monthly subscription basis as the method to deliver the survey capture and perform basic analysis of results. The survey was distributed to the NZ and NSW government populations from distribution lists provided by each sector advisory division.

Access to the Survey was through an HTML link provided within the letter (see Appendix 2). Anonymity was achieved through the application by not having access to the email addresses that responded via the link. However recipients could enter their email address if they required a copy of the outcome (Thesis).

3.7 Data Collection & Problems.

The phrase "Garbage in, Garbage out is commonly used amongst researchers. If the data collected is not collected properly or coded correctly your results are likely to be garbage as it would be different from the data set that was entered in our instance via the Questionnaire to that being analysed.

(Zikmun, Babin, Car, & Griffin, 2010) showed in the Figure 12 below a high level process of the stages of collecting data. The raw data created from the output of the questionnaire may not be in the form that lends itself well for the analysis. An off the shelf tool (SPSS developed by IBM)

was used to perform the analysis function with the data provided from the output of the questionnaire in both New Zealand and New South Wales.

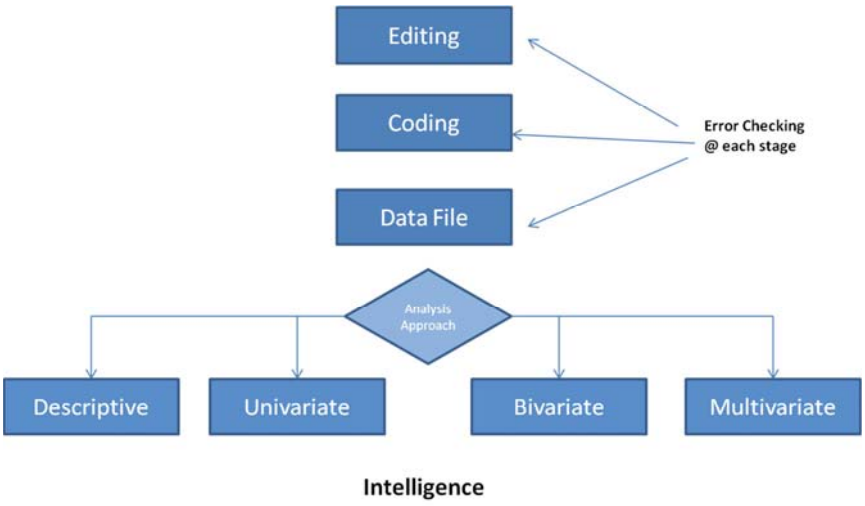


Figure 12 Overview of the stages of data analysis

For the purpose of this study the methods for data collection are primary. This is due to the fact that the NZ & NSW Public sectors are a defined target population. Both jurisdictions have defined Advisory Groups (NZ All of Government Procurement Functional Leadership Group and the NSW Government Procurement Leadership Group). Similarly as detailed in this section, table 11 below details the methodology and methods taken from table 10 expanding on highlighting the strengths and weakens from the chosen methods and potential options for mitigation of the weakness to ensure it can meet the strategy set out in this chapter;

Methodology	Method	Strength	Weakness	Mitigation
Pilot	Focus Group discourse	targeted instant response	Group Biase, Led by facilitator	use methods like post it notes to indvidualise
				Only introduce concept dont lead as facilitator
	Letter	Introduce concept in letter - Clear requirements	Understanding and response	Pilot the letter by sending to sample audience
		medium cost		
				Follow via email of telephone
Survey / questionaire	email	Target to email addresses known	Limited sample and response	correct email address for each interviewee
		low cost		

Table 11: Methods, Strengths, Weaknesses and Mitigation options

The table is not an exhaustive list and as (Aldridge & Levine, 2001) suggested that piloting will allow the researcher to gather information on the appropriateness of the questions and the predefined response categories for each question demonstrating how the overall survey format and structure will actually function.

3.8 Data Analysis & methods

Neuman, 2006) developed the model below in Figure 13 of how you test the abstract hypothesis through to a measured result.

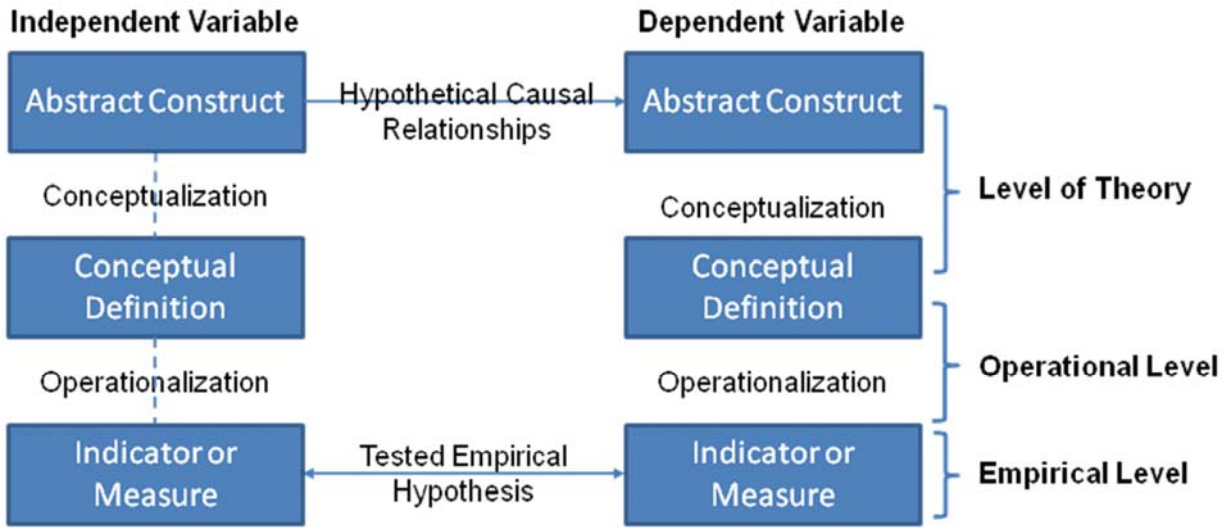


Figure 13 Neuman 2006 Hypothesis to measure

The chosen method of descriptive analysis taking statistics summarized from the respondent population and presenting this via an elementary transformation of the data into the basic characteristics such as frequency, distribution, order, variability and central tendency. Tabulation will comprise of frequency, means and standard deviations with correlation across sectors again comprising of frequency and means. The challenge is to manage potential zero hypothesis and/or non-respondents. (There is not a common set of variables across sectors the variable are too diverse and hence not tabulation of frequency etc).

The stages of analysis detailed below;

- Data collection from Survey and follow up Non-respondents
- Tabulation into sectors to determine if relevant sample size for each sector
- Coding into frequency tables – elaboration and refinement
- Cross tabulation and correlation – looking for norms and ordinal ranking
- As the data is transformed movement toward research objectives

- Synthesis at this change will develop the analysis results and potential limit any bias in interpretation of the respondent's data.
- The outcome then is to operationalise the data and then re-test the hypothesis

The outcome of this analysis is to determine that there is a univariate set of common characteristics. (Zikmund & al, 2010) figure 14 below demonstrated the statistical choice in a simplified diagram

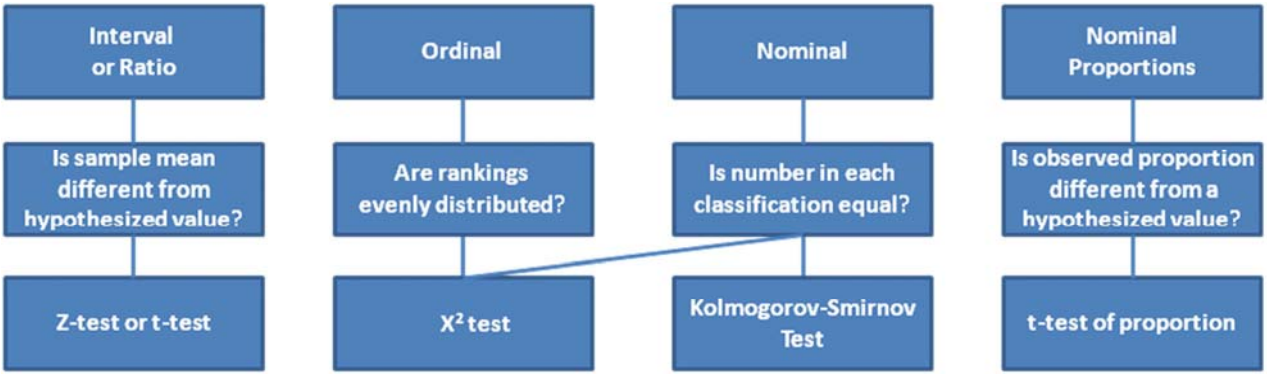


Figure 14 Zikmund et al 2010 Statistical choice

For the purpose of this study the data measurement methods (techniques) used are based on primary concept of variables whose features consist of data types know as nominal, ordinal, interval and ratio. (Stevens, 1946) classified these variables into the levels of measurement described. The questionnaire methodology will first determine the variables by requesting to list characteristics. The request to rank the list is coding the data into an ordinal format. The appearance of a pre-determined list of characteristics take from the 2 pilots uses a nominal coding technique followed again by an ordinal request to further rank in order of importance. Questionnaire construction is important to achieve data integrity as the there is a need to minimise any editing of the responses by the researcher as this would potential introduce bias and minimise reliability. Tabulating responses and developing a coding method in an appropriate format will be challenged by the volume of returns from the sample size. The sample frame is systematically produced by the defined population of the NZ & NSW public sector; however the level of non-responses could challenge the validity of the sample size for each individual sector within the NZ& NSW public sector. A representative same will be required if there is going to be any correlation measurement between each sector.

The overall framework for the research approach can be presented as a Descriptive Correlation Research framework (DCR). Figure 15 below is an example of the DCR framework in the context of this research proposal;

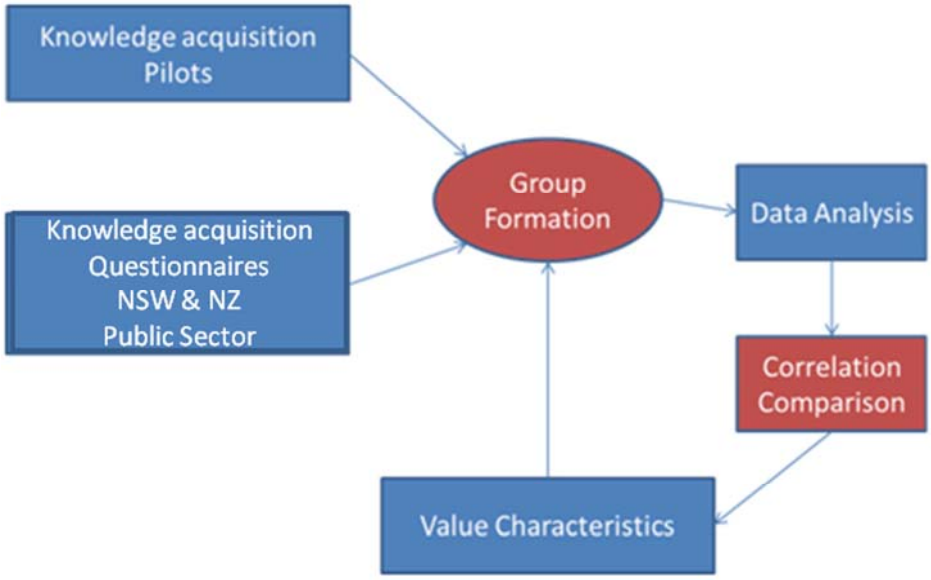


Figure 15 DCR Framework

The Inductive process (Pilots/Workshop) are designed to determine and select a control set of Value characteristics that can be used during the research questionnaire through a qualitative research methodology. As stated throughout this Section “Section 3 Methodology”; Qualitative research is grounded on the epistemological belief that the natural sciences model cannot be applied to the study of social phenomena as humans attach meaning and interpret their environment (Scultz, 1962). Qualitative research is therefore by definition exploratory, and it is used when we cannot predict the outcome to define a problem or develop an approach to a problem. The common method of data collection is via focus groups, interviews and observation and thus the research used pilots to collect initial data from the decisions delivered from 3 Focus groups (see chapter 4). Inductive research analysis and findings where explained in more detail. The outcomes were tabulated and all the suggested criteria were used in the questionnaire.

The second stage was conducted using the technique of a formal questionnaire and the data extracted from the research is analysed in a quantitative methodology as detailed in chapter 5, Quantitative Research Analysis and Findings. Mixed method research is a combination of both qualitative and quantitative research techniques in a single study. This study could be considered as a mixed method study due to the staged approach using qualitative methodology in the pilot and quantitative analysis post questionnaire; however due the analysis and questions being examined are post questionnaire the final outcome is based on quantitative statistical analysis and statistical hypothesis testing.

3.9 Research Process

The research methodology selected for this study is quantitative as the intention is to highlight a common set of value characteristics that can be established into a framework using deductive research that can be demonstrated in the formation of a Value Characteristic Model (VCM). This research finding is not limited to the NZ & NSW public sector and can be recognised in the wider area of informed research globally. The positivist method is constructed through a linear systematic approach via a set of predetermined questions. The results will be analysed determining the patterns and tabulating the common set of variables into a standard output set. Categorising the variables will determine a set of attributes that can be then established and demonstrated into a framework which will be the basis of the VCM.

The process to be used is similar to that detailed below, taken from (Bryman & Bell, 2015);

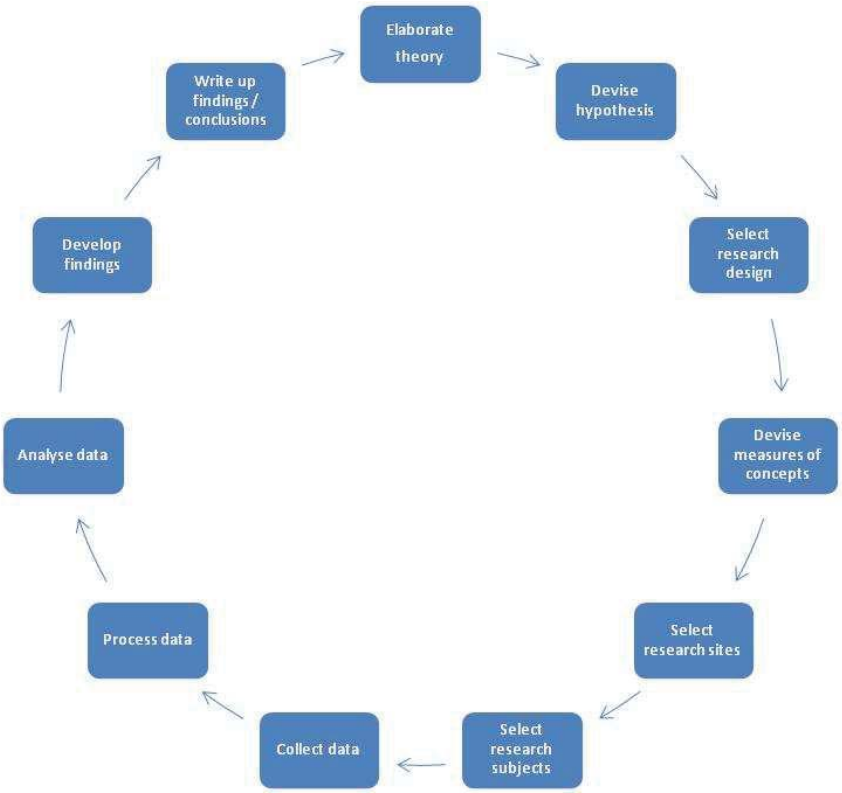


Figure 16 Research Process

Data collection is operationalised through the development of a questionnaire sent to all procurement leaders for each organisation within the NZ & NSW public sectors. The analysis of the data received will be tabulated into frequency to determine the common characteristics (Nominal-Level Measurement). Part of the data collected will derive an ordinal level measurement that will determine the rank in order of importance.

Prior to the release of the questionnaire the approach will be tested via pilot (s). The data collected could be used to test equivalence post survey and correlation across sectors. A form of Triangulation by comparing the data with the control characteristics created from the pilots can also be achieved. Figure 17 below shows a further definition of research process inclusive of the pilot process;

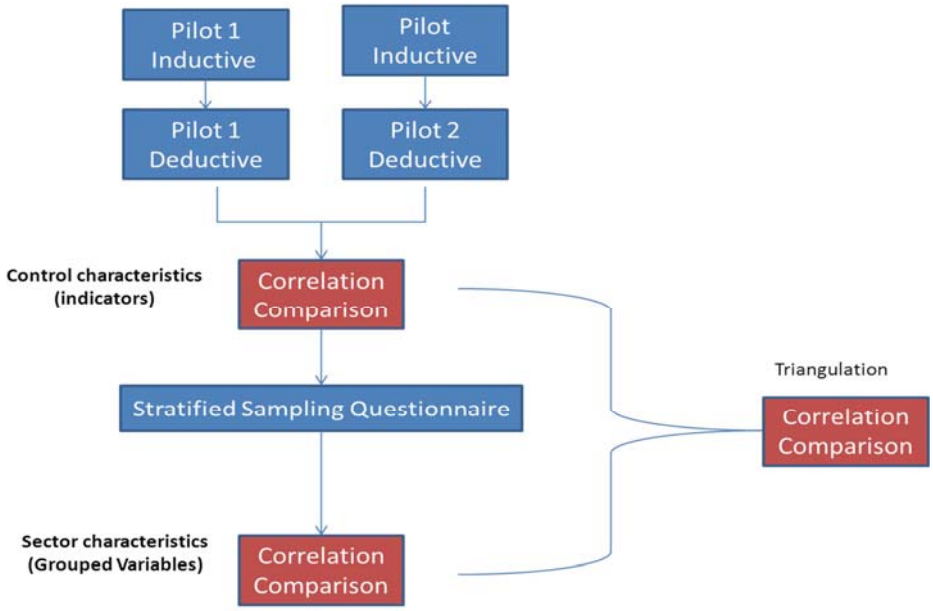


Figure 17 Research & Pilot Process

The process comprises of 4 stages of research; stage 1 pilot to determine a control set of value characteristics. Due to the subjective nature inherent in the term value the method for capture should be inductive (via a workshop) followed by grouping and the ranking the characteristics through deductive data capture methods. Stage 2 will be using a structured questionnaire with a stratified sampling technique to ensure coverage of all the sectors within the New Zealand and New South Wales Public Sector. Stage 3 will analyse the data capture from the questionnaire and compare and correlate common characteristics across all sectors. Stage 4 is a form of final Triangulation by comparing the data with the control characteristics created from the pilots.

3.10 Ethical Considerations

(Cooper & Schindler, 2008) highlighted that ethics is an important consideration in any research study contemplated. Stating respondents must not suffer:

- Physical harm, discomfort, pain
- Emotional harm, embarrassment, stress
- Loss of privacy

In order to retain research integrity privacy is paramount when dealing with organisations and individuals within the NZ & NSW Public Sectors. Constant media scrutiny is apparent due to the necessity to illuminate the usage of tax payers' dollars. (University, 1999) Categorises the risk of harm into 4 areas; participants, researchers, institutions-communities-groups and Massey university

3.10.1 Participants

With respect to participants, the ethical considerations are around the development of the questionnaire and the need to take into account any potential cultural sensitivity when developing the questions was paramount. Consideration was also taken on delivery of the foundation and context to the research and the importance of privacy. There was also the requirement to obtain approval from the leads of the 2 Procurement leadership groups in both NZ& NSW. Both Jurisdictions provided the means to achieve anonymity by sending out the link to the questionnaire to their own distribution lists without sight of the researchers.

3.10.2 Researchers

As researchers we have to ensure that there is integrity through the whole process and no conflicts of interest. The elimination of bias through the whole process inclusive of report publication is paramount along with the importance of privacy through the whole study and output.

3.10.3 Institutions-Communities-Groups

As highlighted earlier in this chapter the importance of privacy, confidentiality cannot be underestimated. The famous front page of the newspaper test must be considered throughout the research study with greater emphasis on the content and context of the published output to minimise the risk.

3.10.4 Massey University

Minimising risk through the screening questionnaire as part of the approval to commence the research will lower the ethical risk substantially. However as with 3.10.2 consideration should be made as to minimise risks such as Changing data or creating false data, Changing data presentations or interpretations, Interpreting the data from a biased perspective, Omitting sections of data analysis and conclusions, Making unsubstantiated recommendations as this will damage both reputation of the author and the university. As per detailed within the acknowledgements, the research approval was obtained from the Massey University Ethics Committee on 26th February 2014. In doing so I make the following statement:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor John O'Neill, Director (Research Ethics),telephone 06 350 5249, email: humanethics@massey.ac.nz."

3.11 Summary Methodologies

It is clear that the traditional approach in this area of science (logistics and Supply chain) is been from a positivist quantitative methodology due to the systems nature of the research environment. When researching relationships and value there is evidence, through the literature reviews that this paradigm has necessitated a movement towards the interpreivist methodology. Therefore by combining both (mixed methodology approach) the outcome achieved will be more robust when tested. Limitations of the research could be dependent on the response rate from each defined samples group from each of the public sectors in New Zealand and New South Wales.

Chapter 4: Stage 1 Inductive Research Analysis and Findings

4.1 Introduction

The purpose of this section is to detail the findings and discuss the outputs obtained from the 3 workshops (Pilots) completed through and inductive research approach with groups from NSW Government Procurement Leadership Group (NSW PLG), all of Government New Zealand Procurement Functional Leaders advisory Group (NZ AOG PFLAG) and a procurement group from a State Owned Enterprise in the Utilities Sector of New Zealand. The groups comprised of procurement professionals who job was to source and maximise value for third part suppliers to their respective organisations. This chapter takes the results obtained through an inductive method and through high level quantitative analysis determines the control set of characters that is used for the full Research Survey across both jurisdictions.

4.2 Public Sector Background and Context

The New Zealand Public sector comprises approximately 288 organisations grouped into sectors (see table 12). It spends approximately $30 billion per year on the goods, services and works needed to deliver its commitments to the public. On the whole, in the past prior to the New Zealand government reform; agencies managed this spend individually and there were few opportunities taken to collaborate or standardise the approach to procurement across government.

Public Sector Name	Number Organisations
Public Service	29
Non- Public Service Deparments	4
Crown Agents	4
DHBs	20
State Service Crown Agents	22
Autonomous Crown Entities	18
Independant Crown Entities	17
Crown entity companies	3
PFA schdule 4 companies	8
Crown Reserach institutes	7
PFA schedule 4 organisations	13
Trusts	10
other bodies	5
State Sector incld SOE	50
Public Sector incld councils and territorial authorities	78

Table 12: NZ Public Sector

The reform was launched in 2009 following approval by cabinet to commence the programme (COMMITTEE, 2009).To date the reform has identified $353M savings through the introduction of All of Government contracts.

2009 The New Zealand Government initiated the Government Procurement Reform Programme, to reform State sector procurement policy and practice. The agenda for the programme has four major themes:

- achieving cost savings;
- building procurement capability and capacity;
- enhancing New Zealand business participation; and
- Improving governance, oversight, and accountability.

The four-year reform programme is being led by the Government Procurement Solutions group, part of the Ministry of Business, Innovation and Employment, with the support of Treasury and State Services Commission. The Cabinet's Expenditure Control Committee (ECC) is overseeing implementation of the programme with the expectation that this will deliver value to the NZ public sector and make it easier for suppliers to do business with this sector. The reform has

established savings and a platform to develop capability within procurement and the supply chain sector in government. These advances are now at a tipping point and the reform committee are now being challenged to deliver further benefits from the reform.

The New South Wales Public Sector has approximately 220 organisations which are grouped into departments and agencies (see table 13) below. The NSW government spend in Goods and Services (exclusive of construction and major projects) is approximately $16 billion per year. Prior to the Reform which was kicked off in 2006, all agencies could procure their own goods and services. The reform requirements were for agencies to use State Contracts Control Board whole-of-government contracts, where they are available, when procuring goods and services. (Premiers memo M2006-11 NSW Procurement Reforms).

Further devolution has been delivered as part of the Reform Strategy for procurement within NSW. The procurement roles of NSW Government agencies in the new whole-of-Government framework have two aspects:

- managing their own procurement of goods and services to meet their own specific requirements, subject to NSW Procurement Board accreditation and where a whole-of-government contract or opportunity for a contract does not exist.
- for certain agencies, acting as leaders in whole-of-government procurement categories where appointed to do so by the NSW Procurement Board.

NSW Public Sector Departments	Agencies including Departments	Total Agencies including departments, agencies, committees,councils and universities
Education & Communities	**120**	**220**
Family & Community Services		
Health		
Justice		
Planning & Environment		
Premier & Cabinet		
Transport		
Treasury & Finance		

Table 13: NSW Public Sector

The Contracts were developed through a centralised approved procurement group within the department of Finance and Services now Treasury & Finance. The objective of the reform program is to ensure that the NSW Government has a world class procurement system which delivers value for money, is aligned with business needs, leads to service delivery improvement and supports a competitive and innovative NSW economy. A strategic directions document was produced to outline the objectives and 6 main pillars for delivery of the reform. An example of the pillars is in Figure 18 taken from the Procurement Reform Strategic Directions statement 2012 (Procurement N. G., 2012).

Figure 18 NSW reform strategic directions

Stage 2 of the reform looked to accredit departments and agencies under the NSW Government Accreditation Scheme to allow these organisations to do their own procurement on behalf of NSW Government (agency-accreditation-scheme) (NSW GOverment Procurement, 2015).

4.3 Workshops (Pilots)

Each pilot was conducted in exactly the same way with using a qualitative (inductive) approach with consensus outcomes. Each individual was asked to write on “post it” adhesive notes format as many characteristics that the through described value from a key supplier. They were all give 20 minutes to complete this task. A white board or wall was used for the next phase. Each individual was asked to place their post-it notes onto the wall. The Pilot groups comprised of senior procurement leaders from the Public Sector in both New Zealand and NSW Australia. The individuals all lead their agencies and organisations in the role of Procurement. They were members of the Public Sector Procurement leadership teams and have extensive knowledge in global procurement practices.

A third reference group comprised of a State Owner Enterprise Procurement Team who dealt with all levels of the procurement functions within the organisation

The tables in Appendix 4 shows the initial output from the post it note exercises from the 2 Procurement leaders workshops and the diversity of what each individual determined value from their key supplier base. This list is not exhaustive and does not show the duplication of the values presented on the post it.

The next big challenge was to try and synthesis this down by giving the group 20 minutes to try and group into what they all thought were similar groupings of the Value described on the posit-it note. For values such as cost and value for money, quality, innovation, stability, relationship and trust the teams all grouped quickly their post – it notes. There was more discussion around skills, resources, access to knowledge and what was service or good service. Both Jurisdictions had similar discussion about what determined a customer of choice and how that attributes to value. Partnership, relationship and trust we discussed at length and there was a consensus that these were important values that need to be managed during the lifecycle of engagement with a supplier.

The author / chair of the pilot then completed a further review of the groups through clarification questions of the pilot members in an open group. Appendix 4 shows photos taken of the final outcome with the groupings the group names and the ranking. The constraints of only allowing 9 groups caused the biggest issue and area of discussion pertaining to naming the group and the values from the post-its composition. The Author agreed that is no consensus could be met then the values would be left out and be described as outliers or not being able to be grouped.

Agreement complete, each set of value characteristics were grouped and a name given for each grouping. The Value Group names VFM, Cost Savings, Stability, Quality, Relationship, Trust and Innovation were easily determined by the group, the challenge was to name the other groups that has a more mixed grouping of value characteristics, therefore in some of the characteristics named in the analysis in Section 4.3 there are additional explanation / terms in. parenthesis. Appendix 3 shows how the rudimentary ranking was achieved by each individual. Each person ranked the value groups in order of importance based on the size of the overall group. (eg: 7 groups rank in order of importance 1-7, one being most important). The results are detailed in the following section data analysis from a quantitative ranking methodology.

4.4 Analysis

The data from the qualitative workshop approach has been tabulated in the following formats based on the final stage of the workshop where the group were asked to rank each of the groups in order of importance. The charts thus show the final quantitative approach which will be used to

act as a base line (Control set of value characteristics) when reviewing the final data derived from the survey results of both the New Zealand and New South Wales jurisdictions.

Value Characteristic	Ranking Score	Rank
Service Excellence	53	1
Value for Money (cost savings)	49	2
Capable and competent resources	48	3
Quality	48	3
Financial Stability	39	5
Innovation (new products, ways , methods, early)	29	6
Safety	27	7
Trust (values & behaviours)	20	8
Value Adding (additional value, more for same)	20	8
CSR	18	10
Information Quality	15	11

Table 14: NSW Procurement Working Group Pilot Outcome

The table above shows that the workshop grouped value characteristics into 11 categories with an additional 2 values that could not be grouped. The outliers that could not be grouped were; flexibility and timeliness. A total of 11 categories were determined and Service excellence was ranked as the number 1 most important. From the literature review all of the values in the table above have been referenced with the exception of Safety. (Yu-I Lee & Ya-Chu Chan, 2011), (Zsidisin, Ellram, & Ogden, 2003) and (Wicks, 2012) all highlighted the of the cost / cost saving value principle from supplier, customer and key account focal lens

Safety as an outlier could have been derived by the fact that over one third of the workshop make up was from Transport, Police, Justice Agencies where Safety is the number one critical value measured.

Value Characteristic	Ranking Score	Rank
Value for Money (cost savings)	81	1
Relationship Trust	78	2
Quality	76	3
Effective service / Delivery	75	4
Culture & Business Alignment	70	5
Innovation	44	6
Process Improvement (Continuous improvement)	34	7
Stability	34	7
Specialist Resources	31	9
Market Intelligence	27	10

Table 15: NZ Procurement Functional Leadership Group Pilot Outcome

The table above shows that the workshop grouped value characteristics into 10 categories and additional 4 values could not be grouped. The outliers that could not be grouped were; NZ ownership, National distribution, on line information exchange and understands their own business drivers. A total of 13 categories were determined and value for money was ranked as the number 1 most important. (Joshi & Chebbiyyam, 2011), (Lendrum, 2004) and (Steele & Court, 2000) all highlighted the importance of Trust and the association with partnership and the ability to deliver value and mutual benefit between the Customer and Supplier Dyad. Market intelligence seems to be an outlier that is also different between both jurisdictions and could be seen as applicable to New Zealand due to it geographic location and remoteness from large supply markets.

Value Characteristic	Ranking Score	Rank
Relationship Trust	55	1
Quality	45	2
DIFOT / (Service Delivery)	36	3
Value for Money (cost savings)	32	4
Good Planning	27	5
Specialist Resources (Skills/Experience)	25	6
Culture & Business Alignment	21	7
Process Improvement (Continuous improvement)	20	8
Innovation	19	9

Table 16: NZ Stated Owner Enterprise Procurement Team Outcome

The table shows that the workshop grouped value characteristics into 9 categories and there were 1 additional value, Partner that could not be grouped. Relationship Trust was ranked as the most important. The outlier within this group of values is clearly planning. This is not highlighted in both the NSW and NZ leadership workshops, although (Lambert & Knemeyer, 2011) from the literature review discusses the importance of planning for delivering value through supply chains in the Harvard business review managing supply chains paper.

4.5 Summary and Conclusion

The workshops (Pilots) did achieve an outcome of producing a control set of value characteristics that could be used for the next phase of analysis from Survey responses. The comparison with the literature reviewed in chapter 2 demonstrated that there is a vast array of characteristics that are perceived to bring value to the Customer/Supplier relationships. It also confirmed that there is common thinking post multiple research projects that areas such as; Value for Money (cost savings). Improvement (process / continuous) Trust (relationship) Quality (product, service, process) and Innovation to name a few that are consistent across all jurisdictions. However it did highlighted some outliers such as Communication and Risk being a prevalent outcome of past research but in the workshops (pilots) they were not seen as important value characteristics or not top of mind. The NSW Australia outlier can be possibly explained by the breakdown of the members of the workshop and a potential bias to Safety due to the nature of the operating agencies business core values.

From the results of the 3 pilot workshops a set of values can be derived. To minimise any impact of bias from the researcher the 26 values included the 6 values that could not be grouped. Below is the table and definitions of the 26 “Control” characteristics that was used in the questionnaire. The ranking for this part of the research is not a significant part of the research data analysis but can be used to assist with conclusions and recommendations.

Value Characteristic	Possible Definition
Financial Stability	Consistently Good balance sheet will be around for a long time
DIFOT	Delivers in full and on time
Product Quality	The Products are fit for purpose - little no warranty issues
Service Quality	Meet or Exceed SLA Targets
Delivery Quality	High Standard little or no rework required
Capable and competent resources	Trained Staff that can deliver the required business outcomes
Value for Money (cost savings)	Delivering more for less $
Value Adding (additional value, more for same)	Delivering new and more services without an increase in $
Innovation (new products, ways , methods, early)	Always introducing new more efficient business solutions
CSR	Corproate Social Responsibility - eg: Ethical Manufacturing
Trust (values & behaviours)	Always do what they say - Working with you for your goals
Safety	Delivering Goods and Services consistently with Safety in mind
Information Quality	Information delivered is robust and error free, on time
Process Improvement (Continuous improvement)	Consistant focus on improving their delivery and offerings
Culture & Business Alignment	Simialr Values, Behaviours and drivers for similar outcomes sought
Relationship Trust	Open and onest and consistent communications
Market Intelligence	Ability to consistently bring market and their competiors insights to you as an organsiation
Specialist Resources (Skills/Experience)	Always bring the A team especially in times of issues
National Distribution	Large National Foot print
on line information exchange	Good electronic systems that provide ability to exchange information
understands their own busines drivers	Know and Understand what their own business want and how this will benefit your organisation
flexibility	Ability to move outside or change contract deliverables if required
Proactive	Does not wait for issues to occur - high levels of engagement
Good Planning	not reactive have good support / resource advance plans
Roadmap	Clear defined product / service roadmap and how you will benefit from it
Propensity to Partner	See you as a high value account and want a partnership relationship

Table 17: The 26 Questionnaire Control Value Characteristics

Chapter 5: Stage 2 Quantitative Research Analysis and Findings

5.1 Introduction

This chapter presents the results of the questionnaire. The data gathered is first coded, analysed and grouped into various sample populations by country and by length of time working within procurement. The descriptive data is used to analyse any trends commonalities and differences highlighting the quality of the data. Tables highlighted within this chapter show the breadth and range of the data retrieved from the survey. There are a number of quantitative tests completed to demonstrate the relationship between the variables supporting or not supporting the hypothesis questions explored in this research.

This chapter demonstrates the retrieved empirical findings of the survey conducted and note all percentage values do not contain any missing values.

5.2 Data Transformation (coding)

Data transformation is used in a simple format to assist the data analysis. The SPSS software package developed by IBM was used to perform the statistical analysis.

The Transformation of the data was a simple coding exercise. The following coding in table 18 is a snapshot that was used and is exhaustive as they exist for all the responses.

Question	Theme	Value label
Q1	Goods & Services	1
	Services	2
	Goods	3
Q2	Selected	1
	Not Selected	0
Q7	less than 1 yr	1
	1-3years	2
	4-10 years	3
	10+years	4
Country	NZ	1
	Australia	2
	IN	3

Table 18: The additional coding added to the output of questionnaire

Full details of the coding used is highlighted in Appendix 5

5.3 Descriptive Statistics

5.3.1 Respondents Profile

The questionnaire was delivered through a Cloud Application called Free on Line Survey. The respondents were given a link incorporated in the letter sent out via email (see Appendix 2). The respondent's exact profile was anonymous however the questionnaire did collect generic statistics such as organisation name and length of time in years as a procurement practitioner.

The first analysis was to determine if the sample size would be of sufficient quantity to inform the case study and thus have a potential generalisable outcome.

Table 19 below highlights the sample size based on the number of letters sent out to the populations of procurement practitioners registered to the All of Government Agency website in New Zealand and the New South Wales Government Agency database

Sample Size	Total Pop Surveyed	# Reponses	% responses
NZ	1300	131	10.08
NSW	528	54	10.2

Table 19: Population and Responses from Survey

Both Surveys presented a similar percentage of respondents which will provide Homogeneity. (Aldridge and Levine 2001) suggest that minimum observations for each category in an independent variable should be 50 and the population is known and the data presented from the survey will be representative of each procurement jurisdiction (New Zealand and New South Wales [Australia]).

Further demographic statistical data extracted from the data provided by the questionnaire was the length of time the individuals have been a procurement practitioner

The output has been represented in two formats table 20 provided highlights the distribution of the respondents by the length of time they have been a procurement practitioner. Table 20 below provides a percentage value and the number of respondents (frequency value) an output from the answers received.

Years in Procurement		<1yr	1-3yrs	4-10yrs	10+
NZ	Freq	6	20	44	61
	%	5	15	34	47
NSW	Freq	1	6	13	34
	%	2	11	24	63

Table 20: Years in Procurement as a Practitioner

The Pie charts Figure 17 presents a visual side by side overview based on percentage only.

Figure 19 Pie Chart Length of time working as a procurement practitioner

Another question answered by the recipients was the type of category of supply that their key suppliers delivered value. Table 21 and Figure 20 Below shows the category breakdown of value supplied grouped into, Goods, Services or goods and services;

Type of Procurement		Goods	Good & Services	Services
NZ	Freq	9	98	23
	%	7	75	18
NSW	Freq	2	42	10
	%	4	78	19

Table 21: Type of Procurement per Jurisdiction

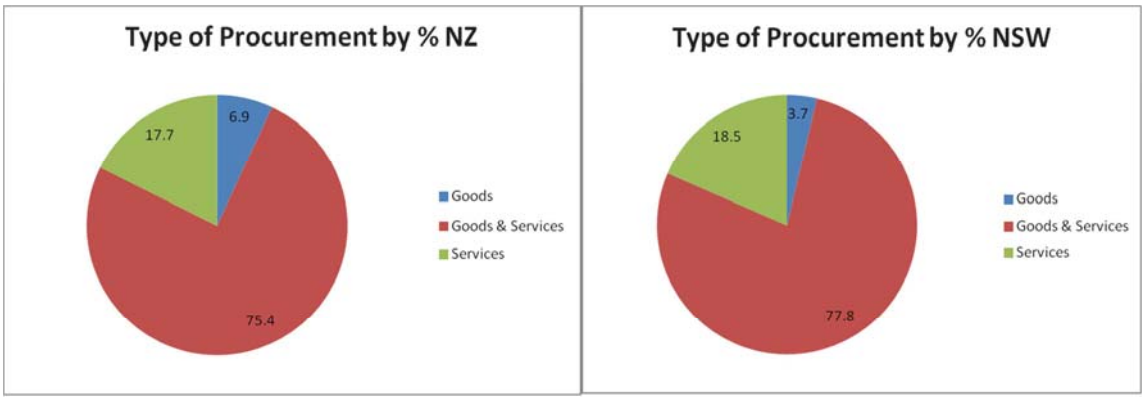


Figure 20 Pie Chart Type of Procurement by Jurisdiction

Note: the similarity between both jurisdictions with the vast majority (over 75%) of the supply from key suppliers emanating from the goods and services category.

5.4 Data & Statistical Analysis

The previous section dealt with the descriptive statistics and analysis building context of the data extracted from the questionnaire. This section deals with statistical analysis using independent-tests such as ANOVA, Kruskal Wallis Test, MANOVA and Factor Analysis. These tests were used to justify the Hypothesis outlined in the research. This chapter demonstrates the retrieved empirical findings from the conducted survey.

5.4.1 Hypothesis 1: The value characteristics can be selected by the frequency of choice

The hypothesis 1 "The value characteristics can be selected by the frequency of choice" used for descriptive purposes a frequency ranking methodology to initially correlate with the referenced output in stage 1 inductive workshops (presented in table 22 below and a histogram presented in Figure 21) below. An Analysis of Variance (ANOVA analysis) was also conducted from the data taken from Question 2 of the Survey ("From the list of characteristics below (please tick) the characteristics that you deem as value from a key supplier"). A test of Homogeneity of variances and a Robust Tests of Equality of Means using Welch and Brown-Forsythe tests as comparators. The table below shows that percentage frequency chosen from the Value characteristics presented in question 2 of the survey. The results were ranked using the New Zealand statistics as the rank order. Characteristics such as Relationship Trust, Financial Stability, Information Quality, Specialist Resources, National Distribution and CSR all show a significant difference between the jurisdictions of New Zealand (NZ) and New South Wales (NSW).

Value Characteristic	NZ	AU	Total
Value for Money	88.90%	88.90%	89.00%
Service Quality	81.70%	87.00%	83.40%
Product Quality	76.20%	75.90%	76.20%
Relationship Trust	72.20%	38.90%	61.90%
Delivery Quality	67.50%	70.40%	68.50%
Trust	66.70%	55.60%	63.50%
Capable and competent resources	61.10%	51.90%	58.00%
Flexibility	55.60%	53.70%	55.20%
Proactive	55.60%	37.00%	49.70%
Value Adding	52.40%	53.70%	52.50%
Financial Stability	51.60%	70.40%	56.90%
Information Quality	50.80%	31.50%	45.30%
Innovation	50.00%	46.30%	48.60%
Safety	40.50%	53.70%	44.80%
Specialist Resources	40.50%	27.80%	36.50%
Good Planning	38.90%	33.30%	37.00%
Culture & Business Alignment	35.70%	22.20%	31.50%
Process Improvement	32.50%	31.50%	32.00%
DIFOT	31.70%	29.60%	30.90%
Propensity to Partner	31.70%	25.90%	29.80%
Market Intelligence	29.40%	14.80%	24.90%
Understands own business drivers	28.60%	22.20%	27.10%
National Distribution	24.60%	5.60%	18.80%
On line information exchange	19.80%	11.10%	17.70%
CSR	17.50%	9.30%	14.90%
Roadmap	13.50%	13.00%	13.30%

Table 22: Selected Value characteristics % frequency by Rank (NZ)

Value for Money, Quality and Trust were all key characteristics that were ranked in the top 3 to 5 of the inductive research stage 1, a similar outcome to stage 2 research questionnaire in the table above.

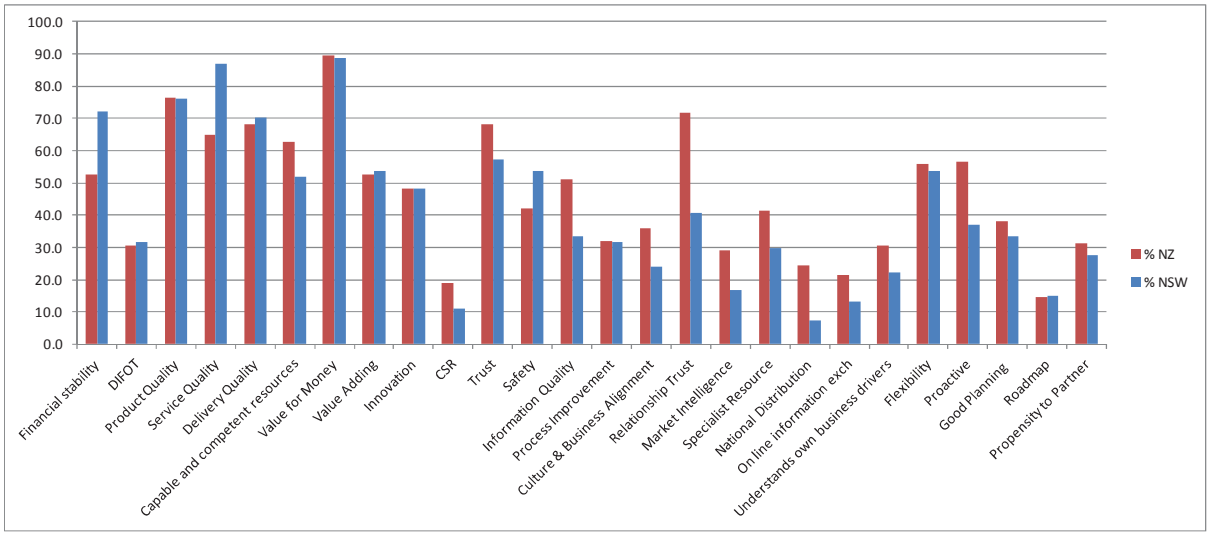


Figure 21 Histogram selected value characteristics % frequency

This histogram clearly demonstrates the similarities between both jurisdiction and a few major differences such as financial stability, relationship trust and proactive and a few others that should be explored such as safety, service quality, information quality and national distribution.

Table 23 below using the output taken from SPSS is an Analysis of Variance (ANOVA) between New Zealand and New South Wales populations with a significance value p = <0.05

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Financial Stability	Between Groups	1.303	1	1.303	5.425	.021
	Within Groups	43.962	183	.240		
	Total	45.265	184			
DIFOT	Between Groups	.003	1	.003	.015	.904
	Within Groups	39.046	183	.213		
	Total	39.049	184			
Product Quality	Between Groups	.001	1	.001	.004	.953
	Within Groups	33.534	183	.183		
	Total	33.535	184			
Service Quality	Between Groups	.110	1	.110	.782	.378
	Within Groups	25.696	183	.140		
	Total	25.805	184			
Delivery Quality	Between Groups	.039	1	.039	.178	.674
	Within Groups	40.145	183	.219		
	Total	40.184	184			
Capable and competent resources	Between Groups	.381	1	.381	1.570	.212
	Within Groups	44.398	183	.243		
	Total	44.778	184			
Value for Money	Between Groups	.001	1	.001	.007	.933
	Within Groups	17.837	183	.097		
	Total	17.838	184			
Value Adding	Between Groups	.004	1	.004	.016	.899
	Within Groups	46.082	183	.252		
	Total	46.086	184			
Innovation	Between Groups	.012	1	.012	.049	.825
	Within Groups	46.128	183	.252		
	Total	46.141	184			
CSR	Between Groups	.314	1	.314	2.380	.125
	Within Groups	24.140	183	.132		
	Total	24.454	184			
Trust	Between Groups	.516	1	.516	2.238	.136
	Within Groups	42.219	183	.231		
	Total	42.735	184			
Safety	Between Groups	.596	1	.596	2.414	.122
	Within Groups	45.166	183	.247		
	Total	45.762	184			
Information Quality	Between Groups	1.366	1	1.366	5.630	.019
	Within Groups	44.396	183	.243		
	Total	45.762	184			
Process Improvement	Between Groups	.001	1	.001	.006	.939
	Within Groups	40.182	183	.220		
	Total	40.184	184			
Culture & Business Alignment	Between Groups	.636	1	.636	2.968	.087
	Within Groups	39.181	183	.214		
	Total	39.816	184			
Relationship Trust	Between Groups	4.131	1	4.131	19.193	.000
	Within Groups	39.383	183	.215		
	Total	43.514	184			
Market Intelligence	Between Groups	.690	1	.690	3.782	.053
	Within Groups	33.364	183	.182		
	Total	34.054	184			
Specialist Resources	Between Groups	.615	1	.615	2.654	.105
	Within Groups	42.391	183	.232		
	Total	43.005	184			
National Distribution	Between Groups	1.254	1	1.254	8.660	.004
	Within Groups	26.497	183	.145		
	Total	27.751	184			
On line information exchange	Between Groups	.345	1	.345	2.359	.126
	Within Groups	26.768	183	.146		
	Total	27.114	184			
Understands own business drivers	Between Groups	.218	1	.218	1.086	.299
	Within Groups	36.723	183	.201		
	Total	36.941	184			
Flexibility	Between Groups	.006	1	.006	.024	.877
	Within Groups	45.853	183	.251		
	Total	45.859	184			
Proactive	Between Groups	1.335	1	1.335	5.441	.021
	Within Groups	44.913	183	.245		
	Total	46.249	184			
Good Planning	Between Groups	.089	1	.089	.381	.538
	Within Groups	42.916	183	.235		
	Total	43.005	184			
Roadmap	Between Groups	.002	1	.002	.020	.889
	Within Groups	21.619	183	.118		
	Total	21.622	184			
Propensity to Partner	Between Groups	.081	1	.081	.389	.533
	Within Groups	38.157	183	.209		
	Total	38.238	184			

Table 23: Anova NZ & NSW

From the data presented above there are values where the null hypothesis H_0 can and cannot be rejected;

H_0 = μ1 = μ2= μ3 ..... = μc where C = is the population means

Table 23 above has the following value characteristics; **Financial Stability, Information Quality, Relationship Trust, National Distribution** and **Proactive have** a *P* value of < 0.05 so therefore we can reject the Null Hypothesis H_0 as there is a significance difference between the means of these value characteristics.

This correlates to the histogram figure 21 where the differences between jurisdictions are presented in a graphical format.

The test of Homogeneity of variances (Table 24) highlight where the standard deviations (variances) are equal within the sampling variations. The null hypothesis is also rejected where the *P* value is <0.05. This also highlights an additional set of variances between the values of each characteristic taken from the differences between the standard deviations and the sampling variances of values; **CSR, Trust, Culture and Business alignment, Market Intelligence, Specialist resources, On line information exchange** and **Understands own business drivers** which are values that have some minor differences between jurisdictions.

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Financial Stability	24.708	1	183	.000
DIFOT	.060	1	183	.807
Product Quality	.014	1	183	.906
Service Quality	3.384	1	183	.067
Delivery Quality	.763	1	183	.383
Capable and competent resources	2.983	1	183	.086
Value for Money	.028	1	183	.867
Value Adding	.073	1	183	.788
Innovation	.234	1	183	.629
CSR	11.077	1	183	.001
Trust	5.465	1	183	.020
Safety	1.068	1	183	.303
Information Quality	20.560	1	183	.000
Process Improvement	.024	1	183	.878
Culture & Business Alignment	15.323	1	183	.000
Relationship Trust	6.053	1	183	.015
Market Intelligence	19.482	1	183	.000
Specialist Resources	13.805	1	183	.000
National Distribution	52.231	1	183	.000
On line information exchange	11.075	1	183	.001
Understands own business drivers	4.992	1	183	.027
Flexibility	.085	1	183	.771
Proactive	4.032	1	183	.046
Good Planning	1.734	1	183	.190
Roadmap	.079	1	183	.779
Propensity to Partner	1.703	1	183	.193

Table 24: Homogeneity of Variance

The Robust Tests of Equality Means uses two tests; the Welch test which accommodates heterogeneous variances more than accommodating heterogeneity in difference in sample size and the Brown – Forsythe test that give more protection against non-normally distributed data in the dependant variable and uses the median standard deviations.

From the data presented below in table 25 there are values where the null hypothesis H_0 can and cannot be rejected;

$H_0 = \mu1 = \mu2 = \mu3 ..... = \mu c$ where C = is the population means

Where the *P (Sig.)* value is < 0.05 the Null Hypothesis can be rejected and from this result it can be stated there is a significant difference between group (NZ and NSW). Both the Welch and Brown- Forsythe test highlight the same significance between the variable Value Characteristics; Financial Stability, Information Quality, Relationship Trust, National Distribution and Proactive. This ratifies and underlines that the earlier tests were accurate. There was a new outlier that had not been highlighted through the previous test, Market Intelligence, in the one way Anova it showed a *P* value of 0.053 and therefore was in range for that test but obviously on the outer of the expected ranges and hance was rejected under these tests.

Robust Tests of Equality of Means					
		Statistic[a]	df1	df2	Sig.
Financial Stability	Welch	5.822	1	106.977	.018
	Brown-Forsythe	5.822	1	106.977	.018
DIFOT	Welch	.015	1	99.127	.904
	Brown-Forsythe	.015	1	99.127	.904
Product Quality	Welch	.003	1	97.838	.953
	Brown-Forsythe	.003	1	97.838	.953
Service Quality	Welch	.875	1	112.413	.352
	Brown-Forsythe	.875	1	112.413	.352
Delivery Quality	Welch	.181	1	100.906	.671
	Brown-Forsythe	.181	1	100.906	.671
Capable and competent resources	Welch	1.526	1	95.915	.220
	Brown-Forsythe	1.526	1	95.915	.220
Value for Money	Welch	.007	1	96.862	.934
	Brown-Forsythe	.007	1	96.862	.934
Value Adding	Welch	.016	1	98.477	.899
	Brown-Forsythe	.016	1	98.477	.899
Innovation	Welch	.049	1	98.540	.826
	Brown-Forsythe	.049	1	98.540	.826
CSR	Welch	3.001	1	129.974	.086
	Brown-Forsythe	3.001	1	129.974	.086
Trust	Welch	2.125	1	93.562	.148
	Brown-Forsythe	2.125	1	93.562	.148
Safety	Welch	2.377	1	97.224	.126
	Brown-Forsythe	2.377	1	97.224	.126
Information Quality	Welch	5.961	1	105.328	.016
	Brown-Forsythe	5.961	1	105.328	.016
Process Improvement	Welch	.006	1	98.795	.939
	Brown-Forsythe	.006	1	98.795	.939
Culture & Business Alignment	Welch	3.315	1	112.078	.071
	Brown-Forsythe	3.315	1	112.078	.071
Relationship Trust	Welch	17.876	1	91.739	.000
	Brown-Forsythe	17.876	1	91.739	.000
Market Intelligence	Welch	4.577	1	123.531	.034
	Brown-Forsythe	4.577	1	123.531	.034
Specialist Resources	Welch	2.852	1	107.127	.094
	Brown-Forsythe	2.852	1	107.127	.094
National Distribution	Welch	13.781	1	169.809	.000
	Brown-Forsythe	13.781	1	169.809	.000
On line information exchange	Welch	2.890	1	125.443	.092
	Brown-Forsythe	2.890	1	125.443	.092
Understands own business drivers	Welch	1.170	1	107.507	.282
	Brown-Forsythe	1.170	1	107.507	.282
Flexibility	Welch	.024	1	98.164	.877
	Brown-Forsythe	.024	1	98.164	.877
Proactive	Welch	5.546	1	100.927	.020
	Brown-Forsythe	5.546	1	100.927	.020
Good Planning	Welch	.389	1	101.103	.534
	Brown-Forsythe	.389	1	101.103	.534
Roadmap	Welch	.020	1	100.597	.888
	Brown-Forsythe	.020	1	100.597	.888
Propensity to Partner	Welch	.404	1	102.965	.526
	Brown-Forsythe	.404	1	102.965	.526

Table 25: Robust Tests of Equality means

5.4.2 Hypothesis 2: The value characteristics in the Public Sector can be ranked in order of priority.

The Hypothesis 2 “The value characteristics in the Public Sector can be ranked in order of priority.”, uses the Analysis of variance (Anova) statistical test. Data was taken from Question 3 of the Survey *(“From the list in Q2 please list in order of priority [top = most important, bottom least important] Click on the characteristic and drag and drop in your list”)* for both New Zealand and New South Wales. The data retrieved is from a randomised design and the one way Anova used compares the difference of the means between each group of variables. Table 26 below details an overview of the output from SPSS of the Anova. A full breakdown is in Appendix 6

	Sum of Squares	df	F	Sig.
Financial stability	5362.243	180	0.209	0.813
DIFOT	10676.7	180	4.768	0.009
Product Quality	5991.89	180	1.151	0.32
Service Quality	2411.613	180	0.718	0.489
Delivery Quality	4989.768	180	0.83	0.43
Capable and competent resources	3916.818	180	0.358	0.699
Value for Money	3037.801	180	0.626	0.535
Value Adding	4175.978	180	0.867	0.87
Innovation	3507.05	180	1.042	1.04
CSR	4076.783	180	0.63	0.63
Trust	5031.138	180	0.868	0.87
Safety	8369.691	180	3.519	3.52
Information Quality	5041.746	180	1.24	1.24
Process Improvement	3362.597	180	1.809	0.17
Culture & Business Alignment	5308.818	180	0.174	0.84
Relationship Trust	7493.801	180	10.478	0
Market Intelligence	4027.735	180	0.138	0.87
Specialist Resource	6312.243	180	0.314	0.73
National Distribution	5388.343	180	5.305	0.06
On line information exch	4903.05	180	2.564	0.8
Understands own business drivers	7652.851	180	1.461	0.24
Flexibility	7541.238	180	1.036	0.36
Proactive	8465.492	180	4.054	0.2
Good Planning	8113.05	180	0.496	0.61
Roadmap	3232.564	180	0.198	0.82
Propensity to Partner	10839.79	180	0.411	0.66

Table 26: Anova NZ & NSW Value Priorities

From the data presented above there are values where the null hypothesis H_0 cannot be rejected and rejected;

$H_0 = \mu1 = \mu2 = \mu3 ..... = \mu c$ where C = is the population means

Using the *P* value (Sig. In the table above) of *P* = < 0.05, **DIFOT, Safety, Relationship Trust, National Distribution** and **Proactive** show evidence *P* = < 0.05 or that there is a significant difference between the variables of NSW and NZ and therefore the null hypothesis H_0 is rejected. Conversely the 21 other value characteristics show evidence that there is no significant difference between the variable of NZ and NSW, *P* value >0.05 and therefore the null hypothesis is not rejected. This is consistent with stage one of the process through the inductive workshops (pilots) as the tables 14, 15 & 16 clearly show that there were differences in priority order (ranking) or importance.

To further test the Homogeneity of variance assumption in Hypothesis 1 a Kruskal Wallis H test was performed. The Kruskal-Wallis H test (sometimes also called the "one-way ANOVA on ranks") is a rank-based non-parametric test that can be used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable. It is considered the non-parametric alternative to the one-way ANOVA, and an extension of the Mann-Whitney U test which will allow the comparison of more than two independent groups.

	Financial Stability -	DIFOT	Product Quality	Service Quality	Delivery Quality	Capable and competent resources list	Value for Money	Value Adding	Innovation	CSR	Trust	Safety	Information Quality
Chi-Square	0.936	8.287	2.835	1.205	3.154	1.04	1.395	1.953	2.374	1.182	1.695	7.468	1.917
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	0.626	0.016	0.242	0.548	0.207	0.594	0.498	0.377	0.305	0.554	0.429	0.024	0.384

	Culture & Business Alignment	Relationship Trust	Market Intelligence	Specialist Resources	National Distribution	On line information exchange	Understands own business drivers list	Flexibility -	Proactive	Good Planning	Roadmap	Propensity to Partner
Chi-Square	0.105	17.398	0.342	1.878	9.103	3.01	2.053	2.06	8.341	0.977	0.504	1.131
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	0.949	0	0.843	0.391	0.011	0.222	0.358	0.357	0.015	0.613	0.777	0.568
a Kruskal Wallis Test												
b Grouping Variable: Country Code												

Table 27: Kruskal Wallis Test Hypothesis 2

Table 27 above highlighted in yellow confirms that for the Value characteristics of **DIFOT, Safety, Relationship Trust, National Distribution** and **Proactive** who have a *P* value < 0.05, that there is significant evidence shown to reject the null hypothesis H_0. It is further confirmation that the Priority order (ranking) or order of importance between jurisdictions does not correlate

Hypothesis 3: The country of origin will influence the priority ranking of the value characteristics.

To test the Hypothesis "The country of origin will influence the priority ranking of the value characteristics" the Multivariate Analysis of variance (Manova) statistical test is used. The data is taken from Question 3 of the Survey *("From the list in Q2 please list in order of priority [top = most important, bottom least important] Click on the characteristic and drag and drop in your list")*

for both New Zealand and New South Wales. This is initially evidenced in table 28 below taken from the output of the descriptive statistics (means). A full break down by country is highlighted in Appendix 6. DIFOT, Safety, Relationship Trust, National Distribution and Proactive have the biggest differences in means between New Zealand All of Government (NZ) and New South Wales Government (Australia).

	Mean	Std Deviation	N
Financial stability	8.36	5.429	185
DIFOT	12.47	7.696	185
Product Quality	5.65	5.728	185
Service Quality	4.79	3.63	185
Delivery Quality	7.67	5.233	185
Capable and competent resources	9.12	4.658	185
Value for Money	4.99	4.085	185
Value Adding	9.92	4.795	185
Innovation	11.36	4.403	185
CSR	16.59	4.74	185
Trust	9.48	5.279	185
Safety	12.19	6.822	185
Process Improvement	15.25	4.29	185
Culture & Business Alignment	15.86	5.381	185
Relationship Trust	11	6.437	185
Market Intelligence	17.7	4.826	185
Specialist Resource	16.38	5.932	185
National Distribution	19.86	5.43	185
On line information exch	19.68	5.167	185
Understands own business drivers	18.48	6.493	185
Flexibility	15.51	6.457	185
Proactive	15.56	6.987	185
Good Planning	17.39	6.685	185
Roadmap	23.15	4.2	185

Table 28: Descriptive Statistics Manova Hypothesis 3

The Multivariate Tests between 2 groups show that Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root are the same. Using the Wilks Lambda test as the reference benchmark it can be clearly seen that there is a significant difference between Priorities of New Zealand and New South Wales (Australia) taking, Wilks Δ = .753, $F(26,158) = 1.99$, $P = 0.005$, partial η^2 =.247. With $P < 0.05$ we can reject the null hypothesis $H_0 = \mu1 = \mu2 = \mu3$.

Multivariate Tests[a]							
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
COUNTRY	Pillai's Trace	.247	1.996[b]	26.000	158.000	.005	.247
	Wilks' Lambda	.753	1.996[b]	26.000	158.000	.005	.247
	Hotelling's Trace	.328	1.996[b]	26.000	158.000	.005	.247
	Roy's Largest Root	.328	1.996[b]	26.000	158.000	.005	.247

Table 29: Multivariate tests Hypothesis 3

A post hoc test for Homogeneity was conducted using Levene's test of Equality. From this the Significance or *P* Value highlighted in yellow is < 0.05 for **DIFOT**= 0.003, **Information quality** = 0.034, **Relationship Trust** = 0.006 and **National Distribution** = 0.006. So once again the null hypothesis for these value characteristics can be rejected. This is consistent with the previous test and endorses the analysis and output from the Manova

Levene's Test of Equality of Error Variances[a]				
	F	df1	df2	Sig.
Financial Stability	.200	1	183	.655
DIFOT	9.025	1	183	.003
Product Quality	3.380	1	183	.068
Service Quality	2.837	1	183	.094
Delivery Quality	.091	1	183	.763
Capable and competent resources	.061	1	183	.805
Value for Money	.579	1	183	.448
Value Adding	1.669	1	183	.198
Innovation	1.137	1	183	.288
CSR	.377	1	183	.540
Trust	3.654	1	183	.057
Safety	.000	1	183	.988
Information Quality	4.577	1	183	.034
Process Improvement	1.000	1	183	.319
Culture & Business Alignment	1.424	1	183	.234
Relationship Trust	7.799	1	183	.006
Market Intelligence	.115	1	183	.735
Specialist Resources	1.993	1	183	.160
National Distribution	7.762	1	183	.006
On line information exchange	1.123	1	183	.291
Understands own business drivers	3.372	1	183	.068
Flexibility	.890	1	183	.347
Proactive	.445	1	183	.505
Good Planning	.400	1	183	.528
Roadmap	2.316	1	183	.130
Propensity to Partner	.439	1	183	.508

Tests the null hypothesis that the error variance of the dependent variable is equal across

a. Design: Intercept + COUNTRY

Table 30: Levene's test Homogeneity Hypothesis 3

A further set of regression tests of a separate ANOVA was conducted for each dependant variable, with each ANOVA evaluated at the alpha level of 0.05 between New Zealand and New South Wales (Australia). There were significant differences between NZ and AUS on **DIFOT**; *F* (1,183) = 10.065, *P* = .002, partial η^2 =.052 with NZ (*M*= 13.59) and AU (*M*=9.741). **Safety**; *F* (1,183) = 5.673, *P* = .018, partial η^2 =.030 with NZ (*M*= 12.952) and AU (*M*=10.352). **Relationship Trust**; *F* (1,183) = 18.850, *P* = .000, partial η^2 =.093 with NZ (*M*= 9.740) and AU (*M*=14.056), **National Distribution**; *F* (1,183) = 9.922, *p* = .002, partial η^2 =.051 with NZ (*M*= 19.076) and AU (*M*=21.778), **Proactive**; *F* (1,183) = 6.426, *P* = .012, partial η^2 =.034 with NZ (*M*= 14.733) and AU (*M*=17.566). These regression test substantiate the orginal fininding in the Manova that DIFOT, Safety, Relationship Trust, National Distribution and Proactive are significantly different between jurisdictions and are therefore rejected from the null Hypothesis.

Tests of Between-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
COUNTRY	Financial Stability	6.918	1	6.918	.234	.629	.001
	DIFOT	568.159	1	568.159	10.065	.002	.052
	Product Quality	44.648	1	44.648	1.363	.244	.007
	Service Quality	9.063	1	9.063	.687	.408	.004
	Delivery Quality	28.817	1	28.817	1.053	.306	.006
	Capable and competent resources	.854	1	.854	.039	.843	.000
	Value for Money	13.486	1	13.486	.807	.370	.004
	Value Adding	20.377	1	20.377	.886	.348	.005
	Innovation	32.523	1	32.523	1.684	.196	.009
	CSR	23.249	1	23.249	1.035	.310	.006
	Trust	24.031	1	24.031	.862	.355	.005
	Safety	257.438	1	257.438	5.673	.018	.030
	Information Quality	30.338	1	30.338	1.094	.297	.006
	Process Improvement	69.165	1	69.165	3.815	.052	.020
	Culture & Business Alignment	5.346	1	5.346	.184	.669	.001
	Relationship Trust	711.991	1	711.991	18.850	.000	.093
	Market Intelligence	1.301	1	1.301	.056	.814	.000
	Specialist Resources	.857	1	.857	.024	.876	.000
	National Distribution	279.052	1	279.052	9.922	.002	.051
	On line information exchange	.323	1	.323	.012	.913	.000
	Understands own business drivers	36.412	1	36.412	.863	.354	.005
	Flexibility	17.088	1	17.088	.409	.524	.002
	Proactive	304.672	1	304.672	6.426	.012	.034
	Good Planning	1.287	1	1.287	.029	.866	.000
	Roadmap	5.253	1	5.253	.297	.587	.002
	Propensity to Partner	7.221	1	7.221	.121	.728	.001

Table 31: Separate ANOVA's between subjects and effects for Hypothesis 3

5.4.3 Hypothesis 4: The length of time a person works in procurement will determine the value characteristic priority.

Similar to the test by Country, to test the Hypothesis "The length of time a person works in procurement will determine the value characteristic priority" the Multivariate analysis of variances (Manova) approach and tests were used for the respondents answers in Q2 (*"please list in order of priority [top = most important, bottom least important] Click on the characteristic and drag and drop in your list")* for both New Zealand and New South Wales. The questionnaire grouped the experience into 4 categories (Factors), < 1 year, 1-3 years, 4-10 years and 10 years +. Table 33 shows the number of people in each category that answered the questionnaire.

Between-Subjects Factors

		Value Label	N
How Long have you been working in a procurement function?	1	Less than 1 year	7
	2	1-3 years	26
	3	4-10 years	57
	4	10 years +	95

Table 32: Factors and Number of respondents

Table 33 below highlights the output taken from the survey of the value characteristics grouped into the 4 experience factors. Note: The means are not greatly different between the experience years for all 26 Value Characteristics. The Standard Deviations are all similar sizes showing homogeneity. The full table generated from the Manova is presented in Appendix 6.

	Mean	Std. Deviation	N
Financial stability	8.39	5.43	185
DIFOT	12.47	7.7	185
Product Quality	5.65	5.73	185
Service Quality	4.79	3.63	185
Delivery Quality	7.67	5.23	185
Capable and competent resources	9.12	4.66	185
Value for Money	4.99	4.1	185
Value Adding	9.92	4.8	185
Innovation	11.36	4.4	185
CSR	16.59	4.74	185
Trust	9.48	5.28	185
Safety	12.19	6.82	185
Information Quality	12.57	5.27	185
Process Improvement	15.25	4.3	185
Culture & Business Alignment	15.86	5.4	185
Relationship Trust	11	6.44	185
Market Intelligence	17.7	4.83	185
Specialist Resource	16.38	5.93	185
National Distribution	19.86	5.43	185
On line information exch	19.68	5.18	185
Understands own business drivers	18.48	6.5	185
Flexibility	15.51	6.45	185
Proactive	15.56	6.98	185
Good Planning	17.39	6.7	185
Roadmap	23.15	4.2	185
Propensity to Partner	20.21	7.7	185

Table 33: Factors and Number of respondent's descriptive statistics

The Multivariate Tests between the 4 categories (factors) and the 26 Value characteristics in table 34, show that Pillai's Trace, Wilks' Lambda, Hotelling's Trace are similar and Roy's Largest Root showing a difference. Using Wilks Lambda test as the benchmark similarly conducted in 5.4.3 in order to maintain consistency, there is not a significant difference between the 4 factors of experience and the priorities of the value characteristics in New Zealand and New South Wales (Australia) taking, Wilks Δ = .706, $F(78,467)$ =.741, P = 0.948, partial η^2 =.110. With P > 0.05 the null hypothesis cannot be rejected $H_0 = \mu1 = \mu2 = \mu3$.

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[d]
Q7	Pillai's Trace	.327	.744	78.000	474.000	.946	.109	58.003	.956
	Wilks' Lambda	.706	.741	78.000	467.340	.948	.110	57.589	.954
	Hotelling's Trace	.372	.738	78.000	464.000	.950	.110	57.582	.954
	Roy's Largest Root	.187	1.137[c]	26.000	158.000	.307	.158	29.552	.862

Table 34: Multivariate tests Hypothesis 4

A post hoc test for Homogeneity was conducted using Levene's test of Equality. The results from this post hoc test are detailed in table 35 below. From this the Significance or P Value highlighted in yellow is < 0.05 for **National Distribution** only at 0.035. Since P< 0.05 the null hypothesis can be rejected $H_0 = \mu1 = \mu2 = \mu3$. This confirms that there is no significant difference between jurisdictions and that the length of time in procurement is not a significant factor that can determine the value characteristic priority order or importance. Note: Relationship Trust has a P value of 0.051

Levene's Test of Equality of Error Variances[a]				
	F	df1	df2	Sig.
Financial Stability -	1.801	3	181	.149
DIFOT - F	.953	3	181	.416
Product Quality -	1.570	3	181	.198
Service Quality -	.330	3	181	.804
Delivery Quality -	.624	3	181	.600
Capable and competent resources -	.080	3	181	.971
Value for Money -	1.236	3	181	.298
Value Adding -	1.117	3	181	.344
Innovation -	.278	3	181	.841
CSR -	1.268	3	181	.287
Trust -	.860	3	181	.463
Safety -	1.465	3	181	.226
Information Quality -	1.273	3	181	.285
Process Improvement -	1.869	3	181	.136
Culture & Business Alignment -	1.057	3	181	.369
Relationship Trust -	2.641	3	181	.051
Market Intelligence -	1.528	3	181	.209
Specialist Resources -	.178	3	181	.911
National Distribution -	2.926	3	181	.035
On line information exchange -	.986	3	181	.401
Understands own business drivers -	1.623	3	181	.186
Flexibility - F	1.684	3	181	.172
Proactive -	1.648	3	181	.180
Good Planning -	.987	3	181	.400
Roadmap -	1.557	3	181	.202
Propensity to Partner -	1.930	3	181	.126

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Table 35: Levene's test homogeneity Hypothesis 4

Further regression testing was completed by performing a separate ANOVA for each dependant variable, with each ANOVA evaluated at the alpha level of 0.05 between New Zealand and New South Wales (Australia) as shown in table 36 below. The only significant differences between experience and value characteristic was the **Value Adding** characteristic with F (3,181) = 2.835, *P* = .040, partial Ƞ2 =.045 Since *P* < 0.05 the null hypothesisH0 = μ1 = μ2= μ3can be rejected

Tests of Between-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[aa]
Q7	Financial Stability	168.731	3	56.244	1.938	.125	.031	5.813	.495
	DIFOT	158.040	3	52.680	.888	.449	.015	2.663	.242
	Product Quality	64.464	3	21.488	.651	.583	.011	1.953	.185
	Service Quality	7.071	3	2.357	.176	.912	.003	.529	.082
	Delivery Quality	145.028	3	48.343	1.788	.151	.029	5.364	.460
	Capable and competent resources	35.357	3	11.786	.539	.656	.009	1.617	.159
	Value for Money	6.661	3	2.220	.131	.941	.002	.393	.074
	Value Adding	189.887	3	63.296	2.835	.040	.045	8.505	.673
	Innovation	63.560	3	21.187	1.095	.353	.018	3.284	.293
	CSR	88.771	3	29.590	1.324	.268	.021	3.971	.349
	Trust	42.069	3	14.023	.499	.683	.008	1.497	.150
	Safety	80.403	3	26.801	.572	.634	.009	1.716	.167
	Information Quality	78.569	3	26.190	.943	.421	.015	2.828	.255
	Process Improvement	21.333	3	7.111	.382	.766	.006	1.147	.125
	Culture & Business Alignment	73.085	3	24.362	.839	.474	.014	2.518	.230
	Relationship Trust	19.428	3	6.476	.154	.927	.003	.462	.078
	Market Intelligence	58.501	3	19.500	.835	.476	.014	2.506	.229
	Specialist Resources	64.157	3	21.386	.604	.613	.010	1.811	.174
	National Distribution	54.126	3	18.042	.608	.611	.010	1.824	.175
	On line information exchange	93.661	3	31.220	1.173	.322	.019	3.518	.312
	Understands own business drivers	241.357	3	80.452	1.937	.125	.031	5.812	.494
	Flexibility	214.492	3	71.497	1.735	.161	.028	5.206	.448
	Proactive	63.310	3	21.103	.428	.733	.007	1.285	.135
	Good Planning	134.196	3	44.732	1.001	.394	.016	3.003	.270
	Roadmap	8.893	3	2.964	.166	.919	.003	.497	.080
	Propensity to Partner	71.927	3	23.976	.400	.753	.007	1.199	.128

Table 36: Separate ANOVA's between subjects effects for Hypothesis 4

5.4.4 Hypothesis 5: If value characteristics are ranked, then they can be clustered into common value characteristic sets determining homogeneity.

Principle Components analysis (factor analysis) was used to test Hypothesis 4 using SPSS. Table 37 below is a simple correlation matrix that highlights the significance between factors. ** denotes a significance between factors using a 2 tail correlation at 0.01 and * denotes a significance at 0.05. The full detailed table is presented in Appendix 6

Pearson Correlation	Financial stability	DIFOT	Product Quality	Service Quality	Delivery Quality	Capable and competent resources	Value for Money	Value Adding	Innovation	CSR	Trust	Safety	Process Improvement	Culture & Business Alignment	Relationship Trust	Market Intelligence	Specialist Resource	National Distribution	On line information exch	Understands own business drivers	Flexibility	Proactive	Good Planning	Roadmap
Financial stability	1																							
DIFOT		1																						
Product Quality			1																					
Service Quality				1																				
Delivery Quality					1																			
Capable and competent resources						1																		
Value for Money							1																	
Value Adding								1																
Innovation									1															
CSR										1														
Trust											1													
Safety												1												
Process Improvement													1											
Culture & Business Alignment														1										
Relationship Trust															1									
Market Intelligence																1								
Specialist Resource																	1							
National Distribution																		1						
On line information exch																			1					
Understands own business drivers																				1				
Flexibility																					1			
Proactive																						1		
Good Planning																							1	
Roadmap																								1

Table 37: Simple correlation matrix off the diagonal

Table 37 looks at the correlation matrix off the diagonal. Although the table is quite complex when to look at it presented in Appendix 6, an example of correlations significance at 0.01 level is **Delivery Quality** with **Product** and **Service Quality**. There is a large amount of variables and many correlations. The focus is to reduce the number of relationships between the variables by creating a new component. Principle Components Analysis (PCA) is a recognised data reduction technique.

Using SPSS the Scree Plot in Figure 20 it is clear to see that there are 3 points of inflection. The point of inflection inform the researcher of point where the reduction can occur. The technique is to use the points of inflection in a formula n-1, where n= point of inflection. From this technique you can determine 3 levels of reduction for the PCA tests (10, 8, 4).

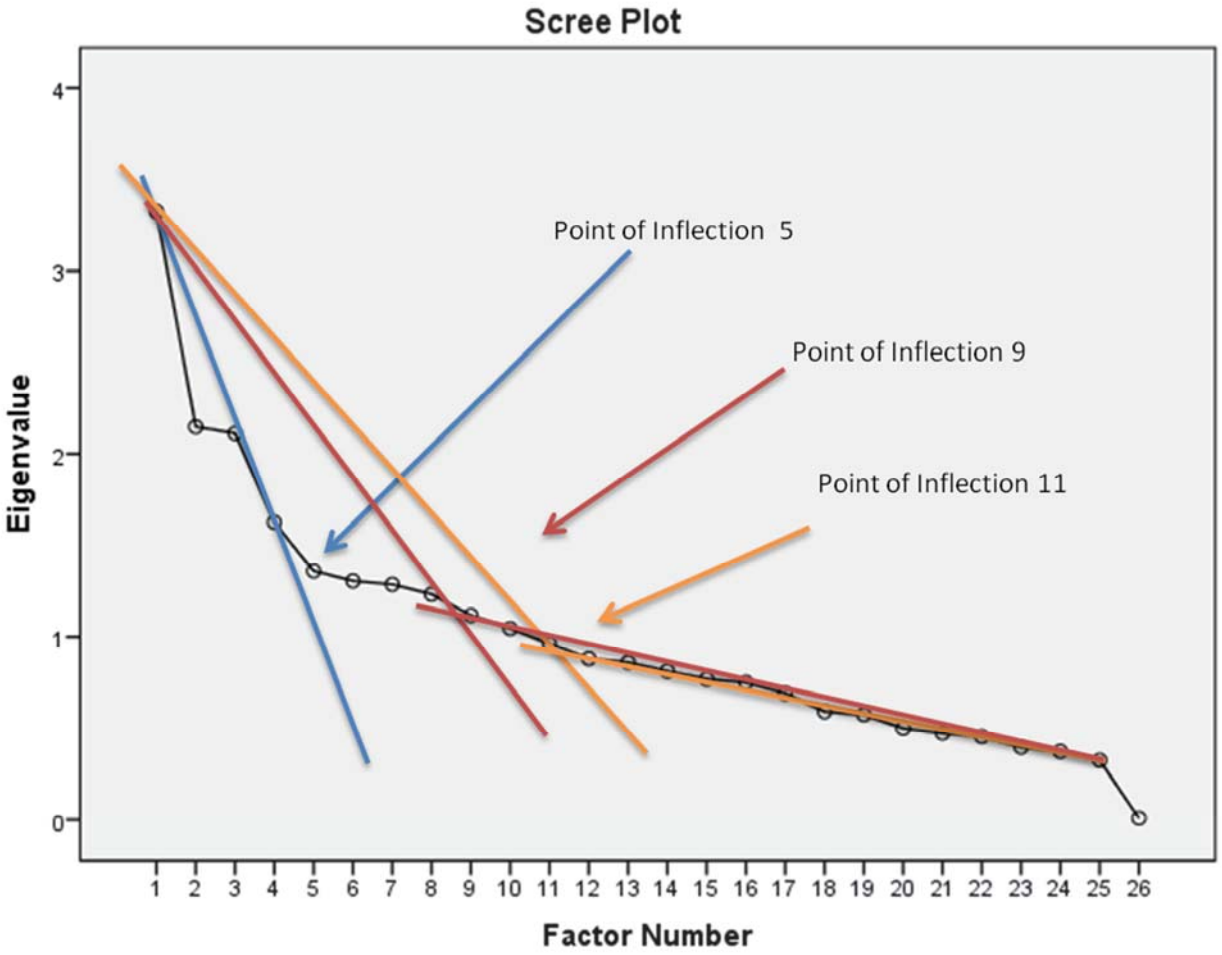


Figure 22 Scree Plot for 10 Components (PCA)

Note: The Scree plot highlights 3 inflection points at 11, 9 and 5 Components.

Table 38 below shows a Principle Components Analysis (PCA) with a reduction of 26 variables down to 10 components. An Eigenvalue of > 1 is used with an orthogonal rotation technique called the Varimax technique. The orthogonal rotation used allows the component to be uncorrelated. Note: Rotation is only applied when two or more Components (factors) are retained.

Rotated Component Matrix[a]

	Component									
	1	2	3	4	5	6	7	8	9	10
On line information exchange	.775									
Information Quality	.760									
Market Intelligence	.469					-.377				
DIFOT		-.747								
Trust		.682								
Safety		-.414		-.367						
Propensity to Partner			-.706							
National Distribution			.684							
CSR		-.375	.460							
Culture & Business Alignment			-.410			-.349	.387			
Service Quality				.804						
Delivery Quality				.750	-.307					
Innovation					.704					
Process Improvement					.693					
Value Adding	-.367				.431		.343		-.362	
Value for Money						.688				
Relationship Trust		.364				-.585				
Product Quality				.409		.578				
Good Planning							-.722			
Proactive	-.305						-.513		-.398	
Roadmap	-.308						-.510			
Capable and competent resources								.786		
Specialist Resources								.762		
Financial Stability									.826	
Understands own business driverslist										-.754
Flexibility										.641

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 13 iterations.

Table 38: Rotated Component matrix value >0.3

The Variables are grouped into the 10 Components with **Financial Stability** appearing to be an outlier. The KMO and Bartletts test below in table 39 were used as a further regression test. The Bartletts test of sphericity shows that with a *P* value of 0.00 is <0.05 and is significant and it has calculated an approximate Chi-Square distribution.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.033
Bartlett's Test of Sphericity	Approx. Chi-Square	1417.356
	df	325
	Sig.	.000

Table 39: KMO & Bartlett's test

From the Scree plot in Figure 22 there is further inflection points at Component number 9 and 5 so using n-1 where n = inflection point table 40 highlights the Rotated Component Matrix for 8 Components and table 41 highlights the Rotated Component matrix for 4 Components

	Component							
	1	2	3	4	5	6	7	8
DIFOT	-.770							
CSR	-.681							
Flexibility	.534			.342				
Safety	-.454							
Proactive	.412	-.318				-.406		
On line information exchange		.757						
Information Quality		.740						
Market Intelligence		.539	-.357					
Delivery Quality			.767					
Service Quality			.733					
Product Quality			.546	.314		.301		
Understands own business drivers				-.617				
National Distribution	-.322			.465	-.373			
Propensity to Partner				-.464				
Value for Money				.455		.437		
Process Improvement					.688			
Innovation					.658		.359	
Relationship Trust			-.360		-.416		.321	
Financial Stability						.670		
Trust	.334		-.315		-.305	.424		
Culture & Business Alignment				-.315			.575	
Good Planning						-.361	-.556	
Value Adding		-.324			.316		.494	
Roadmap	.325	-.353		-.307			-.362	
Capable and competent resources								.791
Specialist Resources								.758

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 15 iterations.

Table 40: Rotated Component Matrix, 8 Components

	Component			
	1	2	3	4
Safety	.580			
DIFOT	.554	.338		
Product Quality	.543			.434
Culture & Business Alignment	-.495			
National Distribution	.478			
Financial Stability	.457			
Propensity to Partner	-.449		-.345	
Value for Money	.353			
Understands own business drivers	-.322			
Innovation		.671		
CSR	.483	.518		
Value Adding		.485		
Process Improvement		.461		
Flexibility		-.358		
Good Planning		-.334		
On line information exchange			.727	
Information Quality			.687	
Market Intelligence			.539	-.323
Roadmap			-.486	
Proactive	-.306	-.331	-.387	
Delivery Quality				.669
Service Quality				.595
Specialist Resources	-.317			.469
Capable and competent resources		.309		.465
Relationship Trust	-.374			-.434
Trust				-.329

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Table 41: Rotated Component Matrix, 4 Components

5.5 Summary

From the Analysis of data throughout this section is is clear to see that there are some significant correlations of value characteristics between New Zealand and New South Wales. The analysis also highlights that there are some significant differences between the jurisdictions in the values such as Financial Stability, CSR, Information Quality, Relationship Trust, Market Intelligence, National Distribution and Proactive. When this is compared with the stage one inductive analysis it is evident that there are similar properties and issues with determining a common value set of value characteristics. The reduction techniques used Principle Component Analysis (PCA) also known as Factor Analysis highlighted that it is possible to reduce the factors / components; however this is still using all of the reference set that has significant differences between jurisdictions. In the next section we will delve deeper into these two concerns highlighted and compare with past research with an aim to discuss, consider and refute or confirm this research against previous studies and deliver the Value Characteristic Model (VCM).

Chapter 6: Discussion and Recommendations

6.1 Introduction

The aim of this chapter is to address the questions that underline the research topic prompted by the need to understand if there is a commons set of value characteristics chosen by organisations when they determine and classify a supplier as a Key Supplier. The questions through an electronic questionnaire (Section 1.6 Research Questions) were developed to successfully achieve the research objectives set out in Chapter 3 Methodology section 3.2 (Research Questions and Supporting Hypothesis). Each objective aligns to a corresponding element of research that is supported through the research framework highlighted in Section 1.5 and the Hypothesis testing in Chapter 5. From the data collected through the inductive methods used in Chapter 4 (Inductive Research Analysis and Findings) and the questionnaire (Section 1.6), the Statistical Analysis from the Hypothesis testing in Chapter 5 provide the thorough basis from which deductions can be drawn. Common themes can be identified and recommendations are made. The deductions in this chapter are based on the Research Questionnaire with the control set of characteristics derived from the inductive Workshop pilot's.

The key findings from the Hypothesis testing have been elevated for further discussion to address the Objectives (sections 3.2) and Questions (1.6). These are presented individually throughout this chapter and compared with previous research with recommendations presented at the end of each section.

6.2 Question 1 – The Type of Procurement your Key Suppliers deliver

Although there was no direct Objective aligned to this question within the questionnaire, the importance of this data adds context to the type of Key Supplier the respondents are referencing and that the public sector predominately use. The hypothesis used to test this objective was;

Hypothesis 1: The value characteristics can be selected by frequency of choice.

From the Descriptive statistics presented in section 5.3 table 21 and Figure 20 highlighted that 75% and 78% (for NZ and NSW respectively) of the population when answering the questionnaire are operating in a procurement environment where Key Suppliers are delivering both Goods and Services. Further investigation of the Statistics shows that the experience and knowledge of the procurement profession with practitioners with greater than 10 years' experience is 34% and 63% (NZ and NSW) a 46% difference could have produced bias in respect of understanding the key suppliers clearly and the type of procurement solution they are delivering to the organisation. However this is not apparent from the total percentage scores and the combined scores for Practitioners with Greater than 4 years' experience is 80% and 83% (NZ and NSW). This corroborates that the majority of Key Suppliers are delivering Goods and Services with an overall experience greater than 4 years.

Almost all Categories delivered today via key suppliers have additional elements of services combined with the actual product (goods). An example of this is the traditional Pens and Paper category which was predominately seen as a commodity is now grouped under a name similar to Office Solutions with added value services delivered through a valet just in time operation.

The sample sizes for the experience categories within the research were not sufficient. Statistical analysis using Anova and post hoc test could not be performed for each category, therefore they are not significant and cannot be adopted even with rolled up groups 0-3 years and 4+ years experience in procurement. (Dubois & Araujo 2004) and (OBLOJ & Zemsky) had similar implications with sample size even though their findings did contribute to the understanding of Co-creation of value and expanded the knowledge of supplier value

However as per the previous research the recommendation that there is justified implication that the Majority of Key Suppliers within the Public Sector delivers Goods and Services can be derived from these findings although the sample size impacts the genralisable nature of this part of the study Therefore further research to enable a larger population response (in experience) is recommended to enable comparison to the type of services offered by suppliers with previous studies

6.3 Question 2 – From the control list of value characteristics – respondents required to tick most appropriate.

Question 2 was supported with the following objective; determine the appropriate value characteristic from a Key Supplier.

The respondents were requested to choose the most appropriate value characteristics from the "Control set "that was presented. Using this set of characteristics they were asked to choose what characteristics presented describe value from a Key Supplier. However, before we could analyse the data the following objectives were delivered through exploratory workshops (pilots) using the inductive methodology and a resultant set of data transformed into the Control Value Set that provided a focal lens for the recipients;

- Objective 1; Obtain a control set of common characteristics that determine value from key suppliers in the New Zealand and New South Wales Public Sector
- Objective 2; Rank the control set in order of significance (A reference benchmark)

Chapter 4 details the outputs and findings from the Inductive Exploratory Workshops. The list of 26 Value characteristics detailed in table 17 formed the Control Set of Value characteristics for the research questionnaire.

The method of delivering a control set of data to the respondents is essentially the difference between descriptive and causal study. The limitation in this descriptive methodology is that it is focused on (the what) and (the type) and unlike a causal study we do not dig deep into the relationships among variables. The usefulness of this design is to overcome participant's perceptions that could cause deviations or bias and using a statistical study to capture the population's characteristics (breadth and generalisations).

From the 26 Control Set of Value Characteristics and the Supporting Hypothesis 1: (The value characteristics can be selected by frequency of choice.), the analysis from the data was presented in section 5.4.1 where Frequency Ranking and Anova was used with post hoc tests of equality and homogeneity to determine the appropriate values. From this you can extrapolate the values that correlate between jurisdictions.

The results show that in the Anova and from the post hoc tests the following value characteristics have a significance value of $P = <0.05$ and therefore we can reject the Null Hypothesis; variances in the means between NZ and NSW jurisdictions are; **Financial Stability, Information Quality, Relationship Trust, National Distribution and Proactive.**

Values **National Distribution** and **Information Quality** are more important in New Zealand. This could be explained by the research subjects being geographically dispersed across 2 islands and their need to have a greater focus lens on these values. Another concept could be the

importance of quality information when managing an organisation that potentially has multiple presences / offices throughout the country.

Relationship Trust could be argued that the potential bias form each jurisdiction could be aligned to the culture of respective countries. (Transparencey, 2014) published Corruption Perception Index 2014 which are the perceived levels of public sector corruption worldwide. Figure 23 below shows the difference between the two countries which could be a factor in determining the importance.

RANK	COUNTRY/TERRITORY	SCORE
1	Denmark	92
2	New Zealand	91
3	Finland	89
4	Sweden	87
5	Norway	86
5	Switzerland	86
7	Singapore	84
8	Netherlands	83
9	Luxembourg	82
10	Canada	81
11	Australia	80
12	Germany	79
12	Iceland	79
14	United Kingdom	78
15	Belgium	76
15	Japan	76
17	Barbados	74
17	Hong Kong	74
17	Ireland	74
17	United States	74
21	Chile	73
21	Uruguay	73
23	Austria	72
24	Bahamas	71
25	United Arab Emirates	70
26	Estonia	69
26	France	69
26	Qatar	69
29	Saint Vincent and the Grenadines	67
30	Bhutan	65
31	Botswana	63
31	Cyprus	63
31	Portugal	63
31	Puerto Rico	63
36	Poland	61
36	Taiwan	61
37	Israel	60
37	Spain	60
39	Dominica	58
39	Lithuania	58
39	Slovenia	58
42	Cape Verde	57
43	Korea (South)	55
43	Latvia	55
43	Malta	55
43	Seychelles	55
47	Costa Rica	54
47	Hungary	54
47	Mauritius	54
50	Georgia	52
50	Malaysia	52
50	Samoa	52
53	Czech Republic	51
54	Slovakia	50
55	Bahrain	49
55	Jordan	49
55	Lesotho	49
55	Namibia	49
55	Rwanda	49
55	Saudi Arabia	49
61	Croatia	48
61	Ghana	48
63	Cuba	46
64	Oman	45
64	The FYR of Macedonia	45
64	Turkey	45
67	Kuwait	44
67	South Africa	44
69	Brazil	43
69	Bulgaria	43
69	Greece	43
69	Italy	43
69	Romania	43
69	Senegal	43
69	Swaziland	43
76	Montenegro	42
76	Sao Tome and Principe	42
78	Serbia	41
79	Tunisia	40
80	Benin	39
80	Bosnia and Herzegovina	39
80	El Salvador	39
80	Mongolia	39
80	Morocco	39
85	Burkina Faso	38
85	India	38
85	Jamaica	38
85	Peru	38
85	Philippines	38
85	Sri Lanka	38
85	Thailand	38

Figure 23 2014 Corruption Perception Index

(Milton-Smith, 1997) has a view that perhaps the major unresolved issue relating to business ethics in Australia and New Zealand is lack of trust and suggested that as trust is the foundation stone for all good relationships, a new generation and a different quality of leadership will be required to overcome the serious breaches of trust which occurred in the 1980s. Therefore is this research a representation of the maturity and quality of leadership roles in New Zealand and Australia?

(Milton-Smith, 1997) from the research has a valid insight into potentially why we have a focus on trust from the results highlighted in the Australia and New Zealand responses, however is the an extra focus on Relationship Trust in New Zealand as a result of the studies in business ethics and the result can be correlated to the outcome in the Corruption Perception index represented in figure 23 with New Zealand being the second lease corrupt country.

(Callaghan & Greg, 2014) highlighted that there is more focus on business ethics through their research that looked at determining the evolution of engagement with business ethics in the top 500 Australian corporations operating in the private sector from 1995 to 2010. The research found that business ethics has continued to evolve over the period of the study and that, in most cases, such an evolution has been positive, with the majority of companies exhibiting high levels of engagement. Within NSW there are published cases consistently in the media through the Independent Commission against Corruption (ICAC). This could also be a determinant to the focal lens within the Public sector of NSW and the less importance that is seen in relationship trust due to the reactions to the publicity and the overt adoption of arms-length supplier relationships. This study confirm (Callaghan & Greg, 2014) view that trust is a focal lens for both jurisdictions.

Financial Stability has a counter intuitive response with NSW respondents highlighting an increased importance than their counterparts in New Zealand. This could be potentially explained due to the research parties focus on differing types of organisation. In NSW there is a focal lens within the Public Sector to contract with SME's and Local Subsidiaries of Multinational Companies. In New Zealand there could be fewer subsidiaries of multinational companies due to size of population and target market. Therefore potentially more contracts with off shore head offices rather than small companies that potentially could have stability and cash flow issues. A greater importance on SME's and Local Subsidiaries of Multinational organisations may be a valid reason for the difference in importance of the variable Financial Stability between jurisdictions. However through all of the research referenced in table 4 in the supplier and key account studies Financial is a key value determinant and this research correlates with previous studies that it is important with a great focus from procurement professionals in NSW.

Further research would be required to determine the validity of this synopsis

Proactive is a more difficult value to explain the variance between jurisdictions. One view is that it could be similar to National Distribution and Information Quality in that the nature of the geographical spread of New Zealand Government Agencies. Another could be the Tyranny of distance and the size the market requiring organisations to deliver a more proactive approach to delivery of goods and services. Alignment to a Cultural and Maturity of the Procurement Profession with the NZ jurisdiction could be another factor for the difference. NSW is still focused on reform through cost savings (cost out)) while NZ is focusing on developing economic growth through shared value in the supplier – customer dyadic relationship.

Although previous research and studies did not clearly promote the importance of the Value characteristic Proactive from a customer perspective although (Lendrum, 2004) highlighted that

responsive was a key value but (Humphreys, Williams, & Goebel, 2008) in their supplier orientated purchasing behaviour (SOPB) had responsiveness as one of the 5 factors. So although previous research has highlighted the importance of responsiveness as a value characteristic from the view point of a supplier the customer focus and/or lens from this research in both jurisdictions dos not promote this as a common value characteristic. From the Statistical analysis in 5.4.1 there is a second set of value characteristics that are implicated as having a significant variance between jurisdiction determined through the tests of equality and homogeneity methodology these values are; **CSR** and **Market Intelligence** as these consistently showed a significance value of *P* = <0.05 and therefore the null hypothesis was rejected as there are variances between means.

Analysing the output from the research data and the statistical analysis in 5.4.1 it is recommended to reject the following values in table 42. Table 43 therefore meets objective 3 - the appropriate value characteristics from a key supplier and represents the Value characteristics that correlate between jurisdictions

Rejected Values
Financial Stability
CSR
Information Quality
Relationship Trust
Market Inetlligence
National Distribution
Proactive

Table 42: Rejected Values

Non-Rejected Values	
DIFOT	Process Improvement
Procuct quality	Culture & Business Alignment
Service Quality	Specilaist Resources
Delivery Quality	On line information Exchange
Capable and Competent Resources	Understands Own Business drivers
Value for Money	Flexibility
Value Adding	Good Planning
Innovation	Roadmap
Trust	Propensity to Partner
Safety	

Table 43: Non-Rejected Values

A further reflection of the variances of the values between jurisdictions can be highlighted in the Histogram presented in figure 21.

The recommendation from the statistical analysis from the respondents input is to complete further research in the areas of difference to determine if Culture and Geographic assumptions made above can be proved or discounted as being key factors that influence the differences between New Zealand and NSW jurisdictions. The will extend the knowledge within the research of Supplier Value Preferences and highlights some limitation within the current research.

Objective 2 will be discussed in Section 6.4 when we compare the benchmark rank pilot workshops with the priorities outlined in question 3 of the survey.

6.4 Question 3 – Rank in order of priority 1-10 with 1 being most important

Question 3 was supported by the following objective; To determine the value priorities for public sector procurement

The hypothesis used to test this objective was; Hypothesis 2: The value characteristics in the Public Sector can be ranked in order of priority. The respondents were asked to rank in order of importance the 'Control Set" set out in Question 2. The data was analysed using Analysis of Variance (Anova) which compares the differences of the means between each group. **DIFOT, Safety, Relationship Trust, National Distribution and Proactive** all demonstrated a significance factor of p=<0.05 and therefore the Null Hypothesis was rejected as there is significant difference between NSW and New Zealand jurisdictions population means for these variables. This was backed up by the Kruskal-Wallis H test for homogeneity of variance. From Section 6.3 **Relationship Trust**, **National Distribution and Proactive** are common values that have been rejected and the explanation highlighting possible motive for these variances were discussed in that section.

Further investigation into the respondent Data has highlighted the following in respect to the variable value **Safety**; In New Zealand the respondents were spread evenly across all of the state sector with many of the agencies not having safety as a focal lens. In NSW, 42% of the respondent population were in the following agencies or clusters; Transport, Fire and Rescue and Police where Safety is one of the major or if not major focal lens. The high level of population focus has an effect of the significance of the result and increase the possibility of bias within the research topic.

Not only did the research show that there were differences between jurisdictions when compared to inductive stage 2 workshops (pilots) it confirmed that not only were their differences between ranking in each workshop it also confirmed that only a subset of Values were common between each group.

The recommendation would be to complete further research by extending the population size and make up to enable a more evenly distributed set of data. Another alternative is to complete further research by removing the bias (ignore the data received from 48% of the population of NSW) however this would reduce the population size to 31 respondents and the ability for this sample to be generalisable.

DIFOT appears to be an outlier and further investigation and research would be required to understand the significance of this difference.

Unfortunately comparisons of the ranking within the 3 pilots taken from the exploratory workshops are anomalies. This is due to the relative sizes of each population within each workshop and the inconsistent core value label outcome derived. (Sapsford, 1999) and (Aldridge and Levine, 2001) through their studies have suggested that minimum observation from each category in an independent variable should be at least 20 or 50 respectively. The researcher has chosen not to compare the ranking of the pilot workshops with the questionnaire findings. The benefits from completing the exploratory workshops were to develop a "control" set of value characteristics with a fixed and consistent framework that was not derived by the author to ensure independence and validity of the findings. The recommendation is to ignore the ranking data from the exploratory workshops due its spuriousness.

6.5 Question 6 – Time in Procurement –Number of years

Question 6 was supported with the following objective; to determine how they (Priority Values) are influenced by experience

The results from the Surveys in a descriptive capacity are captured in table 20 and figure 19. From this data NSW has 17% more respondents that have greater than 10 years' experience within Procurement. The hypothesis 4; the length of time in procurement changes the value priorities was tested using Multivariate Analysis of Variance (Manova) and although the descriptive statistics show a 17% difference in responses for category 10 years +; the means are not greatly different between the 26 Value characteristics and the standard deviations are all similar sizes showing homogeneity. This again was supported by the post hoc multivariate tests using Wilks Δ which highlighted a significance of $p = 0.948$ and thus we cannot reject the null hypothesis that there is significance difference in means. The levene's test for homogeneity also demonstrated that apart from the Value Characteristic **National Distribution** there are no significant variances between group means**.**

Based on the analysis performed, the conclusion to the objective is that the priority values do not change significantly and are not influenced by experience of the procurement professional.

However (Sapsford, 1999) and (Aldridge and Levine, 2001) have suggested that minimum observation from each category in an independent variable should be at least 20 or 50 respectively. With this in mind and to test validity and potentially avoid type 1 and 2 errors, the recommendation is to combine experience groups < 1yr & 1-3 yrs into 0-3yrs so as to achieve a population sample of 33.

Between-Subjects Factors

		Value Label	N
How Long have you been working in a procurement function? (please tick)	1	0-3 years	33
	2	4-10 years	57
	3	10 years +	95

Table 44: Factors & number of respondents 3 categories

Multivariate Tests[a]

		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[d]
Q7	Pillai's Trace	.237	.815	52.000	316.000	.813	.118	42.396	.906
	Wilks' Lambda	.776	.816[b]	52.000	314.000	.812	.119	42.440	.906
	Hotelling's Trace	.272	.817	52.000	312.000	.810	.120	42.480	.906
	Roy's Largest Root	.184	1.116[c]	26.000	158.000	.329	.155	29.025	.854

a. Design: Intercept + Q7

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

d. Computed using alpha = .05

Table 45: Multivariate tests 3 categories

Levene's Test of Equality of Error Variances[a]				
	F	df1	df2	Sig.
Financial Stability	1.505	2	182	.225
DIFOT	1.312	2	182	.272
Product Quality -	1.932	2	182	.148
Service Quality	.379	2	182	.685
Delivery Quality	.730	2	182	.483
Capable and competent resources list	.056	2	182	.945
Value for Money	.957	2	182	.386
Value Adding	1.364	2	182	.258
Innovation	.318	2	182	.728
CSR	2.122	2	182	.123
Trust	.540	2	182	.584
Safety	2.219	2	182	.112
Information Quality	.507	2	182	.603
Process Improvement	.404	2	182	.668
Culture & Business Alignment	.140	2	182	.870
Relationship Trust	1.803	2	182	.168
Market Intelligence	.454	2	182	.636
Specialist Resources	.186	2	182	.830
National Distribution	3.570	2	182	.030
On line information exchange	.099	2	182	.906
Understands own business drivers	1.136	2	182	.323
Flexibility	1.893	2	182	.154
Proactive	2.460	2	182	.088
Good Planning	1.099	2	182	.335
Roadmap	2.354	2	182	.098
Propensity to Partner	1.607	2	182	.203

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Table 46: Levene's test of homogeneity

From the tables 44, 45 and 46 above the statement "the priority values do not change significantly by experience based on the analysis performed", can be corroborated with a sample population for each category being greater than 20. Further analysis by grouping the categories has not highlighted a significant difference between the output of these tests and the previous tests with 4 categories. Levene's test for Homogeneity highlights **National Distribution** as being rejected in both cases due to $P = 0.035$ & 0.03 respectively.

The variance between NZ and NSW for the Value characteristic, National Distribution could be explained by the Geographical dispersed nature of NZ public sector organisations across 2 Islands and NSW Public sector only focused on the territory of NSW as described in section 6.3. However there is still the potential limitation as to the sample size of the age categories within both jurisdictions and further research with and increased sample size in each age category could determine a differing result.

6.6 Priorities Change by Country

The influence of priorities based on country of origin was not specifically required to be asked as a separate research question. The research survey was separated as 2 discrete surveys for each jurisdiction. The results allowed simple provision of primary data extracted and coded accordingly. The analysis was supported by the following objective and hypothesis; Objective 5; How do these priorities change by country? Was supported by the following hypothesis;

Hypothesis 3: The country of origin will influence the priority ranking of the value characteristics

To test Hypothesis 3 a Multivariate analysis of variance (Manova) was performed as detailed in 5.4.3. The descriptive statistics highlight that **DIFOT, Safety, Relationship Trust, National Distribution and Proactive** have the biggest differences between means between Countries as per table 28. This correlates with the evidence presented in the statistical analysis performed in Section 6.4 where we discovered the Priority Values for the Public Sector after analysing the variances for the nominal ranking of value characteristics. Post hock multivariate test eg: Wilks Δ and Levene's test of homogeneity, confirmed that we can reject the null hypothesis and P <0.05. Therefore there is a significant difference between country means of values **DIFOT, Relationship Trust, National Distribution.** However Levene's test of homogeneity highlighted that **Information Quality** should also be rejected and therefore the consequences of the above findings show a significant degree of heterogeneity.

A further set of Statistical analysis was completed using the Analysis of Variance (Anova) for each dependant variable between NZ and NSW. The results detailed in Table 31 show that the Null Hypothesis again is rejected due to a P value <0.05 for the above value characteristics; **DIFOT, Safety, Relationship Trust, National Distribution** and **Proactive**.

From the evidence supplied in the statistical analysis we can reveal that the following characteristics are homogenous and the null hypothesis is not rejected resulting in that there are significant similarities with the Value Priorities in each Country;

Homogeneous Value Priorities	
Financial Stability	Process Improvement
Procuct quality	Culture & Business Alignment
Service Quality	Specilaist Resources
Delivery Quality	On line information Exchange
Capable and Competent Resources	Understands Own Business drivers
Value for Money	Flexibility
Value Adding	Good Planning
Innovation	Roadmap
Trust	Propensity to Partner
CSR	Market Intelligence
Information Quality	

Table 47: Homogeneous Country Value Priorities

There are notable value inclusions from the previous statistical analysis outcomes captured in tables 42 & 43, Financial Stability, CSR Information Quality, and Market Intelligence. DIFOT and Safety post the homogeneity tests has been excluded in the final common value set to develop the value characteristic model (VCM) The recommendation is that the above Priority Values be adopted as the common set for the Public sector within NZ and NSW.

6.7 Clustered Common Values of Value Priorities

Objective 7: Obtain a common set of value characteristics for NZ and NSW by grouping into clusters was supported by the following hypothesis;

Hypothesis 5: If value characteristics are ranked, then they can be clustered into common value characteristic sets determining homogeneity.

Section 5.4.2 describes how Principle Component Analysis (PCA) also known as Factor Analysis was used in conjunction with SPSS. The Scree plot in Figure 20 highlighted the inflection points and from this 3 Rotated Component Matrices. The factors or components were extracted with 10,8 and 4 respectively with Eigen Values >1. In chapter 2 (Yu-I Lee & Ya-Chu Chan, 2011) looked at reducing the data factor analysis to fit the research objective and (NDREGJONI & GEGA) through their research concept of value and its dimensions determined 5 key value dimensions. Further review has determined an optimum number of factors for this research being 6 factors. From a comparison of the data presented in section 5.4.2 and table 48 below (factor reduction of the total core set of value characteristics),, it is evident that the 6 factors will be used in the development of the Value Capture Model (VCM) referenced in section 1.4 of this paper;

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
National Distribution	.530					
CSR	.524		.391			
Safety	.520					
Propensity to Partner	-.492					
Financial Stability	.425					
Proactive	-.387	-.319				
Value for Money	.382					
Understands own business drivers list	-.369					
On line information exchange		.748				
Information Quality		.738				
Market Intelligence		.545		-.354		
Roadmap	-.369	-.389				-.309
Process Improvement			.572			
Relationship Trust			-.555	-.301		
Trust			-.549			
DIFOT	.443		.512			
Flexibility			-.405			
Delivery Quality				.781		
Service Quality				.731		
Product Quality	.432			.543		
Culture & Business Alignment	-.305				.567	
Value Adding					.563	
Innovation			.425		.555	
Good Planning	-.461				-.529	
Capable and competent resources						.786
Specialist Resources						.745

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 48: 6 Factor Rotated Component Matrix

(Humphreys, Williams, & Goebel, 2008) defined the concept of supplier orientated purchasing behaviour (SOPB).They developed as a result of their research findings a 17-item five –factor measure for SOPB. (Joshi & Chebbiyyam, 2011) who presented a new technique that we have devised to identify the opportunities for Value co-creation based on priorities for value drivers in an IT enabled B2B services contract and (Yu-I Lee & Ya-Chu Chan, 2011) who Investigated automotive repair and maintenance franchise industry constructing a chain store relationship value scale which ensure both reliability and validity; each used Principle Component Analysis (PCA) commonly known as factor analysis to reduce the data down into suitable size.

This resonated and confirmed that the further reduction using the Factor Analysis techniques was appropriate. The output was achieved by using the Values detailed in table 47 Homogeneous Country Value Priorities and a 6 Factor Rotated Component Matrix was extracted from SPSS with the following results capture in table 49;

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
Value for Money	.557					
Propensity to Partner	-.536					
Product Quality	.521		.519			
Financial Stability	.520					
CSR	.517					.465
Understands own business drivers	-.432					.367
Good Planning	-.427			-.345		
On line information exchange		.754				
Information Quality		.729				
Market Intelligence		.545	-.366			
Roadmap		-.475			-.355	
Service Quality			.745			
Delivery Quality			.723			
Trust			-.432			
Value Adding				.712		
Innovation				.670		
Culture & Business Alignment	-.355			.374		
Capable and competent resources list					.770	
Specialist Resources					.718	
Flexibility						-.756
Process Improvement						.486

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 18 iterations.

Table 49: 6 Factor Reduced Values -Rotated Component Matrix

From Table 49, value **Product Quality** was positioned under component 3 and value **Understands Business Drivers** to component 6. The 6 components have been named as follows;

1. Sustainable Partnership Value
2. Shared Clear Vision with Intelligent Information
3. Trusted Relationship with delivered Quality
4. Aligned Value Innovation & Culture
5. Skilled & Specialist Resources
6. Flexible Organisation driving Continuous Improvement

Table 50 below highlights the Value characteristics under the Value Characteristic Categories which form the parts of the Value Characteristic model (VCM);

Sustainable Partnership Value	Shared Clear Vision with Intelligent Information	Trusted Relationship with delivered Quality	Aligned Value Innovation & Culture	Skilled & Specialist Resources	Flexible Organisation driving Continuous Improvement
Value for Money	On line information exchange	Service Quality	Value Adding	Capable & Competent Resources	Understands Own Business Drivers
Propensity to Partner	Information Quality	Product Quality	Innovation	Specialist resources	Flexibility
Financial Stability	Market Intelligence	Delivery Quality	Culture & Business Alignment		Process Improvement
CSR	Roadmap	Trust			
Good Planning					

Table 50: Value Characteristics

The research challenge was to determine the suitable number of components. From the data provided through the statistical analysis the common clusters were presented in what has appeared to be logical clusters from an understanding of the Value definitions as presented in table 17. To further extend the research and complete finding's feedback would be required from the research recipients on the 6 components from either face to face interviews or another questionnaire. This has not been contemplated in this case study.

6.8 Summary

The statistical analysis has reduced the Supplier Value characteristics to a common set of 21 from the core value set of 26 used in the survey questionnaire. If the conceptual model in Figure 9 is reintroduced and populated using the value set derived from the analysis the result is presented in figure 24 below; The 6 characteristics represent the Components that have been derived from the respondent surveys from both NZ and NSW jurisdictions and represent the Value Characteristics of Public Sector Suppliers

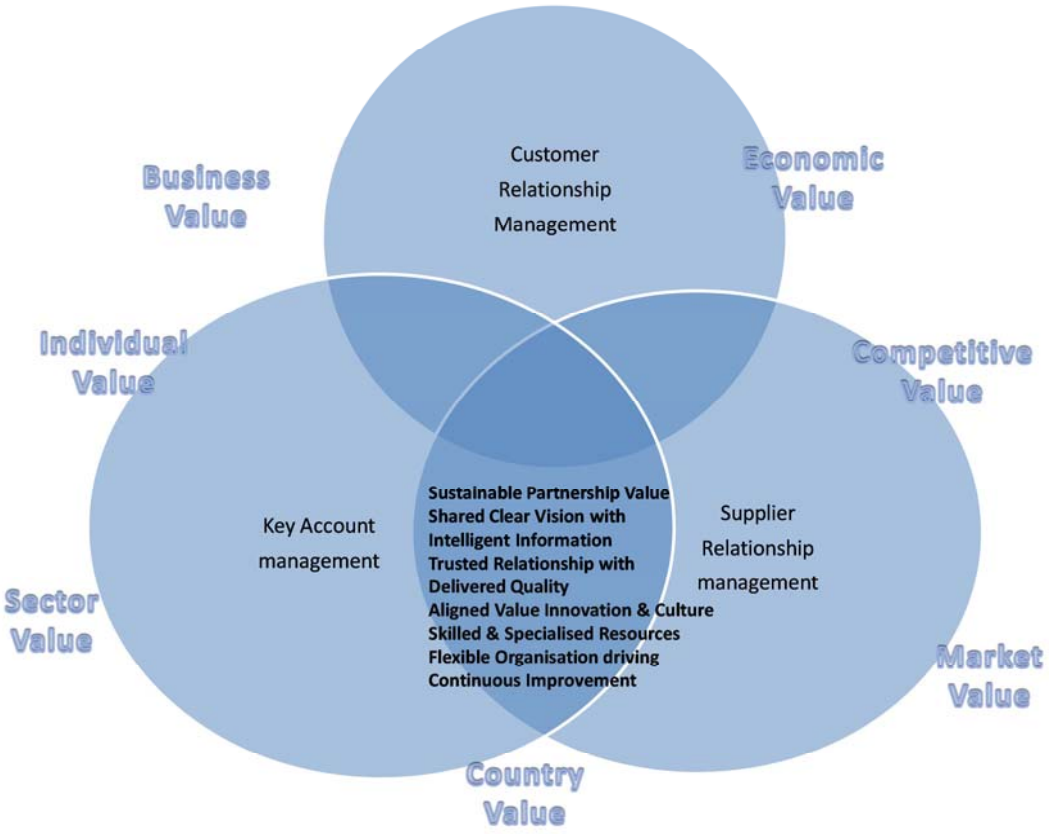


Figure 24 Mapped Concept model with findings

Although it may look a cluttered, under the 6 Value Characteristic components represented in figure 24, there are 21 Values that naturally map into the model at the intersection between Key Account Management and Supplier Relationship Management. This has highlighted a weakness in the research in that the Survey was only taken from the Customer perspective and not a Supplier view. A survey inclusive of supplier feedback would have completed a full 360 degree overview aligned with the concept model and literature. It is recommended that to further extend this research and map completely to the past literature reviewed a further survey using the exact questionnaire used in this research be taken from supplier to organisations in both NZ & NSW.

Figure 25 below is the mapped Value Characteristic model developed from the findings in this chapter presented in table 50 above;

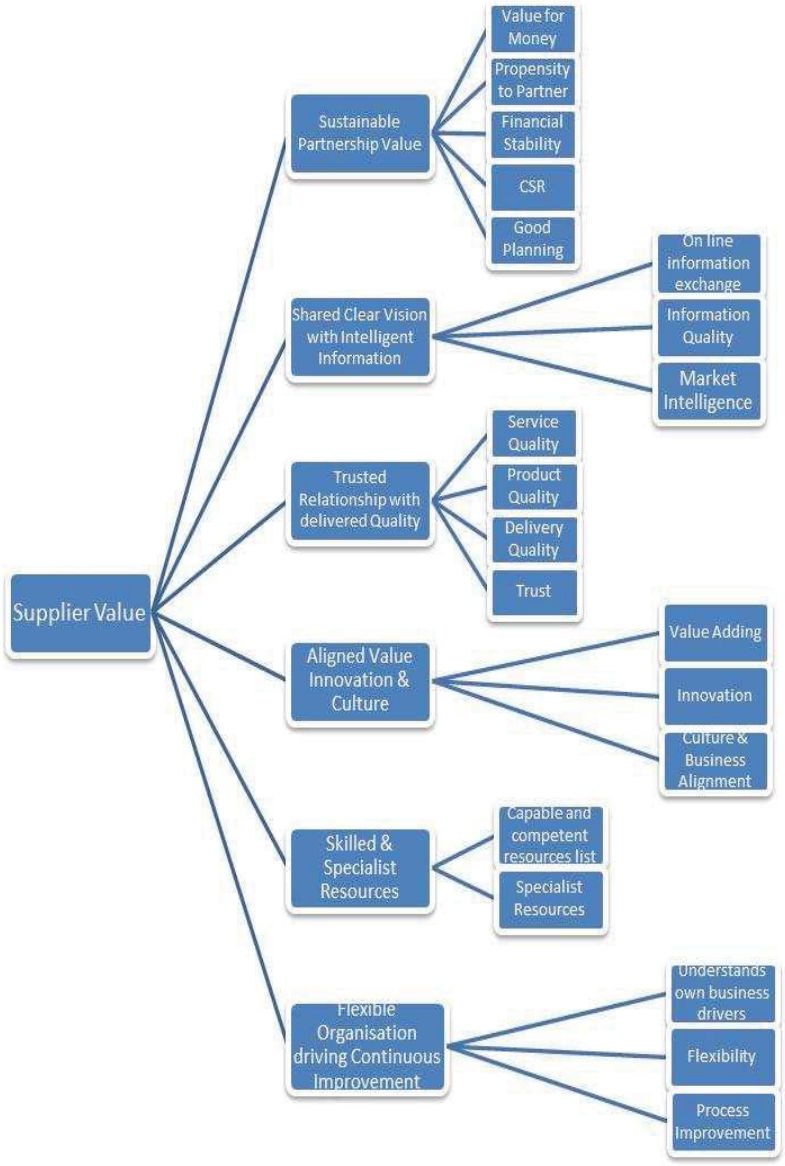


Figure 25 Value Characteristics Model (VCM)

The 6 Components of the VCM are named as per section 6.7 in this chapter in order to be able to group the underlying value characteristic components;

1. Sustainable Partnership Value
2. Shared Clear Vision with Intelligent Information
3. Trusted Relationship with delivered Quality
4. Aligned Value Innovation & Culture
5. Skilled & Specialist Resources
6. Flexible Organisation driving Continuous Improvement

Bullet point 1 Sustainable Partnership Value components are the group of value characteristics highlighted in the workshops primarily in NSW and NZ AOG and aligned to the outcomes of previous studies from (Wicks and Lendrum) highlighted in table 4. The exception being Good Planning derived from State owner enterprise team workshop and evident in the research studies of (Lambert & Knemeyer). Bullet point 2 Shared Clear Vision with Intelligent Information have component value that predominately were derived from the NZ Workshops and (Joshi & Chebblyam, Catarina & Carlos) and (Ulga & Eggart) who from their studies highlighted that Knowledge and Know How were important vale characteristics.

Bullet Point 3 Trusted Relationship with delivered Quality are the value components that are at the core of all studies with part or all these element being seen as important Value characteristics in both the stage 1 inductive workshops and all references to previous studies. Likewise in bullet point 4 Aligned Value Innovation and culture almost all references had innovation and referenced to culture / business alignment even if the word professional was used as the descriptor.

Bullet point 5 Skilled and Specialist Resources components were prevalent in both the workshops and referenced in (Chatain) as expertise and (Wicks) in previous studies. Bullet Point 6 Flexible Organisation driving continuous improvement component values such as continuous improvement were highlighted by both NZ stage 1 workshops and through previous research studies by Zsidisin,Ellram & Ogden, Ulga & Eggart and flexibility / responsiveness from Joshi & Chebbiyam, lendrum and Humphreys , Williams & Goebel

The clustered Values and the Value Characteristics Model (VCM) are both aligned to past studies and through the factor analysis methodology are consistent with common statistical component reduction practice

Chapter 7: Conclusion and Further Research

The purpose of this chapter is to discuss the conclusions against the original objectives with a final section within this chapter that draws out a few of the limitations and highlights areas for possible further research. The Thesis confirms that there are a common set of value characteristics for a Key Supplier for both New Zealand and New South Wales (Australia) Public Sector. This case study has enabled the researcher to achieve the research objective by providing answers to the 7 research objectives set out in section 3.2 as follows;

7.1 Obtain a control set of characteristics that determine value from key suppliers in the New Zealand and New South Wales Public Sector

The workshops held in both jurisdictions allowed the procurement groups to provide values in a free form methodology from the initial stages of input. The groups were then asked to group the

values and name the value groups. Mapping a control set of characteristics allowed the researcher to quickly amplify the data through quantitative analysis from a framework that the workshop characteristics had provided. The outcome was a set of 26 values that were submitted to the research recipients to review through a questionnaire.

During the workshops the researcher did not lead the discussions to inform the outcome that could have been derived from his potential bias. However a potential limitation to the research could be a bias created by strong individual leadership by individuals within these workshops groups. Another limitation or bias could potentially have been created by the herd mentality of the Human beings and the need to be in agreement rather than the isolated outlier. The individuals that were chosen for the workshops already have a common frame of reference from their experience and working environment (procurement) and this could colour their choices and preferences.

Further research could be to not Frame or Limit the number of values and through interviews and/or further surveys determine if there are other values that have not been captured. The research could also be extended to include end users of the goods and services provided by the Key suppliers. This extended audience may not have potential bias derived from operating in the procurement function. However the time and expense to do this along with the ability to potentially synthesise this to a meaningful number may be prohibitive.

7.2 Rank the control set in order of significance

Although the request was made during the workshops to rank as a group in order of significance the output has not been used within this research case study due to a major limitation in that the numbers within the workshops were far less than (Sapsford 1999) and (Aldridge and Levine 2001) had determined in their literature. The minimum observation from each category in an independent variable should be at least 20 or 50 respectively to maintain validity.

The researcher is not proposing any further research in this area other than potentially surveying another 2 jurisdiction with the survey sent out and then analysing through triangulation methodology.

7.3 Determine the appropriate value characteristics from a key supplier

Question 2 in the survey requested the recipient to choose which values were significant. The post statistical analysis highlighted the 7 values that were rejected due to a significance value of being <0.05 and therefore the Null Hypothesis were rejected (Table 43). A limitation from this analysis could potentially be that the recipients could have overlooked some of the values when completing the survey. However the descriptive analysis highlighted through the histogram (figure 19) and statistical analysis using Anova, in chapter 5 clearly show differences between

jurisdictions. Further research into the reasons (cause) that may drive the differences could be examined to determine if Culture and Geography are determining factors in the choices made.

7.4 Determine the value priorities for public sector procurement

This objective was met and the output has been used to develop the Value Characteristic Model (VCM) in figure 22 through thorough statistical analysis and regression testing. However the 5 characteristics that were rejected due to their significance being <0.05 and therefore rejecting the Null Hypothesis; DIFOT, Safety, Relationship Trust, National Distribution and Proactive as highlighted in the discussion section 6.4 should be further researched.

For Safety the sampling size of the NSW group may have increased the likelihood of bias due to the 42% of respondent population deriving from agencies where Safety is paramount and the number one focus. Explanations for National Distribution seem to be self-evident due to the geographic spread of NZ agencies and the location of NSW being the differences between countries. The Value Outliers and areas for further research are DIFOT (Deliver In Full and On Time), Relationship Trust and Proactive. These value characteristics could benefit from deeper research into determining the motives behind the differences.

7.5 How do these priorities change by country?

From the Manova, Anova analysis and test for homogeneity the discussion in 6.6 made the recommendation to use the Homogenous Country Value Priorities in table 48 as the basis for the Priority Public Sector Values to be the input variables for the Value Characteristics Model (VCM). Sample sizes from each country were comparable see table 20 a 10.08% and a 10.2% response rate from NZ and NSW respectively.

The only significant differences between countries were the same as highlighted in 7.4 above. The potential limitations for this outcome are captured throughout this chapter with emphasis on sample size of NSW from a focal lens of Safety from agencies as being derived from a potential bias in the respondent population.

A further limitation that is concurrent through this research is the population base or make up. All respondents were from the Procurement Population and have specific knowledge and training that may influence how they determine value from a key supplier. Sampling and surveying other stakeholders and end customers is recommended if further research is being contemplated.

7.6 Determine how they are influenced by experience

Although the Statistical analysis performed and reviewed in section 5.4.4 demonstrated that there is no perceived differences between the age groups categorised from the survey response; the descriptive statistics in figure 17 and the discussion in section 6.5 clearly highlight some potential differences between NZ and NSW experience levels. Also a potential limitation seen

was the sample size of 7 in the less than one year category which is not to the recommended level for reasons as described in 7.2.

A further investigation was completed by grouping the categories to achieve the required sampling size see table 45. The outcomes of the Manova and Levene's test of Homogeneity tables 46 and 47 show that the priorities do not change significantly by country and experience.

7.7 Obtain a common set of value characteristics for NZ and NSW by grouping into clusters

Principle Component (Factor) Analysis was used to determine the common set of value characteristics. The results were presented in section 5.4.5. From the points of inflection in the Scree plots 10, 8 and 4 factor analysis was completed. However during further investigation highlighted in section 6.7 the 6 factors named below were chosen to be used in developing the final outcome;

1. Sustainable Partnership Value
2. Shared Clear Vision with Intelligent Information
3. Trusted Relationship with delivered Quality
4. Aligned Value Innovation & Culture
5. Skilled & Specialist Resources
6. Flexible Organisation driving Continuous Improvement

The results revealed that there are logical values that are components of each factor above. The factors were named to assist in the understanding of which Priority Values are constituents of that category..

7.8 Links between previous studies and objectives.

The objectives have already been address earlier in this chapter. To avoid repetition only he links to the literature are explained in this section. The first two objectives were based on qualitative research from the table 51 below. There are not many fully referenced studies from the literature reviewed of inductive, qualitative research on the topics under review in this research paper hence the significance is only partially achieved. Although only highlighted as partially significant due to limitations in population size (Sapsford 1999) and (Aldridge and Levine 2001), it does give a baseline view of the type of value characteristics that are important to the Procurement professionals in both New Zealand and New South Wales (Australia) and allows the development of a controlled set of characteristics to be used as defined data to be reviewed by greater populations in both jurisdiction. The limitation with much of the research in previous studies is the sample size (population) studied and the ability of the results to be generalizable, (Kraljic 1983).

(Humphreys, Williams & Goebel 2008) and (Lendrum 2004) all used in part workshops during their studies and similarly to this research their findings were the basis of further studies via questionnaires.

Objective 3 was to determine an appropriate set of value characteristics taken from the two jurisdictions respondents questionnaires. Like (Steele & Court 2000) who developed a tool to use in determining supplier preferncing and (Friend & Johnson 2011) who interviewed 99 executives and determined 7 key value determinants this research through the use of statistical analysis and regression testing narrowed down a common set of value characteristics from the original baseline core set. Many of the characteristic are consistent such as relationship, trust, adaption, partnership although maybe the term maybe used in a slightly difference context.

(Catarina & Carlos 2010) and (Porter & Kramer 2011) argued that the concept of value in a relationship is outside the traditional economic return focus and although Value for Money is a dominant Value characteristic from both the inductive workshops and the surveys of NZ and NSW other factors as can be seen in table 22, such a Product quality and Service Quality were also seen as important. This correlates with the previous studies and therefore supports the theory that value is not only based on economic benefit.

Objective 5 & 6 were set up to try and determine if the results could be influenced by the country of origin and length of time in the procurement industry respectively. Individual test on each cause using multivariate analysis was performed. Wicks 2010 who highlighted that supplier value is influenced by the ability to react during time of business continuity impact and (Chatain 2010) who highlighted through empirical data research that highlighted that value capture was influenced by the competitive nature of the relationship and market; both demonstrated that determining value can be influenced by other factors. Within this research through the statistical analysis, the country of origin does influence the determination of value characteristics; DIFOT, Safety, Relationship Trust, National Distribution and Proactive being significant differences between jurisdictions. However the Length of time in the procurement profession did not influence the outcome. Similarly to the previous studies and literature review sample size for the length of time in the procurement profession was limited in some of the age groups surveyed.

(Humphreys, Williams & Goebel 2008), (Zsidisin, Ellram, & Ogden 2003), (Yu-I Lee & Ya-Chu Chan 2011) and (Joshi & Chebbiyyam 2011) all used Principle Component Analysis (factor analysis) to reduce the number of components in their research studies, The used this statistical approach to clearly define value models. (Humphreys, Williams & Goebel 2008), (Zsidisin, Ellram, & Ogden 2003) derived a 17 item 5 factor model for managing effective buyer – supplier relationships. (Humphreys, Williams & Goebel 2008), (Zsidisin, Ellram, & Ogden 2003) developed a value creation model figure 7 and (Yu-I Lee & Ya-Chu Chan 2011) and (Joshi &

Chebbiyyam, 2011) reduced 9 dimensions down to 7 in their search for the types of value in the automotive repair industry. Objective 7 was to develop a Value Characteristics Model and from the statistical analysis and using factor analysis the model was developed and is highlighted in figure 25. 21 Value characteristics were reduce to 6 factors and named and are consistent with previous studies in the literature reviewed.

Author	Methods	Significance	Objective
Kraljic 1983	Qualitative Inductive Workshops	Partially	1 & 2
Humphreys, Williams & Goebel 2008			
Lendrum 2004			
Friend & Johnson 2011	Quantitative Statistical Analysis Anova	Y	3
Steele & Court 2000			
Kaplan & Norton 1992			
Lendrum 2004	Quantitative Statistical Analysis Anova	Y	4
Porter & Kramer 2011			
Blyler & Coff 2003			
Catarina & Carlos 2010			
Chatain 2010	Quantitative Statistical Analysis Manova	Partially	5 & 6
Wicks 2012			
Lambert & Knemeyer, 2011			
Yu-I Lee & Ya-Chu Chan 2011	Quantitative Statistical Principle Component Analysis (PCA)	Y	7
Joshi & Chebbiyyam 2011			
Humphreys, Williams & Goebel 2008			
Zsidisin, Ellram, & Ogden 2003			

Table 51: Links between previous research and objectives

7.9 Research limitations

Early on in this chapter limitations were discussed for each objective. There was sufficient sample size and data to achieve the overall research goal of determining a set of common characteristics between both NZ and NSW jurisdictions. Further reduction using statistical analysis methodology (factor analysis) was able to be developed from the data retrieved from the respondent in order to compile a final model, known as the Value Characteristic model (VCM). However to achieve detailed analysis by population breakdown and enrich the overall VCM model the sample size of the sub groups has limitations and does not lead to the full research being generalised other than the overall VCM model. A further limitation is highlighted in figure 26

below being the lack of information derived from the Supplier Lens. This would have given a full 360 view point and delivered a complete picture in line with the original concept model and values that were achieved in past studies.

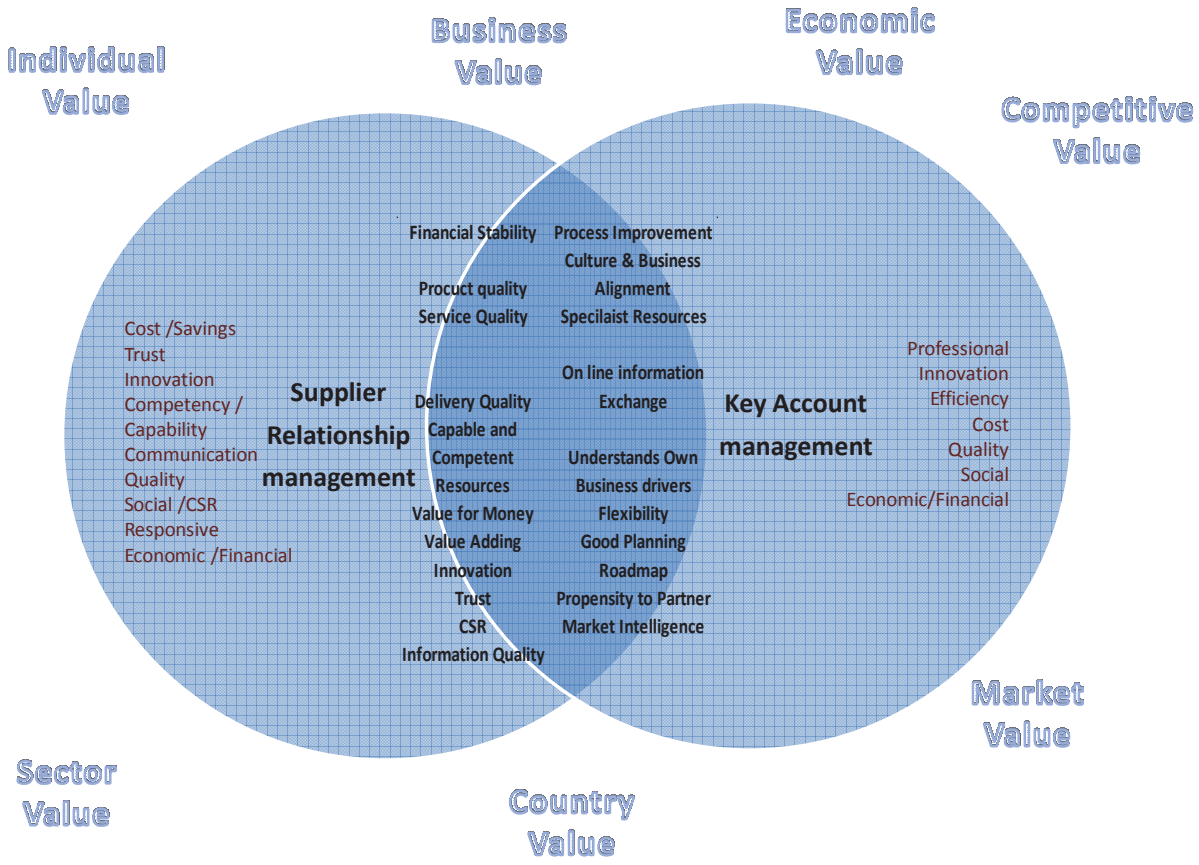


Figure 26 Concept Model with limitations

The application of this proposed concept model figure 26 above has produced useful results in the domain of value characteristics from a customer perspective. The total domain of the Customer / Supplier dyad requires a further questionnaire to be researched with the supplier domain. Even without the capacity of supplier research the final outcome of the VCM model is representative of the overall population.

7.10 Summary

The study explored the procurement professional populations of both New Zealand and New South Wales (Australia). The aim was to determine a common set of supplier value characteristics for the public sector. The research has in a large part successfully achieved its objectives. Through the literature review the previous research, supplier value, relationship value and customer value have been extensively contemplated, confirmed and aligned.

This research provides a further body of evidence into the complexities of understanding and measuring supplier value. It delivers a set of Value Priorities for the Public Sector that can be framed into a model (Value Characteristics Model). Expanding the research from a single professional disciplined population with a common experience of Procurement to all stakeholders inclusive of end users could illuminate more priority values.

The practical application of this model could be contemplated in the tender lifecycle. During the tendering process questions could be asked to populate the VCM. On short listing where unknown suppliers are investigated further, the VCM could stand alongside the traditional referencing methods to provide additional mitigation in determining if a supplier has the propensity to deliver value in your new dyadic relationship.

The limitations highlighted in previous sections only provide the opportunity to increase the body of knowledge within these research topics. Useful insights into other jurisdictions or Industry sectors such as the private sector would expand the knowledge and contribute to further literature in supplier value characteristics.

References

Aldridge, A., & Levine, K. (2001). *Surveying the social world.* Buckingham · Philadelphia: Open University Press.

Anderson, J., Narus, J., & Van Rossum, W. (2006). Customer Value Propositions in Business Markets. Harvard Business Review , 1-10.

Baily, P., Farmer, D., Crocker, B., Jessop, D., & Jones, D. (2008). Procurement Principles and Management. Pearson Education Limited.

Baker, W. (1990). Market Networks and Corporate behaviour. American Journal of Sociology Vol 96 , 589-625.

Bew, R. (May 2007). The New Customer of choice imperiative: Ensuring Supply Availability, Productivity Gains and Supplier Inovation. 92d Annual International Supply Management Conference, (p. 4).

Bew, R. (2007, May). The New Customer of choice imperiative;Ensuring supply availability,Productivity and supplier Innovation. 92nd annual international supply management conference. las vegas.

Blyler, M., & Coff, R. (2003). Dynamic Capabilities, social capital and rent appropriation:ties that split pies. Strategic Managemnt journal Vol 24. , 677-689

Bradley, F. (1995). International Marketing Startegy. London UK: Prentice Hall 2nd Edition.

Bryman, A. (2012). Social reserach methods. Oxford : Oxford University Press 4th Ed.

Bryman, A., & Bell, E. (2011). Business reaserach Methods 3rd ed. Oxford University Press .

Bryman, A., & Bell, E. (2015). *Business Research Methods 4th Edition.* Oxford U.K.: Oxford University Press.

Cabinet, N. (2012, December 19). www.ssc.govt.nz/sites/all/files/cab-paper-sec(12)90.pdf. Retrieved october 13, 2013, from www.ssc.govt.nz: http://www.ssc.govt.nz/sites/all/files/cab-paper-sec(12)90.pdf

Callaghan, m., & Greg, W. (2014). The engagement with business ethics an australian journey 1995-2010. *European Business Review Vol. 26 No. 4*, 286-304.

Catarina, R., & Carlos, B. (n.d.). Value Co=Creation with Suppliers. Working papers FEP . Porto: Iniveridade de Porto.

Chatain, O. (2010). Value Creaton, Competition and Performance in Buyer Suppier Relationships. Strategic Management Journal , 76-102

che, z., chiang, t., & che, z. (2011). using analytic netwrok process and turdbo particle optimization algorithm for non-balance supply chain planning considering supplier relationship management. Transactions of the institute of measurement and control 34 (6) , pp. 720-735.

Childerhouse, P., Deakins, E., Bohme, T., & & Banomyong, R. (2011). Supply chain integration: An international comparison of maturity. Asia pacific journal of marketing and logistics 23 (4) , 531-552.

COMMITTEE, C. E. (2009). www.business.govt.nz/procurement/pdf-library/reform/presentations-and-papers/cabinet-paper-may-2009.pdf). Retrieved October 2013 13th october, 2013, from www.business.govt.nz/procurement: http://www.business.govt.nz/procurement/pdf-library/reform/presentations-and-papers/cabinet-paper-may-2009.pdf)

Cooper, D., & Schindler, P. (2008). Business research methods. Boston: McGraw-Hill Irwin.

Crotty, M. (1989). The foundations of Social Reserach. St leonards , NSW: Allen & Unwin.

Cusumano, M. T. (1991). A survey of japanese, japanese-transplant, and U>S. Auto Plants. Strategic Management Journal 12(8) , 563-588.

Degraeve, Z., & Roodhooft, F. (1999). Effectively selecting supliers using total cost of ownership. The journal of suply chain management Vol 35 , 5-10.

Dos Santos, D. (2002). Application of Theory of Constraints concepts and lean tools as an innovative approach to the Timor-Leste public procurement process. Master Thesis Massey University . Palmerston North, Manawatu, New Zealand: Massey University Press.
Dubois, A., & Araujo, L. (2004). reserch methods into industrial marketing. In D. Hakansson, Harrison, & A. Waluszewski, Rethinking Marketing: Developing a New Understanding of markets (pp. 207-227). chitchester: John wiley & Sons.
Elkington, J. (1999). Tripple Bottom Line reporting. Australian CPA , 18-21.
Ellram, L., & Siferd, S. (1998). Total cost of ownership: a key concept in strategic cost management. Journal of Business Logistics Vol.19 , 85-102.
Ellram, L. M. (1995). Total cost of ownership: an analysis approach for purchasing. International Journal of Physical Distribution & Logistics Management Vol. 25 Iss: 8 , Pages 4 - 23.
Frankel, R., Naslund, D., & Bolumole, Y. (2005). The White Spaceof logistics research. Journal of business logistics, Vol 26 No2 , 185-211.
Friend, S., & Johnson, J. (2011). Key Account Retention: A naturalistic apporach assessing the drivers & outcomes of key account relationships. American Marketing Assoiciaton , 1-3.
Gartner. (2013). http://www.gartner.com/technology/research/methodologies/research_vrate.jsp. Retrieved March 15, 2013, from www.gartner.com/technology/research/methodologies/: www.gartner.com/technology/research/methodologies/
Harrison, J., & Wicks, A. (2013, January). Stakeholder Theory, Value and firm Performance. Busiiness Ethics Quarterly 23:1 , pp. 97-124.
Hausman, D., & McPherson, M. (2006). Economic analysis, moral philosophy and public policy. New York: Cambridge University Press.
Heizer, J., & and Render, B. (2001). Operations Management. New Jersey: Prentice - Hall.
House, R. (2013). dictionary.reference.com/browse/hypothesis. Retrieved September 29, 2013, from Dictonary.com: http://dictionary.reference.com/browse/hypothesis
Humphreys, M., Williams, M., & Goebel, D. (2008). Toward an Enhanced Definition and Measurement of Purchasing's Strategic Role in buyer-supplier Relationships. Journal of Business Marketing, Vol. 15(3) , 2-23.
Huttinger, L. (2010). How to become a preferred customer of strategic suppliers? A large firm perspective. Paper presented IPSERA workshop , 2-4.
Imanipour, N., Rahimi, M., & Akhoni, N. (2012). An empirical research on supplier relationship management in automative industry. International Journal of Business and Management Vol 7 (9) , 85-95.
Joshi, K. P., & Chebbiyyam, M. (2011). "Determining value co-creation opportunity in B2B services. *SRII Global Conference (SRII), IEEE*, (pp. p674-684). chicago.
Jupp, V. (2006). The Sage dictionary of social research methods. Retrieved septemebr 29, 2013, from srmo.sagepub.com: http://srmo.sagepub.com/view/the-sage-dictionary-of-social-reserach-methods/n166.xml
Kaplan, R., & Norton, D. (1992). The balanced score card:Measures that derive performance. Harvard Business review - Jan/Feb , 71-79.
Karğın, S. (2013). The Impact of IFRS on the Value Relevance of Accounting Information: Evidence from Turkish Firms. International Journal of Economics & Finance , Vol. 5 Issue 4, p71-80.
Kraljic, P. (1983). Purchasing must become supply management. Harvard Business Review , 109-117.
Kuzmanovic, M., Gusava, B., & Maric, M. (2012). Using Conjoint analysis to identify key factors influencing customer value. techniques technologies education management , 10.
Lambert, D., & Knemeyer, M. (2011). We'er in this together. In H. B. Review, Managing Supply Chains (pp. 136-152). Harvard Business Review Press.
Lendrum, T. (2004). The Strategic Partnering Pocket Book. McGraw-Hill Austraia Pty Ltd.

LEGISLATION, N. G. (1912). Public Works and Procurement Act 1912 No 45. Retrieved 02 08, 2015, from www.legislation.nsw.gov.au: http://www.legislation.nsw.gov.au/maintop/view/inforce/act+45+1912+cd+0+N
Lincoln, N. (2000). Handbook Qualitative reserach. Thousand Oaks, CA: SAGE.
Madhoushi, M., Saghari, F., & & Madhousi, Z. (2011). Survey of customer knowledge management impact on customer relationship management:(Irainінan study). International Journal of Business and Social Science Vol 2 (20) , 215-227.
Masell, C., & & Rangone, A. (2000). Contingent apporach to dsign of vendor selection systems for different types of co-operative customer/supplier relationships. International Journal of Operations and Production management 20 (1) , 70-84.
McGuffog, T. (Nov2011, Issue 6,). Improving Value and Certainty in defence procurement. Public Money & Management , p427-432.
mertens, D. (2005). research and Evaluation in education and philosophy. London: Sage.
Milton-Smith, J. (1997). Business Ethics in Australia and New Zealand. *Journal Business Ehics 16*, 1485-1497.
Ming-Huei, H., & Wen-Chiung, C. (2011). Managing Key Account Portfolios across the process of relationship development:A value proposition-derived value alignment perspective. Journal of Business to Business Marketing
Mota, J., & Castro, L. (2005). Relationshi portolios and capability development: cases from the moulds industry. Purchasing and Supply management vol 11. , 42-54.
NDREGJONI, Z., & GEGA, E. (n.d.). Customer Loyalty and Value Key Dimensions Inetraction in Organisation. *International Journal of Managemnt Cases*.
Neuman, L. (2006). Social Reserach Methods: Qualitative and Quantitative Approaches 6th edition. Pearson Press.
Nicolaescu, C., & Tagaduan, D. (2011). Accounting and Pareto's Principle. Lucrari stiintifce Seria I, Vol xIII (3) , 2-5.
OBLOJ, T., & Zemsky, P. (n.d.). Value Creation and Value Capture under Moral Hazard: Exploring the micro-foundations of buyer-supplier relationships.
Ohashi, H. (2009). Effects of Transpareny in procurement proctices on government expenditure: a case study of municipal public works;. Review of Industrial Organisation Vol 34 , 267-285
Parmenter, D. (2010). Key Performance Indicators (KPI): Developing, Implementing, and Using winning KPIs. New York: John Wiley and Sons Inc.
Porter, M. (1985). Competitive Advantage Creating and maintaining superior perfromance. The Free Press.
Porter, M., & Kramer, M. (2011). Creating shared value. Harvard Businessd Review , 62-77.
Rahimi, M., & Imanipour, N. (2008). An integrative framework for supplier segmentation in Iranian automotive industry. izmir , Turkey.
Procurement, N. Z. (2015, 02 08). Principles-Rules-and- the-law. Retrieved from Procurement.Govt.NZ: http://www.business.govt.nz/procurement/for-agencies/key-guidance-for-agencies/principles-rules-and-the-law
Procurement, N. G. (2012, Jan 01). Documents. Retrieved February 16, 2015, from Procurepoint web site: Https://www.procurepoint.nsw.gov.au/sites/default/files/documents/strategic_directons_statement_2.pdf
Wicks, S. (2012). Idnetifying Tier 1 Suppliers. Business Continuity and Emergency Planning Vol 6 , 210-221.
Sackett, P., & Larsen, J. (1990). reserch strategies and tactics inindustrial and organisational psychology. Palo Alto, CA.
Scultz, A. (1962). The Problem of Social reality. Collected Papers 1: The Problem with Social Reality, (p. collected Papers 1). Matinius Nijhof, The Hague.

Steele, P., & Court, B. (2000). Profitable Purchasing Strategies. McGraw-Hill International (U.K.) Ltd.
Stevens, S. (1946). On the Theory of Sclaes of measurement. Science 103 .
Svensson, G. (2004). Supplier Segmentation in the Automotive industry - a dyadic approach of a managerial model. International Journal of Physical Distribution and Logistics Management 34 (1) , 12-38.
Thibault, J., & Kelley, H. H. (1959). The social psychology of groups. Wiley, New York .
Transparencey, I. (2014). *Corruption Perception index 2014.* Retrieved May 2015, 21, from Transparency.org: https://www.transparency.org/cpi2014/results
Ulaga, W., & Eggert, A. (Jan 2006). Value Based differntiation in business relationships gaining and sustaining key supplier status. Journal of Marketing , 119-136.
University, M. (1999). Code of ethical conduct for teaching and research involving human subjects. Palmerston North NZ: Massey University.
Vaishnavi, V., & Kuechler, W. (2005). Design reserach in information system. Retrieved May 11, 2013, from Isworld.org: http://www.isworld.org/reserachdesign/drisISworld.htm
Walsh, K. (2012). Quantitative v Qualitative research. Journal of Reserach in Nursing , Vol 19 page 9.
Wicks, S. (2012). Idnetifying Tier 1 Suppliers. Business Continuity and Emergency Planning Vol 6, 210-221.
Wilson, D., & Jantrania, S. (1993). Understanding the Value of a Relationship. Australia Marketing Journal Vol 2, No. 1 .55 , 12.
Wilson, D., & Moller, K. (1992). Relationship Development as a Hybrid Model working paper #19. Pennsylvania: Pennsylvania state univerity.
World, & Bank. (2015, February 8). World an Procurement Page. Retrieved from World Bank: http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/PROCUREMENT/0,,menuPK:51355691~pagePK:84271~piPK:84287~theSitePK:84266,00.html
Yu-I Lee, H., & Ya-Chu Chan, D. (2011). The development of relationship value scale in distribution systems. Motreal Canada: Department of Busienss Administration National Yulin University of Science and technology.
Zikmund, W., & al, e. (2010). Marketing Reserach. South Melboune: Cangage Learning.
Zikmun, Babin, Car, & Griffin. (2010). Transforming Raw Data. *Business Research Methods Vol 8* , 461-484.
Zsidisin, Ellram, & Ogden. (2003). The relationship between purchasing and supply management's percieved value and participation in strategic supplier cost management. Journal of Business Logistics Vol 24 , 129-154.

Appendix 1 Summary of Literature Values review

Aurthor	Date	Model	Variables (values)	
Chatain	2010	A framework for value creation and value capture in buyer-supplier relationships	Supplier worked for buyer in the previous year.	
			Expertise in the area of interest	
			Client-specific scope	
			Competitor scope	
			number of clients in the FTSE 250	
Joshi & Chebbiyam		Determining value co-creation opportunity in B2B services	Partnership	
			Knowledge Management	
			Flexibility/agility	
			Communication	
			Financial Management	
			Organizational Proficiency or competency	
			Agent Proficiency or comppetency	
			IT Environment	
			Service Quality	
Catarina & Carlos	2009	Value Co-creation with Suppliers	Supplier Capabilities - Production	
			Supplier Capabilities - Knowledge	
			Efficiency Functions	
			Innovation Functions	
			Mutual Knowledge	
Humphreys, Willaims & Goebel	2008	Toward an Enhanced Definition and Measurement of Purchasing's Strategic Role in Buyer-Supplier Relationships	Professionalism	undivided attention, promt notification, scheduled meetings, question
			Assistance	Support Ideas, Share information, test new products
			Communication	Open communication, expectations product / service quality
			Responsiveness	Maintain Good Working relationship, resonable when unexpected problems occur
			Process	Pay Promptly, deliver on Promises, consistent procedures and process
Kaplan & Norton	1992	The Balanced Score Card	Financial Perspective	Survive , Succeed , Prosper
			Customer Perspective	New Products , reposnsive, Partnership
			Internal Business Perspectives	Technology Capability, Manufacturing Excellence,
			Innovation and Learning Perspective	Technology Leadership, Time to Market
Lamber & Knemeyer	2011	We're in this together	Joint Planning	
			Joint measures	
			Communication	
			Risk/Reward sharing	
			Commitment - help each other	
			Fairness	
Lendrum	1995	The Partnering Process	Strategic Value	Strategy Alignment, Customer Satisfaction,Innovation,Ca[atability, Leverage core competencies
			Commercial Value	Profit, Margin, Total cost, Strength of Balance Sheet
			Willingness	Cultural Fit, Level of Trust, Flexibility, responsiveness, Information sharing, openness
			Capability	Technical, Financial strength,Competence, Product/ Service Quality, Innovation
Steele & Court	1996	Partnership Sourcing	Commitment	
			Long -Term relationship	
			Trust	
			Mutually agreed Objectives	
			Sharing Risks and Rewards	
			World Class - benchmark - measure	
			Capability and competiveness	
			Waste -cost reduction - efficiency-resources	
			Innovation	
Lee & Chan	2011	The development of Relationship Value Scale in distribution Systems	Product quality	
			Image design (professional design)	
			Service Support	
			Technology Assistance	
			Marketing Assitance	
			Equipment assistance (repair)	
			Stock Cost	
			Product cost	
			Managerial Elasticity Cost	
Zsidisin, Ellram & Ogden	2003	The realtionship between Purchasing and Supply managements percieved value and participation in strategic supplier cost management activities	Importance Of Purchasing & Supply management	Top management and Organisational Fuction seen as important
			Accountability	Measured, Visible to all, Continuous improvement, communicates cost savings
			Strategic Integration	Aligned Strategies, Prodcut and Service Staretgies executed
Wicks	2012	Identifying Tier one key suppliers	Business related Risk	Cost, Quality, Financial Stability, customer impact, regulation, innovation, strategic position
			Product / Service related risk	Reliance on specialist resources,, lead times, quality product/service, complexity product / service
			Replacement related risk	Sole source, monopoloy, cost, ability to stock pile
			Threat related risk	H&S, environmental impact, CSR, Ethics,Political/Civil
Ulga & Eggart	2003	Relationship Value in Business markets	Product	
			Service	
			Know-How	
			Time to Market	
			Social	
			Process Costs	
			Price	
Porter & Kramer	2011	Creating shared Value	Value: Economic and societal benfits relative to cost	
			Joint Company and community value creation	
			Transforms procurement into increasing quality and yeild	
			Agenda is company specific and internally generated	

Appendix 2 Questionnaire Template and Letters

Direct HTML extract from the Free-online surveys application

1*

What do your key suppliers deliver to your organisation? *(Please choose one)*

- ○ ☐ Goods
- ○ ☐ Services
- ○ ☐ Goods & Services

2*

From the list of characteristics below *(please tick)*
the characteristics that you deem as value from a key supplier

- ○ ☐ • Financial Stability
- ○ ☐ • DIFOT
- ○ ☐ • Product Quality
- ○ ☐ • Service Quality
- ○ ☐ • Delivery Quality
- ○ ☐ • Capable and competent resources
- ○ ☐ • Value for Money
- ○ ☐ • Value Adding
- ○ ☐ • Innovation
- ○ ☐ • CSR
- ○ ☐ • Trust
- ○ ☐ • Safety
- ○ ☐ • Information Quality
- ○ ☐ • Process Improvement
- ○ ☐ • Culture & Business Alignment
- ○ ☐ • Relationship Trust
- ○ ☐ • Market Intelligence
- ○ ☐ • Specialist Resources
- ○ ☐ • National Distribution
- ○ ☐ • On line information exchange
- ○ ☐ • Understands own business drivers
- ○ ☐ • Flexibility
- ○ ☐ • Proactive
- ○ ☐ • Good Planning
- ○ ☐ • Roadmap
- ○ ☐ • Propensity to Partner

3*

From the list in Q2 please list in order of priority (top = most important, bottom least important) Click on the characteristic and drag and drop in your list

- • Financial Stability
- • DIFOT
- • Product Quality
- • Service Quality
- • Delivery Quality
- • Capable and competent resources
- • Value for Money
- • Value Adding
- • Innovation
- • CSR
- • Trust
- • Safety
- • Information Quality
- • Process Improvement
- • Culture & Business Alignment
- • Relationship Trust
- • Market Intelligence
- • Specialist Resources
- • National Distribution
- • On line information exchange
- • Understands own business drivers
- • Flexibility
- • Proactive
- • Good Planning
- • Roadmap
- • Propensity to Partner

 finished sorting?

4

Are there any other characteristics that you would like to add that are not contained in the previous questions?

answer 1)

answer 2)

answer 3)

answer 4)

answer 5)

answer 6)

5*

From the additional items in question 5 plese now arrange in priority order (top = most important , bottom least important) Click on the characteristic and drag and drop in your list

- Financial Stability
- DIFOT
- Product Quality
- Service Quality
- Delivery Quality
- Capable and competent resources
- Value for Money
- Value Adding
- Innovation
- CSR
- Trust
- Safety
- Information Quality
- Process Improvement
- Culture & Business Alignment
- Relationship Trust
- Market Intelligence
- Specialist Resources
- National Distribution
- On line information exchange
- Understands own business drivers
- Flexibility
- Proactive
- Good Planning
- Roadmap
- Propensity to Partner
- q5 answer 1)
- q5 answer 2)
- q5 answer 3)
- q5 answer 4)
- q5 answer 5)
- q5 answer 6)

finished sorting?

6

Are there any other comments you would like to make regarding supply value and the identification of key suppliers?

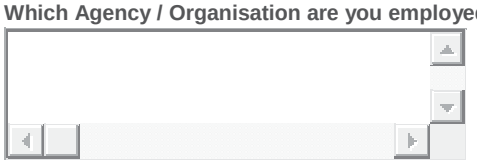
7*

How Long have you been working in a procurement function? (Please tick)

- Less than 1 year
- 1-3 years
- 4-10 years
- 10 years +

8*

Which Agency / Organisation are you employed?



Next Page

New South Wales Letter

Determining a common set of value characteristics for a key supplier:

An New Zealand Public Sector & New South Wales Governmental case study

Dear Procurement Professional

Since the global financial crisis there has been an increasing need for organisations to extract more value and productivity through innovation, supplier capability and supply chain efficiency. The goal of our research is to examine the key supplier value characteristics, common throughout the NZ Public Sector and NSW Government Sector. The resultant insight will be written up as a Masters thesis in Logistics & Supply Chain Management at Massey University.

This research is important as it will potentially advance previous research into supplier and customer relationship management and key account management. If we can establish a common set of value characteristics these could be used during supplier selection and performance review decisions.

The NSW Government Procurement Leadership Group is fully behind this research and have provided us with your contact details. Your input as an expert in procurement is essential for us to establish the correct criteria for evaluating a key supplier. Our survey is being sent to a wide range of Australian public sector agencies to ensure any findings are representative. A parallel study is also being conducted in New Zealand with all of government procurement, thus enabling us to triangulate the results.

Please be assured that all the necessary steps will to taken to maintain data security and your anonymity. Our data management and confidentiality processes and procedures have been approved by Massey University's Human Ethics Committee.

The survey comprises just eight questions and can be accessed via this link:

http://freeonlinesurveys.com/s.asp?sid=2doxtqxide9s15x507112

It should only take you 5-10 minutes to complete this simple survey. If you are interested, an executive summary of the results can be made available to you as a participant, simply click tick the box at the end of the survey.

Thank you in advance

Mike Blanchard (Postgraduate researcher) Chief Procurement Officer Sydney Trains; Mike.Blanchard@transport.nsw.gov.au; +61437 322 485

Professor Paul Childerhouse (Supervisor), Director of Logistics and Supply Chain Management, Massey University P.H.J.Childerhouse@massey.ac.nz;

Paul Dobing Executive Director, NSW Procurement paul.dobing@finance.nsw.gov.au

All of Government New Zealand Letter

Determining a common set of value characteristics for a key supplier:

An New Zealand Public Sector & New South Wales Governmental case study

Dear Procurement Professional

Since the global financial crisis there has been an increasing need for organisations to extract more value and productivity through innovation, supplier capability and supply chain efficiency. The goal of our research is to examine the key supplier value characteristics, common throughout the NZ Public Sector and NSW Government Sector. The resultant insight will be written up as a Master's thesis in Logistics & Supply Chain Management at Massey University.

This research is important as it will potentially advance previous research into supplier and customer relationship management and key account management. If we can establish a common set of value characteristics these could be used during supplier selection and performance review decisions.

The NZ all of government procurement functional leadership are fully behind this research and have provided us with your contact details. Your input, as an expert in procurement is essential for us to establish the correct criteria for evaluating a key supplier. Our survey is being sent to a wide range of New Zealand public sectors to ensure any findings are representative. A parallel study is also being conducted in the NSW government, thus enabling us to triangulate the results.

Please be assured that all the necessary steps will to taken to maintain data security and your anonymity. Our data management and confidentiality processes and procedures have been approved by Massey University's Human Ethics Committee.

The survey comprises just eight questions and can be accessed via this link:

http://freeonlinesurveys.com/s.asp?sid=ovzkcsukxmxr27c493082

It should only take you 5-10 minutes to complete this simple survey. If you are interested, an executive summary of the results can be made available to you as a participant, simply click tick the box at the end of the survey.

Thank you in advance

Mike Blanchard (Postgraduate researcher) Chief Procurement Officer Sydney Trains; Mike.Blanchard@Transport.NSW.Gov.Au; +61437 322 485

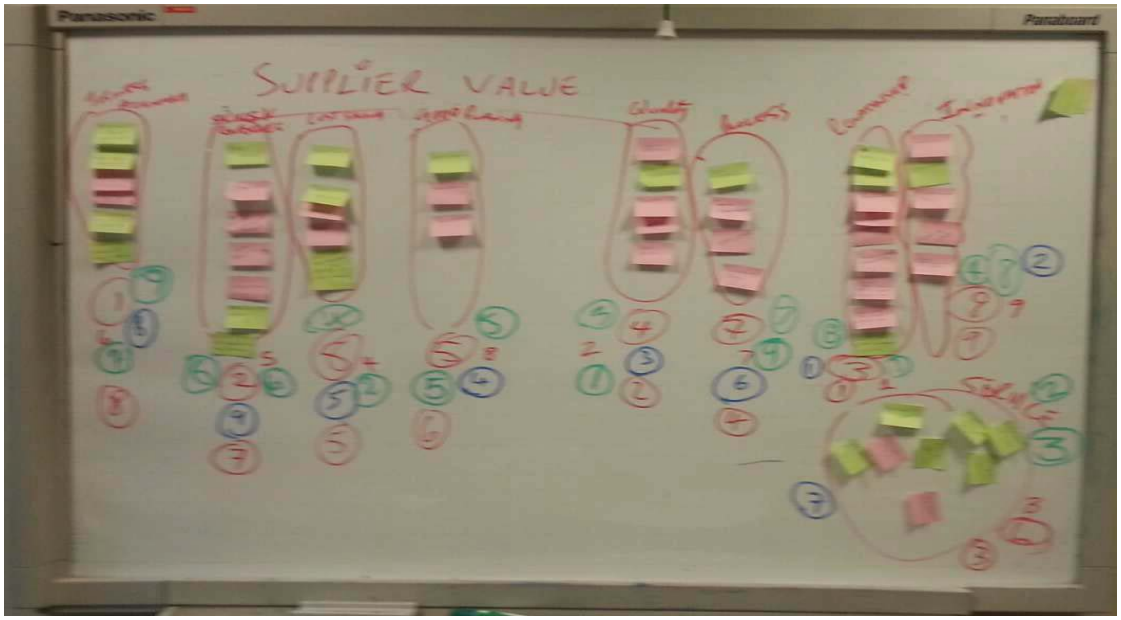
Professor Paul Childerhouse (Supervisor), Director of Logistics and Supply Chain Management, Massey University P.H.J.Childerhouse@massey.ac.nz;

John Ivil General Manager Government Procurement john.ivil@mbie.govt.nz;

Appendix 3 Inductive Workshop (Pilot) Phase 1 Results

	Values	
understanding our business	strong relationship management	believes in continuous improvement
continuous review-improvement	past performance	retention of key staff
process improvement	learns and grows	robust & reliable
customer, certainty of supply	service performance	meeting KPIs
effective performance	responsiveness	added value over term of contract
VFM, value adds	committed to delivering VFM	cost management
good value	competitive VFM	$ savings
$ savings both soft and hard	cost reduction	right price,
open,	respect	relationship trust
problem solving	honesty	trust
integrity	regular engagement	clear lines of comms,
knowing when to escalate	quality	quality of service
quality of product	quality of process,	stability
stable business	financial stability	free lunch
on line information	exchange, partnership	strategic partnership
strategic alignment	National distribution	delivery
transparency	transparent view of costs	forecast
planning,	innovation and leverage with other supplier	skills,
experience	specialist resources	technical capability
access to global knowledge	NZ ownership,	promotes me as customer of choice
share knowledge and staff	joint problem solving	putting it right

Appendix 4 Inductive Workshop Phase 2



Appendix 5 Data coding

VALUE LABELS	Q1
1	Goods & Services
2	Services
3	Goods.

VALUE LABELS	Q7
1	Less than 1 year
2	1-3 years
3	4-10 years
4	10 years +.

VALUE LABELS	COUNTRY
1	NZ
2	AU

VARIABLE LABELS	
Q1	
Q2_1	Financial Stability
Q2_2	DIFOT
Q2_3	Product Quality
Q2_4	Service Quality
Q2_5	Delivery Quality
Q2_6	Capable and competent resources
Q2_7	Value for Money
Q2_8	Value Adding
Q2_9	Innovation
Q2_10	CSR
Q2_11	Trust
Q2_12	Safety
Q2_13	Information Quality
Q2_14	Process Improvement
Q2_15	Culture & Business Alignment
Q2_16	Relationship Trust
Q2_17	Market Intelligence
Q2_18	Specialist Resources
Q2_19	National Distribution
Q2_20	On line information exchange
Q2_21	Understands own business drivers
Q2_22	Flexibility
Q2_23	Proactive
Q2_24	Good Planning
Q2_25	Roadmap
Q2_26	Propensity to Partner
Q3_1	Financial Stability
Q3_2	DIFOT
Q3_3	Product Quality

Q3_4	Service Quality
Q3_5	Delivery Quality
Q3_6	Capable and competent resources
Q3_7	Value for Money
Q3_8	Value Adding
Q3_9	Innovation
Q3_10	CSR
Q3_11	Trust
Q3_12	Safety
Q3_13	Information Quality
Q3_14	Process Improvement
Q3_15	Culture & Business Alignment
Q3_16	Relationship Trust
Q3_17	Market Intelligence
Q3_18	Specialist Resources
Q3_19	National Distribution
Q3_20	On line information exchange
Q3_21	Understands own business drivers
Q3_22	Flexibility
Q3_23	Proactive
Q3_24	Good Planning
Q3_25	Roadmap
Q3_26	Propensity to Partner
1	Selected
0	Not selected.

Appendix 6 Data Analysis Results

ANOVA (Between Groups)													
		Sum of Squares	df	Mean Square	F	Sig.			Sum of Squares	df	Mean Square	F	Sig.
Financial Stability	Between Groups	12.553	2	6.276	0.209	0.8117306	Process Improvement	Between Groups	66.980	2	33.490	1.809	.167
	Within Groups	5349.690	178	30.054				Within Groups	3295.616	178	18.515		
	Total	5362.243	180					Total	3362.597	180			
DIFOT	Between Groups	542.897	2	271.449	4.768	0.0096128	Culture & Business Alignment	Between Groups	10.368	2	5.184	.174	.840
	Within Groups	10133.799	178	56.931				Within Groups	5298.450	178	29.767		
	Total	10676.696	180					Total	5308.818	180			
Product Quality	Between Groups	76.516	2	38.258	1.151	0.3185901	Relationship Trust	Between Groups	789.309	2	394.655	10.478	.000
	Within Groups	5915.373	178	33.232				Within Groups	6704.492	178	37.666		
	Total	5991.890	180					Total	7493.801	180			
Service Quality	Between Groups	19.288	2	9.644	.718	0.4893508	Market Intelligence	Between Groups	6.235	2	3.117	.138	.871
	Within Groups	2392.325	178	13.440				Within Groups	4021.500	178	22.593		
	Total	2411.613	180					Total	4027.735	180			
Delivery Quality	Between Groups	46.077	2	23.039	.830	0.4379374	Specialist Resources	Between Groups	22.195	2	11.098	.314	.731
	Within Groups	4943.690	178	27.774				Within Groups	6290.048	178	35.337		
	Total	4989.768	180					Total	6312.243	180			
Capable and competent resources	Between Groups	15.701	2	7.851	0.358	0.6994299	National Distribution	Between Groups	303.136	2	151.568	5.305	.006
	Within Groups	3901.116	178	21.916				Within Groups	5085.206	178	28.569		
	Total	3916.818	180					Total	5388.343	180			
Value for Money	Between Groups	21.224	2	10.612	0.626	0.5357948	On line information exchange	Between Groups	137.306	2	68.653	2.564	.080
	Within Groups	3016.577	178	16.947				Within Groups	4765.743	178	26.774		
	Total	3037.801	180					Total	4903.050	180			
Value Adding	Between Groups	40.306	2	20.153	0.867	0.4218153	Understands own business drivers	Between Groups	123.573	2	61.787	1.461	.235
	Within Groups	4135.672	178	23.234				Within Groups	7529.278	178	42.299		
	Total	4175.978	180					Total	7652.851	180			
Innovation	Between Groups	40.576	2	20.288	1.042	0.3549695	Flexibility	Between Groups	86.788	2	43.394	1.036	.357
	Within Groups	3466.474	178	19.475				Within Groups	7454.450	178	41.879		
	Total	3507.050	180					Total	7541.238	180			
CSR	Between Groups	28.874	2	14.437	0.630	0.533587	Proactive	Between Groups	385.591	2	192.795	4.054	.019
	Within Groups	4076.783	178	22.903				Within Groups	8465.492	178	47.559		
	Total	4105.657	180					Total	8851.083	180			
Trust	Between Groups	48.577	2	24.289	.868	0.4216839	Good Planning	Between Groups	44.965	2	22.483	.496	.610
	Within Groups	4982.561	178	27.992				Within Groups	8068.085	178	45.326		
	Total	5031.138	180					Total	8113.050	180			
Safety	Between Groups	318.384	2	159.192	3.519	0.0316935	Roadmap	Between Groups	7.191	2	3.595	.198	.820
	Within Groups	8051.307	178	45.232				Within Groups	3225.373	178	18.120		
	Total	8369.691	180					Total	3232.564	180			
Information Quality	Between Groups	69.272	2	34.636	1.240	0.2919082	Propensity to Partner	Between Groups	49.864	2	24.932	.411	.663
	Within Groups	4972.474	178	27.935				Within Groups	10789.926	178	60.618		
	Total	5041.746	180					Total	10839.790	180			

Table 26: Anova NZ & NSW Value Priorities

Country Code		Mean	Std. Deviation	N	Country Code		Mean	Std. Deviation	N
Financial stability	NZ	8.48	5.396	131	Process Improvement	NZ	15.64	4.201	131
	AU	8.06	5.547	54		AU	14.30	4.394	54
	Total	8.36	5.429	185		Total	15.25	4.290	185
DIFOT	NZ	13.60	8.035	131	Culture & Business Alignment	NZ	15.76	5.504	131
	AU	9.74	6.044	54		AU	16.13	5.110	54
	Total	12.47	7.696	185		Total	15.86	5.381	185
Product Quality	NZ	5.97	6.002	131	Relationship Trust	NZ	9.74	6.461	131
	AU	4.89	4.970	54		AU	14.06	5.293	54
	Total	5.65	5.728	185		Total	11.00	6.437	185
Service Quality	NZ	4.93	3.871	131	Market Intelligence	NZ	17.65	4.757	131
	AU	4.44	2.969	54		AU	17.83	5.031	54
	Total	4.79	3.630	185		Total	17.70	4.826	185
Delivery Quality	NZ	7.92	5.103	131	Specialist Resource	NZ	16.43	6.078	131
	AU	7.06	5.537	54		AU	16.28	5.618	54
	Total	7.67	5.233	185		Total	16.38	5.932	185
Capable and competent resources	NZ	9.17	4.524	131	National Distribution	NZ	19.08	5.808	131
	AU	9.02	5.011	54		AU	21.78	3.790	54
	Total	9.12	4.658	185		Total	19.86	5.430	185
Value for Money	NZ	5.17	4.123	131	On line information exch	NZ	19.65	5.224	131
	AU	4.57	3.998	54		AU	19.74	5.074	54
	Total	4.99	4.085	185		Total	19.68	5.167	185
Value Adding	NZ	10.14	4.986	131	Understands own business drivers	NZ	18.19	6.661	131
	AU	9.41	4.298	54		AU	19.17	6.071	54
	Total	9.92	4.795	185		Total	18.48	6.493	185
Innovation	NZ	11.63	4.531	131	Flexibility	NZ	15.31	6.584	131
	AU	10.70	4.041	54		AU	15.98	6.172	54
	Total	11.36	4.403	185		Total	15.51	6.457	185
CSR	NZ	16.82	4.797	131	Proactive	NZ	14.73	6.803	131
	AU	16.04	4.597	54		AU	17.56	7.086	54
	Total	16.59	4.740	185		Total	15.56	6.987	185
Trust	NZ	9.24	5.479	131	Good Planning	NZ	17.44	6.822	131
	AU	10.04	4.762	54		AU	17.26	6.399	54
	Total	9.48	5.279	185		Total	17.39	6.685	185
Safety	NZ	12.95	6.733	131	Roadmap	NZ	23.26	3.840	131
	AU	10.35	6.747	54		AU	22.89	4.997	54
	Total	12.19	6.822	185		Total	23.15	4.200	185

Table 28: Descriptive Statistics Manova Hypothesis 3

How Long have you been working in a procurement function?		Mean	Std. Deviation	N	in a procurement function? (please tick)		Mean	Std. Deviation	N
Financial Stability -	Less than 1 year	11.57	8.364	7	Process Improvement -	Less than 1 year	16.57	1.397	7
	1-3 years	9.85	5.438	26		1-3 years	15.38	4.596	26
	4-10 years	7.56	5.670	57		4-10 years	14.88	4.404	57
	10 years +	8.19	4.941	95		10 years +	15.34	4.301	95
	Total	8.36	5.429	185		Total	15.25	4.290	185
DIFOT -	Less than 1 year	14.14	8.030	7	Culture & Business Alignment -	Less than 1 year	13.29	2.289	7
	1-3 years	13.81	7.305	26		1-3 years	15.73	5.525	26
	4-10 years	13.09	8.303	57		4-10 years	16.51	5.597	57
	10 years +	11.61	7.408	95		10 years +	15.71	5.365	95
	Total	12.47	7.696	185		Total	15.86	5.381	185
Product Quality -	Less than 1 year	4.14	6.594	7	Relationship Trust -	Less than 1 year	9.43	5.503	7
	1-3 years	4.46	3.467	26		1-3 years	11.12	7.649	26
	4-10 years	5.96	6.425	57		4-10 years	11.18	6.065	57
	10 years +	5.91	5.743	95		10 years +	10.98	6.441	95
	Total	5.65	5.728	185		Total	11.00	6.437	185
Service Quality -	Less than 1 year	4.00	3.367	7	Market Intelligence -	Less than 1 year	19.43	2.225	7
	1-3 years	4.58	3.325	26		1-3 years	16.54	5.791	26
	4-10 years	4.77	3.813	57		4-10 years	17.77	4.770	57
	10 years +	4.92	3.660	95		10 years +	17.85	4.708	95
	Total	4.79	3.630	185		Total	17.70	4.826	185
Delivery Quality -	Less than 1 year	4.71	4.071	7	Specialist Resources -	Less than 1 year	14.57	6.579	7
	1-3 years	6.15	4.567	26		1-3 years	15.62	5.672	26
	4-10 years	8.12	5.203	57		4-10 years	17.05	5.887	57
	10 years +	8.03	5.416	95		10 years +	16.33	6.020	95
	Total	7.67	5.233	185		Total	16.38	5.932	185
Capable and competent resources -	Less than 1 year	8.00	4.830	7	National Distribution -	Less than 1 year	21.14	5.305	7
	1-3 years	9.77	4.466	26		1-3 years	18.96	7.225	26
	4-10 years	9.47	4.848	57		4-10 years	19.49	5.312	57
	10 years +	8.82	4.615	95		10 years +	20.24	4.965	95
	Total	9.12	4.658	185		Total	19.86	5.430	185
Value for Money -	Less than 1 year	5.29	1.976	7	On line information exchange -	Less than 1 year	22.29	2.215	7
	1-3 years	5.27	4.405	26		1-3 years	18.54	5.428	26
	4-10 years	4.74	3.773	57		4-10 years	20.11	4.956	57
	10 years +	5.05	4.326	95		10 years +	19.54	5.337	95
	Total	4.99	4.085	185		Total	19.68	5.167	185
Value Adding -	Less than 1 year	12.14	4.741	7	Understands own business drivers -	Less than 1 year	20.71	4.716	7
	1-3 years	12.04	5.936	26		1-3 years	15.96	6.283	26
	4-10 years	9.19	4.596	57		4-10 years	19.33	5.917	57
	10 years +	9.62	4.427	95		10 years +	18.48	6.869	95
	Total	9.92	4.795	185		Total	18.48	6.493	185
Innovation -	Less than 1 year	11.14	3.891	7	Flexibility -	Less than 1 year	11.57	5.711	7
	1-3 years	12.50	4.032	26		1-3 years	16.19	7.128	26
	4-10 years	11.68	4.841	57		4-10 years	14.56	6.030	57
	10 years +	10.86	4.244	95		10 years +	16.18	6.487	95
	Total	11.36	4.403	185		Total	15.51	6.457	185
CSR -	Less than 1 year	18.57	5.192	7	Proactive -	Less than 1 year	15.71	6.473	7
	1-3 years	17.46	5.559	26		1-3 years	14.81	6.400	26
	4-10 years	16.95	4.604	57		4-10 years	14.96	6.544	57
	10 years +	15.99	4.525	95		10 years +	16.11	7.470	95
	Total	16.59	4.740	185		Total	15.56	6.987	185
Trust -	Less than 1 year	7.57	4.276	7	Good Planning -	Less than 1 year	18.00	5.568	7
	1-3 years	9.38	5.866	26		1-3 years	17.00	6.350	26
	4-10 years	9.18	5.549	57		4-10 years	16.25	7.092	57
	10 years +	9.82	5.044	95		10 years +	18.14	6.586	95
	Total	9.48	5.279	185		Total	17.39	6.685	185
Safety -	Less than 1 year	11.29	7.697	7	Roadmap -	Less than 1 year	23.71	3.094	7
	1-3 years	13.73	7.577	26		1-3 years	23.50	3.338	26
	4-10 years	12.21	7.223	57		4-10 years	23.23	3.873	57
	10 years +	11.82	6.333	95		10 years +	22.97	4.682	95
	Total	12.19	6.822	185		Total	23.15	4.200	185
Information Quality -	Less than 1 year	12.86	3.805	7	Propensity to Partner -	Less than 1 year	19.14	8.611	7
	1-3 years	10.96	5.807	26		1-3 years	21.69	7.160	26
	4-10 years	12.82	5.282	57		4-10 years	19.93	7.002	57
	10 years +	12.84	5.195	95		10 years +	20.05	8.242	95
	Total	12.57	5.268	185		Total	20.21	7.707	185

Table 33: Factors and Number of respondent's descriptive statistics

		Financial Stability -	DIFOT -	Product Quality -	Service Quality -	Delivery Quality -	Capable and competent resources - list	Value for Money -	Value Adding -	Innovation -	CSR -	Trust -	Safety -	Information Quality -	Process Improvement -	Culture & Business Alignment -	Relationship Trust -	Market Intelligence -	Specialist Resources -	National Distribution -	On line information exchange -	Understands own business drivers - list	Flexibility -	Proactive -	Good Planning -	Roadmap -	Propensity to Partner -
Financial Stability	Pearson Correlation	1																									
	Sig. (2-tailed)																										
	N	185																									
DIFOT	Pearson Correlation	.078	1																								
	Sig. (2-tailed)	.292																									
	N	185	185																								
Product Quality	Pearson Correlation	.171*	.190**	1																							
	Sig. (2-tailed)	.020	.009																								
	N	185	185	185																							
Service Quality	Pearson Correlation	.053	.097	.220**	1																						
	Sig. (2-tailed)	.472	.922	.003																							
	N	185	185	185	185																						
Delivery Quality	Pearson Correlation	.086	.051	.318**	.397**	1																					
	Sig. (2-tailed)	.246	.493	.000	.000																						
	N	185	185	185	185	185																					
Capable and competent resources list	Pearson Correlation	.013	.065	.028	.055	.028	1																				
	Sig. (2-tailed)	.855	.380	.706	.458	.710																					
	N	185	185	185	185	185	185																				
Value for Money	Pearson Correlation	.135	.015	.218**	-.023	-.053	.023	1																			
	Sig. (2-tailed)	.067	.842	.003	.754	.472	.754																				
	N	185	185	185	185	185	185	185																			
Value Adding	Pearson Correlation	-.123	.014	-.105	.008	-.093	-.039	.017	1																		
	Sig. (2-tailed)	.097	.852	.156	.913	.210	.598	.819																			
	N	185	185	185	185	185	185	185	185																		
Innovation	Pearson Correlation	-.036	.072	-.110	-.001	-.176*	.054	.003	.291**	1																	
	Sig. (2-tailed)	.624	.330	.135	.985	.017	.465	.963	.000																		
	N	185	185	185	185	185	185	185	185	185																	
CSR	Pearson Correlation	.185*	.446**	.100	-.074	-.051	.192**	.075	.091	.156*	1																
	Sig. (2-tailed)	.012	.000	.175	.319	.494	.009	.313	.218	.034																	
	N	185	185	185	185	185	185	185	185	185	185																
Trust	Pearson Correlation	-.048	-.280**	-.092	-.131	-.091	-.077	.047	-.103	-.119	-.099	1															
	Sig. (2-tailed)	.516	.000	.213	.075	.220	.295	.528	.164	.108	.182																
	N	185	185	185	185	185	185	185	185	185	185	185															
Safety	Pearson Correlation	.155*	.279**	.089	-.119	-.093	-.023	.121	.014	-.056	.153*	-.063	1														
	Sig. (2-tailed)	.035	.000	.227	.106	.209	.754	.100	.849	.449	.038	.392															
	N	185	185	185	185	185	185	185	185	185	185	185	185														
Information Quality	Pearson Correlation	-.143	-.179*	-.116	.057	-.076	-.112	-.056	-.240**	-.221**	-.234**	.048	-.119	1													
	Sig. (2-tailed)	.052	.015	.117	.439	.303	.129	.452	.001	.003	.001	.513	.108														
	N	185	185	185	185	185	185	185	185	185	185	185	185	185													
Process Improvement	Pearson Correlation	-.013	.011	-.094	-.029	-.254**	.021	-.012	.095	.239**	.083	-.048	-.044	.024	1												
	Sig. (2-tailed)	.856	.879	.201	.698	.000	.774	.874	.196	.001	.259	.519	.556	.744													
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185												
Culture & Business Alignment	Pearson Correlation	-.119	-.234**	-.386**	-.126	-.098	-.086	-.078	.080	.101	-.111	.021	-.210**	.045	.027	1											
	Sig. (2-tailed)	.105	.001	.000	.089	.184	.243	.293	.281	.171	.134	.780	.004	.547	.712												
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185											
Relationship Trust	Pearson Correlation	-.159*	-.277**	-.312**	-.136	-.251**	-.201**	-.255**	-.033	-.124	-.221**	.226**	-.182*	.141	-.156*	.212**	1										
	Sig. (2-tailed)	.031	.000	.000	.065	.001	.006	.000	.658	.092	.002	.002	.013	.056	.034	.004											
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185										
Market Intelligence	Pearson Correlation	.044	-.183*	-.206**	-.178*	-.214**	-.053	-.048	-.063	.035	.001	.012	-.099	.285**	.044	.079	.125	1									
	Sig. (2-tailed)	.549	.013	.005	.015	.003	.474	.518	.391	.639	.986	.869	.178	.000	.552	.288	.089										
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185									
Specialist Resources	Pearson Correlation	-.163*	-.141	-.013	-.019	.109	.295**	-.042	-.048	-.090	-.121	-.086	-.173*	.028	-.131	-.023	-.061	-.075	1								
	Sig. (2-tailed)	.026	.055	.865	.795	.139	.000	.572	.517	.223	.100	.245	.019	.705	.076	.752	.411	.312									
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185								
National Distribution	Pearson Correlation	.028	.106	.150*	-.068	.062	-.041	.022	-.037	-.198**	.129	.022	.128	-.015	-.045	-.171*	-.032	.028	-.162*	1							
	Sig. (2-tailed)	.707	.151	.041	.355	.400	.575	.766	.622	.007	.080	.767	.083	.844	.545	.020	.667	.706	.028								
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185							
On line information exchange	Pearson Correlation	-.108	-.034	.105	-.024	-.077	-.067	.055	-.175*	-.089	-.068	-.082	-.107	.372**	.116	.006	-.090	.230**	-.121	.225**	1						
	Sig. (2-tailed)	.144	.649	.157	.743	.299	.367	.459	.017	.227	.357	.266	.146	.000	.115	.939	.224	.002	.101	.002							
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185						
Understands own business drivers list	Pearson Correlation	-.184*	-.172*	-.138	-.100	-.053	-.057	-.139	-.072	-.034	-.111	.035	-.147*	.026	-.030	.086	.053	-.074	-.011	-.171*	-.067	1					
	Sig. (2-tailed)	.012	.019	.061	.174	.473	.438	.059	.327	.641	.134	.636	.045	.730	.685	.244	.470	.314	.882	.020	.366						
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185					
Flexibility	Pearson Correlation	-.125	-.236**	-.063	-.003	-.020	-.006	-.050	-.067	-.068	-.285**	.064	-.083	-.032	-.185*	-.014	.045	-.098	-.020	-.120	-.037	-.151*	1				
	Sig. (2-tailed)	.091	.001	.397	.970	.786	.934	.503	.362	.359	.000	.385	.264	.663	.011	.849	.546	.184	.788	.104	.620	.040					
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185				
Proactive	Pearson Correlation	-.252**	-.288**	-.204**	-.059	-.156*	-.212**	-.084	.003	-.113	-.209**	.007	-.222**	-.135	-.124	-.012	.126	-.058	.074	-.047	-.228**	.036	.158*	1			
	Sig. (2-tailed)	.001	.000	.005	.422	.034	.004	.255	.964	.125	.004	.927	.002	.066	.092	.868	.088	.431	.319	.525	.002	.625	.031				
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185			
Good Planning	Pearson Correlation	-.175*	-.154*	-.241**	-.039	-.053	-.147*	-.139	-.179*	-.155*	-.269**	-.043	-.111	-.010	.000	-.089	.042	.014	.000	-.165*	-.064	.063	.079	.245**	1		
	Sig. (2-tailed)	.017	.037	.001	.595	.470	.045	.059	.015	.036	.000	.558	.133	.897	1.000	.226	.570	.853	.997	.025	.389	.391	.284	.001			
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185		
Roadmap	Pearson Correlation	.024	-.181*	-.087	-.087	-.106	-.241**	-.123	-.061	.013	-.204**	.053	-.081	-.140	.059	-.015	.037	-.128	.024	-.241**	-.236**	.124	.076	.249**	.131	1	
	Sig. (2-tailed)	.743	.014	.241	.237	.152	.001	.095	.408	.861	.005	.477	.275	.057	.426	.837	.615	.082	.743	.001	.001	.093	.307	.001	.076		
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	
Propensity to Partner	Pearson Correlation	-.115	-.177*	-.223**	-.148*	-.045	-.147*	-.210**	.032	.015	-.290**	-.094	-.171*	-.071	-.086	.173*	.170*	-.163*	-.030	-.302**	-.174*	.089	.045	.147*	.095	.129	1
	Sig. (2-tailed)	.118	.016	.002	.045	.540	.045	.004	.665	.837	.000	.203	.020	.335	.244	.019	.020	.026	.686	.000	.018	.229	.542	.045	.197	.080	
	N	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185

Table 37: Simple correlation matrix off the diagonal