

Feasibility Study Linking Best-Value Procurement Assessment to Outcome Performance Indicators

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CONTENTS

CONTENTS	i
List of figures	iv
Preface	v
ACKNOWLEDGEMENTS	v
1.0 EXECUTIVE SUMMARY	1
1.1 Objectives	1
1.2 Findings	1
1.3 Implications For Industry And Community	2
1.4 Further Research	2
1.4.1 Best Value.....	2
1.4.2 Construction SME Performance Improvement and Optimisation.....	3
1.4.3 Cost of Tendering	3
2.0 INTRODUCTION	4
2.1 Exploring 'Best Value'	6
2.1.1 Introduction	6
2.1.2 Current usage of 'Best Value'	6
2.1.3 Best Value in Public Sector Service Provision.....	6
2.1.4 Definitions of Best Value.....	7
2.1.5 Best Value in the Public and Private Sectors.....	8
2.2 Public Sector Best Value Development	9
2.2.1 The move to 'best value' in the UK	9
2.2.2 The Development of 'best value' in the UK.....	10
2.2.3 'Best Value' in Scotland	10
2.2.3.1 Detailed commitments.....	10
2.2.3.2 Governance.....	12
2.2.3.3 Performance improvement measuring and monitoring	12
2.2.3.4 Continuous Improvement and competition.....	12
2.2.3.5 Local Government in Scotland Act 2003 (LGIS Act)	13
2.2.3.6 Best value criteria.....	13
2.2.4 Auditing the Scottish Best Value Approach	14
2.2.4.1 LGIS Act Part 1 (Best Value and Accountability)	15
Duty to secure best value	15
2.2.4.2 Contracts and the supply of goods and services	15
2.2.4.3 Financial and performance reporting	15
2.2.5 Role of Audit Scotland	15
2.2.6 Summarising the Key Features - Best Value Audit.....	16
2.3 Best Value In Victoria In State Local Government.....	16
2.4 Conclusion	17

3.0	'BEST VALUE' IN CONSTRUCTION PROJECT PROCUREMENT	19
3.1	The Business Enterprise	19
3.2	Public Sector Construction Project Procurement	19
3.2.1	Lowest Bid Procurement	19
3.2.2	Best Value Procurement	20
3.3	Change Needed In Australian Industry	21
3.4	US Public Sector Best Value Procurement	21
3.5	UK Best Value Public Sector Procurement	23
3.5.1	Best Value in Construction Not Lowest Cost	23
4.0	Outline Framework for best value	24
4.1	Operational Definition For Best Value	24
4.2	Linking Purposes Of Government To 'Best Value'	25
4.3	Politician/Public Servant Interface	26
4.4	Essence Of The Best Value Framework Research Proposal	28
5.0	CONSTRUCTION INDUSTRY sme PERFORMANCE MEASUREMENT AND IMPROVEMENT	30
5.1	Criteria Of Project Success	30
5.2	Quality Assurance And Certification	31
5.3	Total Quality Management	32
5.4	Quality Awards And Business Excellence Frameworks	33
5.5	Balanced Scorecard	35
5.6	Benchmarking	36
6.0	INTERNATIONAL BUSINESS PROFILE BENCHMARKING	38
6.1	The United Kingdom Benchmarking Index	38
6.1.1	Input Data Requirements	38
6.1.2	The Report	39
6.1.3	Reporting Back	39
6.2	The Case Study	40
6.3	Conclusion	40
7.0	COST OF TENDERING	42
7.1	Previous And Current Research	43
7.1.1	Attitudes to Cost of Tendering	44
7.1.2	Barriers to Understanding Cost of Tendering	44

7.2	Implications Uncovered By This Scoping Project	44
7.3	The Tendering Process.....	45
7.4	Benchmarking As An Approach To Gain Understanding.....	46
7.5	Conclusion	48
7.5.1	The Components Of Tendering Costs	48
7.5.2	Preparation of Tender Documents.....	48
7.5.3	Preparation of Response to Tender	49
7.5.4	Assessment and Selection.....	49
7.6	Barriers To Understanding Tendering Costs	49
7.6.1	Difficulty in Determining Resources Allocated to Tendering	49
7.6.2	Difficulty or Reluctance to Implement	50
7.6.3	Greed and Blatant Corruption	50
7.7	Generic Tender Cost Model.....	51
7.8	Estimation Of Tendering Costs	53
7.8.1	Public Sector Organisations.....	53
7.8.2	SME Sector Subcontractors and Suppliers.....	55
7.9	Conclusion	56
8.0	PROJECT CONCLUSIONS.....	57
9.0	REFERENCES	58
	GLOSSARY	66
	APPENDICES.....	68
	Appendix 1.....	68
	Sample copy of Benchmark Index Report	68
	Appendix 2.....	97
	Stage 1 Proposals	97
	Best Value	97
	Cost of Tendering	97
	Construction sme Subcontractor Performance Improvement.....	97
	Appendix 3.....	104
	Stage 2 Proposals	104
	Best Value	104
	Cost of Tendering	104
	Construction sme Subcontractor Performance Improvement.....	104
	AUTHOR BIOGRAPHIES.....	116
	Professor John F Dalrymple	116

Dr Peter J Bryar	116
Dr Lionel J Boxer	117
Warren J Staples	117

LIST OF FIGURES

Figure 2.1: The intent of the Local Government in Scotland Act (2003)	14
Figure 4.1: The Procurement Role Change	24
Figure 4.2: Political/Public Service Interface	25
Figure 4.3: The link between policies of government, purposes of government and acts of parliament	26
Figure 4.4: The link between resource allocation and Impact (Kellogg)	27
Figure 4.5: The usual approach to public sector procurement	27
Figure 4.6: Proposed 'Best Value' Framework in Public Sector Construction Procurement .	28
Figure 4.7: Proposed Best Value Framework Research Project	29
Figure 5.1: Australian Business Excellence Framework.....	34
Figure 5.2: The 12 Principles of Business Excellence.....	35
Figure 7.1: Project Delivery Methods.....	45
Figure 7.2: Tendering Process	46
Figure 7.3: Cost of Tendering Benchmark Categories - Purchasers	47
Figure 7.4: Cost of Tendering Benchmark Categories - Tenderers.....	47
Figure7.5: Generic Tender Cost Model	52

PREFACE

This report is based on the Feasibility Study Linking Best-Value Procurement Assessment to Outcome Performance Indicators. The origins of the research lie in, inter alia, “Rethinking Construction” – The Report of the Construction Task Force to the Deputy Prime Minister, Mr John Prescott, on the scope for improving the quality and efficiency of UK construction, also known as The Egan Report after its author, Sir John Egan. The research is predicated on the general fact that any circumstance where quality and efficiency of processes has not been fully addressed will almost certainly result in waste, where waste is generally used to describe any circumstance where cost is added without the addition of commensurate value. In any situation where there is waste in the process, the client of the process will be deprived of the delivery of ‘best value’ in the delivery of the project, product or service. In the case of construction projects, the concept of ‘best value’ must be viewed from the perspective of the client. The perspective of the public sector client may be very different from the perspective of the business enterprise client and, indeed, within the set of business enterprise clients, the perspective may be very different for a property developer and an investment institution. The project explores the concept of best value from the different perspectives and focuses on the concept of best value when perceived from the perspective of the public sector client. The project was designed to investigate three strands of ‘Best Value’:

- ❑ Linking outcome performance indicators to a Best Value Procurement Framework
- ❑ Tendering costs
- ❑ Construction SME Performance Improvement and Optimisation

The findings of this report will be of benefit to the construction industry and in particular to public sector procurement agencies, purchasers of construction works, those involved in other types of major purchases and small-to-medium sized sub-contracting enterprises.

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1.0 EXECUTIVE SUMMARY

1.1 Objectives

This feasibility study was established to investigate the application of the concept of 'best value' in construction procurement in Australia. In the case of 'best value' in the business enterprise, 'best value' is that which returns greatest value to the business enterprise's shareholders. However, in the case of the public sector, 'best value' is more complex. For that reason, this research project focuses mainly on public sector construction project procurement.

Anecdotal evidence suggests that the use of non-price criteria in the procurement process is desirable, but that it has proved to be somewhat difficult to come to terms with dealing with non-price criteria in practice. Public sector procurement officers face the requirement to make auditable and publicly defensible decisions. Contractors face the escalating costs of tendering for construction projects in an environment where there is asymmetrical understanding of the non-price criteria being used. In many cases, this prevents contractors making informed decisions about whether a particular tender constitutes business that they are well placed to win and go on to enjoy profitable business.

The project therefore seeks to investigate the potential to develop a rigorous 'best value' framework for public sector construction project procurement. Within such framework, the provision of a robust decision making tool should enable public sector procurement officers to take account of non-price criteria in their decision making with a transparent approach to sharing the decision making criteria with the contractors seeking to secure the contract.

This project recognises that there are many facets to the quest for 'best value'. 'Best value' cannot be achieved in circumstances where cost is being added without the addition of appropriate value. There is currently a perception that the costs of tendering have been escalating and the use of multiple contractors inevitably results in significant waste. However, there is currently little rigorous research in the area of cost of tendering and another element of this project is to begin to address that gap. This project seeks to investigate the cost of tendering in construction to both tenderers and purchasers. The project recognises that the cost of tendering is significant, but remains largely undefined in both construction and other sectors. There is very little published work concerning cost of tendering in the construction industry or any other industry.

Furthermore, the extensive use of the sme construction subcontractors means that if that sector is not operating at optimal performance, then waste is inevitable. Performance measurement and improvement in this area constitute another focus of this project. This project seeks to investigate the potential to apply the International Business Profile Benchmarking instrument within the construction industry and with a particular emphasis on small and medium sized sub-contractors. The project recognises that the quest for continuous improvement in the construction industry carries with it significant complexity.

1.2 Findings

Interim reports on 'best value' have illustrated the varying interpretations that the concept of 'best value' has attracted internationally. They have also examined the current state of the literature on 'best value' in construction project procurement. 'Best value' has been explored from the perspective of both the business enterprise and public sector. It was concluded that 'best value' in the public sector is considerably more complex. Focus has been given to how 'best value' has been implemented in the UK, particularly to Scotland's approach examining the complexity of implementation of 'best value' in the public sector context. This complexity has also been encountered in the United States where the legal constraints of State and Federal legislation contribute to complexity.

Interim reports on the cost of tendering have addressed the scarce literature in the area, across all industries. There has been recognition of the need to reduce complexity and costs associated with tendering processes, but the response has been less than encouraging, with major sources of influence – the client – seemingly able to do no more than acknowledge that there is a problem.

The current state of the international literature relating to construction industry performance measurement and performance improvement has been investigated. The vast majority of firms in the construction industry are in the small and medium-sized enterprise (sme) sector. In common with most other industry sectors, this is the segment about which least is known and understood. Little has been published on performance measurement and performance management in this area. The project included the application of business profile benchmarking to sme sector off-site manufacturing construction industry suppliers.

1.3 Implications For Industry And Community

The potential implications for the industry and the community of the successful completion of this program of research are extremely profound. The successful implementation of the ‘best value’ framework for public sector construction procurement will enable public sector organisations to advance several of their policy objectives through the procurement process, whilst retaining the defensibility and transparency of the procurement process. This is the way in which the public sector client can genuinely drive innovation in the complex environment of the construction sector.

The successful completion and implementation of the cost of tendering work proposed will focus on a reduction in the cost of tendering without accompanying loss of value. This will enable the industry – client and contractor – to devote a greater proportion of scarce resources to the delivery of the construction projects and less on activities that add cost without adding value. In addition, it will reduce the inhibitors to contractor’s participation in the tendering process and, thus, increase the likelihood that the most appropriate contractor will deliver the construction project.

The successful implementation of performance measurement and performance improvement in the sme construction sub contracting firms will reduce waste and deliver a more efficient industry, whilst, at the same time, improving the survival rate of the small businesses in the sector.

1.4 Further Research

This research was embarked on on the premise that the outcome of the project would be up to three project proposals that would follow on from the exploratory project investigating and developing the concept of best value in construction project procurement. Three project proposals were developed and submitted.

1.4.1 Best Value

Proposals addressing future research in the area of best value have suggested the further development and pilot implementation of a robust best value framework for public sector construction project procurement.

1.4.2 Construction SME Performance Improvement and Optimisation

Two Victorian SME construction industry subcontractors have participated in a trial benchmarking activity that utilised the International Business Profile Benchmarking Tool including the Building Engineering Service's Contractor's Module Questionnaire for performance measurement.

This pilot study produced sufficient data to support the applicability of the International Business Profile Benchmarking Tool including the Building Engineering Service's Contractor's Module Questionnaire to Australian SME construction industry subcontractors. The project proposal was developed to extend the activity to a larger sample and to incorporate sme performance development and enhancement. This project was designed to address a gap in the support for the major contributors to the construction industry as well as to position the CRC Construction Innovation for the renewal process.

1.4.3 Cost of Tendering

Anecdotes and scant material derived from the literature, observations of construction purchases, and interview data foreshadowed barriers to understanding the cost of tendering. This was augmented by corresponding observations of other major purchases. Problems and causes were described in terms of these anecdotes. Robust and reliable research is proposed to test the evidence gathered. The proposal on the cost of tendering suggests a benchmarking approach to enable the collection of data, ratification of the anecdotal evidence already collected, feedback to participants on their relative performance on each of the elements of the tendering process and a basis for assembling and populating a cost of tendering database. Discussion with clients and contractors would then be based on evidence and, in the event of a "Pareto" pattern, the elements of the process constituting 80% of the cost would be examined to establish a 'better way'.

2.0 INTRODUCTION

One of the most influential documents informing developments in the construction industry in the developed world is the report “Rethinking Construction” (Egan, 1998). This report investigated the UK construction industry, recognised the overwhelming need for change and laid out a framework for change. The following elements of the ‘Executive Summary’ of the report were instrumental in the thinking about this research project:

“The UK construction industry at its best is excellent. Its capability to deliver the most difficult and innovative projects matches that of any other construction industry in the world.

Nonetheless, there is deep concern that the industry as a whole is under-achieving. It has low profitability and invests too little in capital, research and development and training. Too many of the industry's clients are dissatisfied with its overall performance.

The Task Force's ambition for construction is informed by our experience of radical change and improvement in other industries, and by our experience of delivering improvements in quality and efficiency within our own construction programmes. We are convinced that these improvements can be spread throughout the construction industry and made available to all its clients.

*We have identified five key drivers of change which need to set the agenda for the construction industry at large: **committed leadership, a focus on the customer, integrated processes and teams, a quality driven agenda and commitment to people.***

Our experience tells us that ambitious targets and effective measurement of performance are essential to deliver improvement. We have proposed a series of targets for annual improvement and we would like to see more extensive use of performance data by the industry to inform its clients.

*Our targets are based on our own experience and evidence that we have obtained from projects in the UK and overseas. Our targets include **annual reductions of 10% in construction cost and construction time. We also propose that defects in projects should be reduced by 20% per year.***

*To achieve these targets the industry will need to make radical changes to the processes through which it delivers its projects. These processes should be explicit and transparent to the industry and its clients. The industry should create an integrated project process around the four key elements of **product development, project implementation, partnering the supply chain and production of components.** Sustained improvement should then be delivered through use of techniques for eliminating waste and increasing value for the customer.*

*If the industry is to achieve its full potential, substantial changes in its culture and structure are also required to support improvement. The industry must provide **decent and safe working conditions and improve management and supervisory skills** at all levels. The industry must design projects for ease of construction making maximum use of standard components and processes.*

*The industry must replace competitive tendering with **long term relationships** based on **clear measurement of performance and sustained improvements in quality and efficiency.***

The Task force has concluded that the major clients of the construction industry must give leadership by implementing projects which will demonstrate the approach that we have described. We want other clients, including those from across the public sector, to join us in sponsoring demonstration projects. We also wish to see the construction industry join us in these projects and devise its own means of making improved performance available to all its clients. Our ambition is to make a start with at least £500 million of demonstration projects.

In sum, we propose to initiate a movement for change in the construction industry, for radical improvement in the process of construction. This movement will be the means of sustaining improvement and sharing learning.

The public sector has a vital role to play in leading development of a more sophisticated and demanding customer base for construction. The Task Force invites the Government to commit itself to leading public sector bodies towards the goal of becoming best practice clients seeking improvements in efficiency and quality through the methods that we have proposed.

One significant impetus for this project was the content of the report “Rethinking Construction” (Egan, 1998) and specifically a number of the elements of the Executive summary reproduced above. There was also a recognition that the advances in recognising

the contribution that the management of technology, rather than technology itself, had made to improving efficiency and effectiveness in other industries appeared by and large, to have passed the construction industry by. In Australia, there appeared to be little knowledge or understanding of, for example, business excellence models and frameworks. The Australian Business Excellence Framework was one of the earliest contributions to the Business Excellence Movement worldwide, having been introduced in 1988. The business excellence approach has successfully permeated the manufacturing sector, local government, the education sector, the utilities and the services sector, although it is probably not yet as influential in Australia as it is in some other jurisdictions.

The developments in the management of technology in the 1970s and 1980s resulted in the overwhelming success of Japanese manufacturing industry with quantum leaps in quality improvement and the reduction and elimination of waste. This, in turn, gave rise to the so-called 'Toyota Production System' now more commonly known as 'Just-in-Time' or JIT. JIT would not have been achievable without the quantum leap in quality improvement and preceded it. In part, this resulted from a 'rethinking' of the role of purchasing or procurement in the manufacturing enterprise. The traditional approach had been to seek tenders from multiple suppliers and select a number of vendors to supply at the lowest possible cost.

This approach acknowledged that there would be significant intermittent supply and supplier failure and also unpredictable and intermittent quality failure. To enable the business to absorb these intermittent interruptions, the company would hold raw materials stocks to enable production to be maintained in the event of supply failure and finished goods stocks to ensure continuity of supply to their external client in the event of internal process failure. In addition, the same philosophy was adopted for each process, resulting in large work in progress inventories.

There was recognition that, when the performance of the procurement function was judged on how cheaply raw materials supplies could be obtained, an optimal output for the purchasing function almost inevitably produced a very sub-optimal outcome for the business enterprise as a whole through holding inventories, excess capacity, etc. Once it was recognised that, in order to optimise the outcome for the business enterprise, costs other than the procurement costs of the raw materials had to be accounted for, significant focus was placed on the elimination of waste of all descriptions. That included the holding of unnecessary inventory on a 'just-in-case' basis. The outcome was that a 'systemic view' was taken of the business enterprise, rather than the view of an agglomeration of several different independent free standing mono-discipline functions. It was recognised that 'best value' for the business enterprise was seldom achieved by optimising the operation of individual sub-units.

These lessons from other industry sectors informed the approach to 'best value' that was pursued in this research project.

Furthermore, anecdotal evidence suggested that the approach to construction project procurement had not progressed much beyond the thinking that preceded the 'Toyota Production System' in manufacturing. In this case, it was perceived that it was the procurement process in and of itself, rather than some of the consequences of the process that was the first example of wasteful activity in that it added significant cost without the addition of commensurate value. Although, in the short term, the cost falls on the vendor rather than the client, ultimately it is the client that eventually carries the increased cost burdens through increased prices for subsequent projects.

In this case, the impetus for this project was the conviction that there must, indeed, be a 'better way' to approach the tendering process if the extent of the waste in the form of adding cost without commensurate value was being accurately portrayed in the anecdotal evidence on the cost of tendering, since it appeared to disadvantage both client and contractor. The

first steps were to seek to quantify the total costs associated with the tendering process in order to verify or refute the anecdotal evidence and then to seek to identify 'a better way'.

2.1 Exploring 'Best Value'

2.1.1 Introduction

This section seeks to address the various meanings that have been associated with the concept of 'best value' and to answer the research question:

Can a 'best value' framework be developed that is rigorous, robust and capable of withstanding the scrutiny of independent external audit?

This research question is crucial as a leading indicator for the development of a best value framework, since the framework and processes involved must be robust, transparent and able to withstand the scrutiny that may result from a freedom of information request.

2.1.2 Current usage of 'Best Value'

To establish a baseline for the usage of best value, one approach is to use internet search engines to provide information about the number of 'hits' achieved when using a search term. This gives an indication of the extent of usage in internet websites. The result of this search was as follows:

- Google Search: Best Value Construction - 5.5 million hits
- ABI Inform Search : "Best Value" and "Construction" - 2000 Hits
- Emerald Database: "Best Value" and "Construction" - 3551 Hits

This indicates that Best Value is a term that is in common usage in conjunction with construction and so the question of whether there is a coherent definition of best value arises. Two of the results of the investigation of definitions produced the following:

"This book from the RICS Foundation analyses how to provide best value by the effective application of leading edge techniques and processes throughout the entire life cycle of buildings, from the business case which underpins their initiation to the achievement of a satisfactory project out-turn". RICS website.

"The ultimate goal of best value procurement methods is to combine the twin goals of promoting efficiency of private construction contracting and taxpayer trust in the procurement process". US Government website.

Thus, it can be reasonably concluded that, even within the context of the construction industry, the interpretation of 'best value' does not fall within a single definition. However, there has been significant work in the development of thinking about 'best value' in the context of local government services in the UK and in Victoria, Australia. The next section will, therefore, focus on the lessons from other jurisdictions.

2.1.3 Best Value in Public Sector Service Provision

This section provides the focus for addressing the research question, since the concept of best value is reasonably straight forward in the case of the business enterprise, but complex in the case of the public sector procurement environment.

The concept of 'best value' has been introduced in a number of jurisdictions throughout the world, most recently as an umbrella term to replace the discredited "Compulsory Competitive Tendering" (CCT) process. The Thatcher government introduced CCT in the UK for local

government services on the basis that 'the market' would deliver 'efficiency, effectiveness and value for money'. The Blair government in the UK replaced CCT with an imperative for local government to demonstrate 'best value'. The Kennet government in Victoria, Australia also introduced CCT and the Bracks government replaced it with a 'best value' regime. In Scotland, the newly elected Scottish Executive placed a duty of 'best value' on local government services with a requirement that their approach to 'best value' be amenable to audit by Audit Scotland. In each of these cases, there was a lack of prescription relating to what might constitute 'best value'. 'Best value' was not clearly defined and, consequently, there was, and is, a great deal to consider when seeking to address 'best value' in construction procurement.

Rees and Gardner (2003) suggested that 'Best Value' could be seen as tackling the embedded culture of local government. Whilst there has been a lot written about best value and its development there is still no precise definition of best value. The concept of best value has attracted varying interpretations. It has been a difficult to define and is an evolving concept. The current state of the literature on best value will be examined. Particular attention will be paid to the experience in Victoria and Scotland for public sector procurement. In this report 'Best Value' will be explored from the perspective of both the business enterprise and public sector.

The concepts 'value' and 'quality' have been interwoven in the literature. 'Quality' has attracted multiple definitions and one approach to defining 'quality' has been variously defined as 'value' (Abbott, 1955; Feigenbaum, 1951; both cited in Bednar and Reeves, 1994, pp.419-420). Garvin (1988, pp.40-41) also identified a value based – value for money approach to defining 'quality'.

Value is defined as being:

- useful or desirable,
- equivalence in money,
- weight or emphasis,

Feigenbaum (1991, p.9) suggests that there are two aspects to defining 'quality', and that products can be said to incorporate quality if they are best for customer use and this is balanced with selling price. So Feigenbaum (1991, p.9) espoused an approach linking a definition of quality to value perceived by the customer. Feigenbaum's approach was a financially oriented approach to quality, considering price to be an important component in assessing whether a product was a quality offering. Juran (1988, 35 E.6) also acknowledged the financial approach by viewing value as being equal to quality divided by cost (value = quality / cost). Porter (1985) meanwhile defines 'value' as the amount buyers are willing to pay for what a firm provides.

2.1.4 Definitions of Best Value

These definitions provide some insight into what value is, but do not answer the question "What is 'Best Value'?". As Feigenbaum's (1991) value for money definition of 'quality' acknowledges the combination of being best for customer use, and the importance of selling price. Best value would appear to be providing the most 'value' as assessed by the user. Price would appear to be a factor in determining what is best value but not the only factor. Akhagli (1996) notes that:

the attainment of value for money in the procurement and provision of services is a global, corporate pursuit with increasing complexity and sophistication.

Attaining best value would appear to be achieved through the procurement of services that best meet the needs of the organisations' stakeholders. Clearly, in assessing best value it is necessary to take account of different contexts. A private sector client procuring a retail contract to sell its products will use a different set of criteria to determine whether they have

received value than a public sector client would in a defence contract. As the context changes so do the factors influencing the perception of value. Any definition of best value needs to be context specific and must be flexible to take account of the clients' perspective.

2.1.5 Best Value in the Public and Private Sectors

The emphasis of 'Value for Money' has led people to one way of conceptualising best value, but this does not always help in the public sector where not everything is assessed solely in terms of financial return on investment. Return on investment in the public sector is frequently multifaceted and consequently, more difficult to assess.

Dalrymple, Hilmer, Karney, Edgeman, and Geroy (1999) state that in, the business enterprise, the pursuit of profit is fundamental to the reason for existence. They acknowledge that this has been tempered more recently by the introduction of such concepts as the 'triple bottom line' that acknowledges that there may be environmental and social imperatives which must be taken into account in the pursuit of profit. However, they state that the fundamental role of the business enterprise is to maximize value for shareholders. In the case of best value in the business enterprise, best value is that which returns greatest value to the business enterprise's shareholders.

However, in the case of the public sector, best value is more complex. Governments are held accountable by a wider community of stakeholders/citizens than business enterprises. Governments do not exist to return profits to shareholders. Donnelly (1999) states that most public sector services were originally conceived in response to the failure of the commercial or private sector to deliver adequate quality in key areas for the well-being of the society as a whole. For example, the origins of the utilities lie in the public provision of potable water, power, gas, communications and postal services as well as the disposal of solid and liquid wastes to support public health objectives.

Donnelly, (1999) cites:

*'Society's demand for top quality water and for a safety-net health service helps halt and prevent the spread of disease.
Provision of high standard public housing for citizens contributes to the eradication of the squalor of slums.
Systems for the universal education of children underpin the development of a civilised society.
Public agency intervention protects the environment from the bi-products of modern industry and society'.*

All illustrate public sector concern with quality issues - all of these make a difference to the quality of people's lives. So quality in the public sector domain is not a new phenomenon, but traditionally has been a response to quality "problems" or failures. The attention of modern public sector organisations has been concerned more recently with ensuring that the services they themselves deliver are as good, as responsive, as consistent and as fair as possible in meeting public needs (Donnelly, 1999).

In linking the concept of 'best value' to the reason for existence of an organisation or entity, Giddens (1998) suggests 11 reasons for the existence of government:

- Provide means for the representation of diverse interests
- A forum for reconciling competing claims of these interests
- Create and protect contexts for policy debate
- Provide public goods for collective security and welfare
- Regulate markets in the public interest
- Foster social peace
- Promote the active development of human capital in citizens

- Sustain an effective system of law
- Have a directly interventionist economic role
- Have a civilising aim
- Foster regional and trans-national alliances and pursue global goals

Donnelly (1999) highlights the complex nature of government when he suggests that the purposes and actions of government transcend direct service provision to embrace broader societal aims.

2.2 Public Sector Best Value Development

Donnelly, Wisniewski, Dalrymple and Curry (1995) comment that quality and customer service have been identified as critical strategic issues in the 1990's for both public and private sector organizations. They note that in the private sector, customer satisfaction and loyalty are secured through high quality products and services. They provide value for money for the consumer and are seen as being essential for the long-term survival.

Public sector organisations are not immune to pressure to improve customer service on a continuous basis (Donnelly et. al, 1995). Some of these pressures arise internally from a genuine desire to improve quality of services provided to communities; others are imposed through corporate initiatives like customer charters or through an increase in consumer activism (Donnelly et. al, 1995). It is recognised that public sector organisations face more difficulties than those in the private sector in their efforts to improve customer service (Donnelly et. al, 1995). However, in the case of the private sector service, improvements in service frequently improve revenue and profit and the unit of resource devoted to service provision will, at worst, remain constant, and may increase. However, in the case of public sector services, improved quality of service that attracts new participants frequently have to be accommodated within a fixed budget. Consequently, unlike the business enterprise case, more service recipients forces the public service provider to deliver the service using a diminishing unit of resource.

Traditionally the approach to 'quality' was efficiency, effectiveness and value for money. In the UK this was perceived to be able to be delivered through the market. To facilitate this Compulsory Competitive Tendering (CCT) was imposed in UK Local Governments. The Kennett State Government also introduced CCT in Victoria, Australia.

Compulsory Competitive Tendering was introduced in the Public Sector to eliminate waste and inefficiency by using 'The Market' to provide:

- Discipline
- Improved Quality
- Reduced costs

2.2.1 The move to 'best value' in the UK

The new initiative of 'best value' in the UK was announced in 1997 with a promise to abolish compulsive competitive tendering (CCT) and to introduce a new concept for local government (McAdam & O'Neill, 2002). There had been a Recognition that CCT had not delivered:

- Improved Quality
- Lower costs
- Continuity of service provision

Once elected, the Blair 'New Labour' UK Government had a clear manifesto commitment to introduce Best Value in to Local Government partly as a replacement for the CCT system

introduced by earlier conservative governments and also a part of modernisation agenda. Curry (1999) stated that the intention of the Best Value regime was to replace CCT with the intention of still retaining the competitive element over the compulsory element.

Wisniewski and Stewart (2001) comment that it was clear that Best Value was more than just a simple replacement for CCT. Shortly after the election a Best Value TaskForce was established and it was given remit to develop a detailed framework for Best Value in Scotland (Wisniewski and Stewart, 2001). the intent was to enable a balance between cost and quality considerations in service provision, whilst ensuring ongoing value for money (VFM) and promoting continuous improvement (Jaconelli and Sheffield, 2000). Best Value is continuing to evolve in the UK.

2.2.2 The Development of 'best value' in the UK

'Best value' has now been enshrined in legislation in Scotland under the Local Government in Scotland Act 2003. This not only places a statutory duty on local government, but it draws other public bodies into the equation. The guidance has now been issued to Non-Departmental Public Bodies (NDPBs) or Quasi-autonomous non-governmental organization (QUANGOS). This covers organisations like Sport Scotland, Scottish Natural Heritage, Learning & Teaching Scotland and about 300 others. The NDPBs are typically the policy development and implementation arm of the Scottish Executive in each area of public policy. In both instances (Government Departments and NDPBs), the expectation is placed on organisations as single entities, rather than on individual services. The Scottish Executive has just rolled Best Value out to the rest of the public sector. While the thinking is still developing, some parts of the sector are further forward than others.

Whilst 'best value' is progressing in Scotland to include all government departments, plus the NDPBs, in England 'best value' is being given less emphasis than it was previously by the Blair Government. 'Best value' has been rolled into a comprehensive performance assessment (CPA) framework. The CPA is similar to an Excellence Model (EFQM 2004; ABEF, 2004) or the old Scottish Performance Management and Planning Audit.

2.2.3 'Best Value' in Scotland

Scotland has been recognised as a leader in the field of 'best value' in the public sector (Curry, 1999; Wisniewski and Stewart, 2001, 2004; Jaconelli and Sheffield, 2000). Under 'A partnership for a better Scotland: Partnership Agreement', there is a joint partnership between the Leaders of the Scottish Labour Party and the Scottish Liberal Democrats, which are the 2 major, and opposing political parties in the Scottish Executive. "In the next four years we are determined, together, to improve public services and tackle the real issues that matter to people in Scotland."

"People deserve and expect public services that are of the highest possible quality and offer the greatest choice. We will continue to use the record levels of investment to secure new and better facilities, particularly for our schools and hospitals. We will also match this investment with continued reform so that our public services are designed and delivered around the needs of individuals and the communities within which they live."

Source: 'A partnership for a better Scotland' (Coalition Concordat, May 2003)

2.2.3.1 Detailed commitments

The systemic view being applied to policy in Scotland following the May 2003 election included specific commitments:

- Community Planning will be one of the main methods to promote the planning and delivery of public services
- Best Value will ensure that all public bodies test themselves against the highest standards

And recognition:

“Scotland's 32 unitary local authorities have a significant impact on the people and communities of Scotland in most areas of political, economic, social and cultural life. The councils are responsible for the provision of wide range of public services to Scotland's 5 million citizens, ranging from education to street cleaning to housing to leisure and cultural services to welfare services.” (Wisniewski and Stewart, 2004)

“Their combined net expenditure is around £7 billion (AU\$18 billion) accounting for almost one-third of the Scottish Executive's budget (SLGIU, 2000).”

As can be seen, spending on Local Authorities makes up a large component of the Scottish Parliamentary budget. One of the major roles of Scottish Parliament is in the provision of services through the Local Authorities. ‘Best value’ was introduced on a voluntary basis in 1998 but became a statutory duty following the Local Government in Scotland Act 2003. Further, ‘best value’ in the UK has been descriptive rather than prescriptive. Guidance has contained descriptions of the elements that it should contain but not prescribed any one way of achieving it, acknowledging that ‘best value’ can take many forms. In Scotland, the Best Value Task Force (BVTF) was given the job of developing ‘best value’ when it became an almost overnight replacement for CCT with little articulation given to what it meant. The BVTF continues to have an important role in developing guidance on Best Value in Scotland. It meets on a regular basis to discuss matters under its remit.

Donnelly (1999) notes:

‘The fundamental principles of best value are defined as accountability, transparency, continuous improvement, and ownership and are to be delivered through sound governance, long term planning and budgeting, and the application of performance management including the evidencing of top quality services.’

Wisniewski and Stewart (2001) show that best value can be broadly interpreted as a measure of the performance of councils in the delivery of their services based on the ‘3 e’s’ (economy, efficiency and effectiveness), including issues of quality of service and local accountability. The element of competition, (a key tenet CCT) is still included amongst the 12 principles of best value but is no longer mandatory or of paramount importance. Nevertheless, as implied by Curry (1999), the best value approach assumes that councils will, at performance review stage, consider a number of service delivery options, including competition (McAdam & O’Neill, 2002).

Best value has also occurred at the same time as a number of other local government reforms, which are emphasising strategic decision making; accountability; transparency; sound governance and an awareness of the citizen’s perspective (Sheffield & Coleshill, 2001).

Best value came into effect in England and Wales in April 2000. In England and Wales, best value centred around the four Cs; competition; challenge; comparison; and consultation (DETR, 1998a, cited in Sheffield and Coleshill, 2001). Rees and Gardner (2003) felt that the centerpiece of best value is the service review that is guided by the methodology of these Four C’s:

Challenge – why and how the service is being provided,

Compare – the service with the performance for other services,

Consult – with the local taxpayers, the business community and other stakeholders on how the service can be improved,

Compete – this final C had to do with embracing fair competition in order to secure efficient and effective services

In addition to this, Scotland specified Accountability, Transparency; Continuous Improvement and Ownership as the key principles of the Scottish approach to best value (Sheffield & Coleshill, 2001).

2.2.3.2 Governance

A customer and citizen focus aims to improve access, responsiveness and accountability at all levels with better publicity of local authority decisions, policies, services and performance. Standards of customer service are to be improved to levels comparable with best practice and people are to be more readily involved in decision making, service design and service reviews (Curry, 1999). Sound operational management involves putting in place the right arrangements for managing services more effectively and ensuring that managers have greater control over resources, decision making and performance (Curry, 1999). Sound financial management aims to ensure that local authorities use their financial resources as effectively as possible to achieve value for money (Curry, 1999).

2.2.3.3 Performance improvement measuring and monitoring

A performance culture must be established throughout the organization with an emphasis on continuous improvement, monitoring, assessing and measuring performance at the strategic, service and local levels. Sound management information systems are also necessary to ensure that performance data are robust and clearly understandable (Curry, 1999).

2.2.3.4 Continuous Improvement and competition

A mixed economy approach to the procurement of goods and services is promoted with the objective of improving quality, efficiency and effectiveness of service delivery on an ongoing basis. Benchmarking performance at the corporate and service level helps achieve measurable service improvement and defined activities need to be reviewed on a regular basis (Curry, 1999). If service delivery is to be improved on an ongoing basis and increasing value for money sought in public service provision, there is a need for a structured approach to measure, monitor and prioritise (Curry, 1999).

The best-value (BV) framework encourages public-sector organisations to achieve effective partnerships and innovative approaches in the delivery of local services. The centrepiece of these reforms is the introduction of the BV regime, which came into effect in England and Wales in April 2000. Under the provisions of the 1999 Local Government Act the requirement to submit defined activities to compulsory competitive tendering (CCT) was abolished in January 2000 (Martin and Hartley, 2000). The BV regime replaced CCT, and conferred on public-sector organisations a legal duty to provide BV services, service quality and value for money to council-tax payers and local businesses (Bowerman et al., 2001; Ogden and Wilson, 2000). The BV regime seeks to develop performance management in public-sector organisations away from what is now considered as the restrictive climate that was seen to operate under CCT (Magd and Curry, 2003). The best value initiative has been designated as the key framework for improving service quality and effectiveness in UK local government (McAdam & O'Neill, 2002). This meta-level initiative covers all the UK Government's change programmes. The main impetus for best value is in local government but it also influences public services in general (Jaconelli and Sheffield, 2000). The best value discourse relates to renewing "and strengthening local democracy and [about] achieving community-based local government" (LGTG, 1998, p. iii; McAdam & O'Neill, 2002). BV could be seen as tackling the embedded culture of local government (Rees and Gardner, 2003).

The use of Best value as a mechanism for changing the culture of a public sector organisation is at the core of the work reported in this research project. The Scottish

experience also indicates that the spending power of local government can and should be used to leverage culture change and encourage innovation. Whilst numerous researchers have written about Best Value and its evolution in the UK there are still no firm definitions as to precisely what Best Value is. However, the Scottish experience is that the initial, rather ill defined, concept of best value is capable of developing into a robust approach to service procurement.

2.2.3.5 Local Government in Scotland Act 2003 (LGIS Act)

The LGiS Act builds on best value and gives local authorities a new power to promote or improve the well-being of their area and the people living within it. Prior to the Local Government in Scotland Act of 2003, best value had been voluntarily implemented by Scottish Local Authorities but this has now become a statutory requirement with the LGiS Act 2003.

The Act contains 9 parts:

- Part 1 - Best value and accountability
- Part 2 - Community planning
- Part 3 - Power to advance well-being
- Part 4 - Enforcement and scrutiny
- Part 5 – Rating and Council Tax
- Part 6 – Waste management
- Part 7 – Finance
- Part 8 – Miscellaneous
- Part 9 - General

Ministerial guidance has been prepared to support the Local Government in Scotland Act. This provides a definition of the main elements of best value and Community Planning, and suggests ways in which councils can meet these criteria. It uses eight main criteria to define best value that are similar to some elements of the business excellence frameworks.

2.2.3.6 Best value criteria

- Commitment & leadership
- Competitiveness & trading
- Responsiveness & consultation
- Sustainable development
- Sound governance & management of resources
- Equalities
- Review & option appraisal
- Accountability

The guidance sets out broad goals for local authorities. It needs to be stressed that the detailed guidance underpinning each of these criteria is descriptive and not prescriptive. It sets out broad principles and goals, but leaves each council to decide on its own local arrangements. The guidance should be seen as a starting point, rather than a template. Therefore, it is expected that councils will use a range of different means to get to the same ends. Effectiveness is viewed as more important than conformity. The best value criteria appear to be related to the 11 reasons for the existence of government that Giddens (1998) proposes. For each of the eight best value criteria, and for Community Planning, councils are required to provide evidence of the management arrangements, referring to policies, evidence of performance, and contact staff within the council.

2.2.4 Auditing the Scottish Best Value Approach

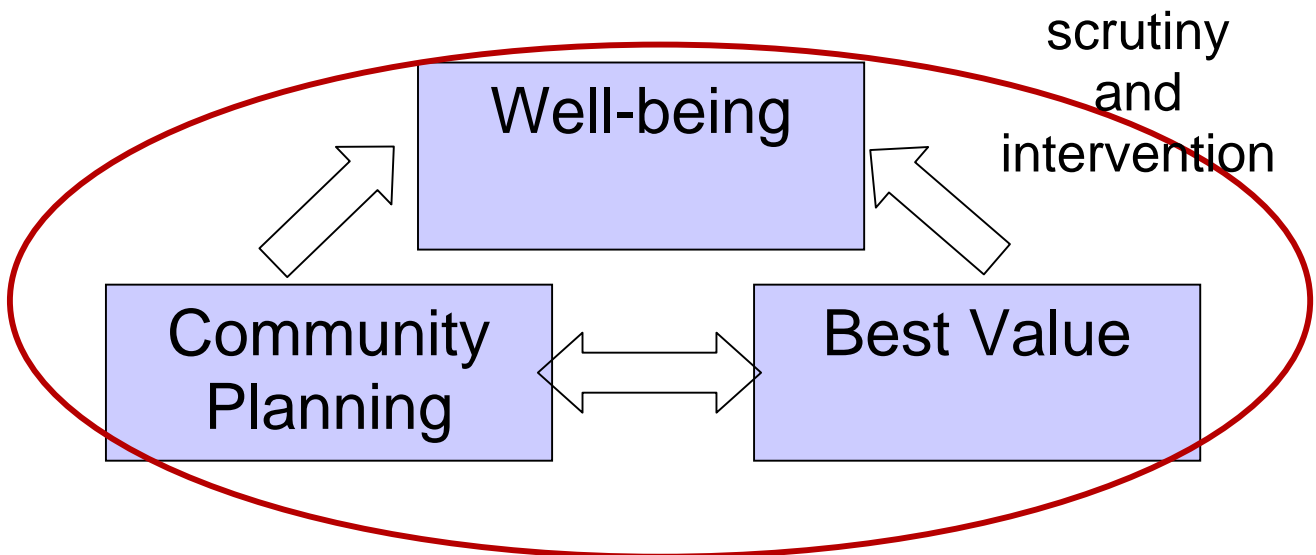
Originally, the Performance Management and Planning (PMP) Auditing approach was concerned with processes and the way things were done. However, the new approach has a greater emphasis on performance results and on the circumstances in which each individual council is operating. There has been a shift towards results and a major focus on improvement. This probably reflects the progress that councils have been making since 1997 and auditors hope to find the system maturing. Councils will be subject to the new audit once every 3-4 years. This reflects the depth of audit and the time needed by councils to implement improvement actions effectively. The audit is carried out by a small team comprised of specialist staff from Audit Scotland, together with the council's appointed auditor.

There is a significant role for a council's own evidence based self-assessment or performance, management arrangements. The audit is directed at the council as a whole, rather than specific services. Councils are expected to have effective risk management processes in place that have identified the key areas in which improvement are required.

The Accounts Commission for Scotland receives a report following each best value audit containing contextual issues, the main issues arising from audit and conclusions. The Accounts Commission considers the report, states findings and makes recommendations. Performance of a council is not rated by a single label (e.g 'good' or '5 star'). Instead as clear a picture as possible is presented of the overall performance of the council. It is hoped that, in future, this process will contribute to increased public accountability around the duties of best value, community planning and public performance reporting.

The relationship between these best value, well-being and community planning, plus scrutiny and intervention is represented in Figure 2.1 below.

Figure 2.1: The intent of the Local Government in Scotland Act (2003)



As the Act provides a framework for the better delivery of public services no one part of the Act can be taken in isolation. For example, a Council's use of the Power to Advance Well-Being should be influenced by Best Value and the Community Planning process. Similarly, Best Value should feature in an organisation's participation in Community Planning.

2.2.4.1 LGIS Act Part 1 (Best Value and Accountability)

Duty to secure best value

- *It is the duty of a local authority to make arrangements which secure best value*
- *Best value is continuous improvement in the performance of the authority's functions*
- *In securing best value, the local authority shall maintain an appropriate balance among quality, cost and charges*
- *In maintaining that balance, the local authority shall have regard to efficiency, effectiveness, economy and the need to meet equal opportunities requirements*
- *The local authority shall discharge its duties in a way that contributes to the achievement of sustainable development*
- *In measuring performance, regard should be given to the extent to which outcomes have improved*

2.2.4.2 Contracts and the supply of goods and services

- *New framework for trading where trading accounts are established for all 'commercial' activities*
- *Still some ambiguity as to what constitutes a commercial activity*
- *Local authorities can trade with anyone at all, provided the income limit set for the trading activity is not exceeded*
- *Trading with other authorities and public bodies does not count against the limit*
- *Trading accounts must break-even over a 3-year period*

2.2.4.3 Financial and performance reporting

Duty on the authority to make arrangements for performance and financial reporting

Scope for the authority to determine the form, content, frequency and time limits of such reporting - subject to minimum content

Likely to include:

- *Financial information (budget performance and trading accounts)*
- *Progress and plans re best value and how it supports sustainable development*
- *Statutory PI performance*
- *Progress and plans re community planning"*

2.2.5 Role of Audit Scotland

Part 4 of the LGiS Act 2003, 'Enforcement and Scrutiny' is an important component of the Scottish approach to 'best value'. Wisniewski and Stewart (2004) note the continuing pressures for transparency, accountability and value for money is attracting increasing academic and management attention. The approach taken to auditing Best Value in Scottish Local Authorities has changed. Initially it was done via the Performance Management and Planning audits undertaken by Audit Scotland. Whilst it is still undertaken by Audit Scotland, the Audit has evolved as 'best value' has evolved. It has changed as a result of the new legislation in which 'best value' is no longer voluntary for Local Authorities. Audit Scotland helps the Auditor General and the Accounts Commission to ensure organisations that spend public money in Scotland use it properly, efficiently and effectively. They do this by carrying out audits, that is detailed and systematic investigations of various aspects of how public bodies work. Audit Scotland do this to check whether public bodies:

- *manage their finances to the highest standards*
- *achieve the best possible value for public money.*

Three principles guide their work:

1. Auditors are independent of the organisations they audit
2. They report in public
3. They look at more than financial statements: they can also carry out checks to make sure organisations:
 - o operate within the regulations that govern their work
 - o deliver value for money
 - o act honestly, with propriety and integrity
 - o carry out their duties to the highest standards.

Audit Scotland is currently piloting a new approach to the audit of Best Value – as this is now a legal obligation.

2.2.6 Summarising the Key Features - Best Value Audit

- Focus on individual council ~ takes into account local context
- Three year cycle ~ ongoing progress check
- Focus on results and future improvement
- Risk-based, targeted and proportionate
- Specialist audit team (including Audit Scotland staff and a local auditor selected by the authority)
- Links to work of inspectorates and other scrutiny bodies
- Report to Commission after every audit
- No single label or score for council (no league tables), but clear conclusions on overall performance and improvement

2.3 Best Value In Victoria In State Local Government

In 1999 the Bracks Victorian State Government replaced CCT with best value. Like the introduction in the UK, best value in Victoria was to remove the inflexibility and rigidity of CCT while ensuring that local councils remain accountable for their expenditure and obtain value for money in the delivery of council services.

The Bracks Government's objectives in introducing legislation for the best value principles were to foster:

Local accountability

- That councils be accountable to their own communities for
 - the provision of services, and
 - the performance of the organisation in accordance with the best value principles.

Whole-of-organisation response

- That a council's implementation of the best value principles be a whole-of-organisation response applied through its corporate planning responsibilities including all its services and functions.

Consultation on performance

- That a council demonstrate its accountability for the implementation of the best value principles by measuring and reporting on its performance to its community against objectives and targets that are set by the council after consultation with its community.

Best value outcomes

That the best value principles framework deliver enhanced service and organisational performance across the local government sector and that the sector be able to demonstrate to the State Government that it has achieved these objectives.

Benefits, not costs

That the implementation of the best value principles framework not incur costs that outweigh the benefits of applying the best value principles framework, particularly in relation to small rural councils.

Encourage innovation

That the best value principles framework encourage councils to adopt innovative and creative responses to service delivery, including a range of partnering relationships.

In 2000 the Local Government Best Value Commission was established to advise on the implementation of best value policy. This is done through analysis of councils' best value programs, annual best value reports and information provided by councils about how they are addressing best value. The third year (2003) of best value implementation in local government's has now been assessed in the Commission's 2003 Annual Report. Given that councils have been comprehensively implementing best value for two years the the focus of the 2003 reviews was to guage the impact of best value on council and communities through the exploration of four broad themes:

(1) innovation through engagement/community consultation – the approaches to engagement with communities used by councils through the application of community consultation principles so that communities feel more connected and a part of local decision making processes

(2) engagement and involvement of elected representatives in best value – a genuine best value approach should not only have the support of councillors but a level of involvement and understanding. The commission views that involvement of elected representatives does deliver better outcomes.

(3) innovation and the promotion of efficiency – determining whether best value has been an effective approach in the promotion of efficiency.

(4) innovation through the application of the best value principles - determining whether best value has helped foster and encourage innovation and creative responses to service delivery.

The future of best value in Victorian local government is unknown as of December 2005 when the best value principles sunset in the legislation. The 2003 annual report details meetings between the commission and councils. The report suggests that most council's are happy with the principles and flexibility of the approach and would prefer there is no change. Council's would also like to know what will happen after December 2005. Amongst the recommendations of the 2003 report is that the benefits of best value be more widely promoted across the sector.

2.4 Conclusion

The evidence from other environments and other jurisdictions is that 'best value' regimes can be used, but they must be flexible rather than prescriptive and they require to be matched to the environment in which they are used. The use of the regime in that individual environment is then sufficiently described and detailed to enable the system to be audited by an external

auditor. In these circumstances, there is a prima facie case that a best value regime for public sector construction project procurement can be developed. Furthermore, the fact that such systems are auditable indicate that a robust and defensible best value regime that enables non-price criteria to be incorporated in the construction project procurement environment can, in principle, be developed and, for public sector procurement officers, such a system would be transparent and defensible. Thus, the answer to the research question “Can a ‘best value’ framework be developed that is rigorous, robust and capable of withstanding the scrutiny of independent external audit?” is answered in the affirmative based on the outcomes in another jurisdiction. The lessons include the need for both flexibility and an appropriate fit between the framework, the reasons for existence of the organisation and the way that the organisation seeks to deliver its mission.

The next stage is to explore the application of the best value approach to construction project procurement. As has been highlighted, there is a significant difference between the meaning of best value for the business enterprise and the public sector procurement.

3.0 'BEST VALUE' IN CONSTRUCTION PROJECT PROCUREMENT

3.1 The Business Enterprise

The Business Enterprise exists to: 'Return Improved Value to the Shareholder'. 'Best Value' in the business enterprise therefore requires that all actions, decisions and activities relate to this reason for existence. Best value can, therefore, be understood in terms of the reduction to a common denominator of financial measures. These measures will be different for the property developer and, for example, the institutional investor, but both are interested in short or long term financial returns.

3.2 Public Sector Construction Project Procurement

- 'Best Value' must relate to the 'reason for existence' of the entity that it relates to
- 'Best Value' must take a systemic view of the entity
- 'Best Value' in public sector procurement is considerably more complex than that for the business enterprise

3.2.1 Lowest Bid Procurement

"Over the last 20 years the predominant procurement process in construction has been the competitive "low bid" procurement process." (Kashiwagi and Byfield, 2002).

"The low-bid process has not produced the results facility owners require. It has produced low quality work, adversarial working conditions, a high incidence of contractor-generated change orders, claims, litigation and increased project management costs." (Kashiwagi and Byfield, 2002). "Low price awards motivate contractors to provide minimally acceptable construction products" (Kashiwagi and Byfield, 2002). "Increased volume with lower profit margins brings higher risks and lower levels of quality "(Kashiwagi and Byfield, 2002). "Construction contractors develop detailed bids, carefully reviewing each detail in the solicitation to calculate the minimum cost proposal. Selection of the low bidder theoretically selects the contractor with the most innovative, cost effective solution to the problem" (Gransberg & Ellicott, 1996). A low bid could also indicate a quality contractor with excess capacity or one already mobilised in the area. In any event, a low bid award does exactly what the name implies; it selects the contractor promising to construct the facility at the lowest construction cost (Crowley & Hancher, 1995 cited in Gransberg and Ellicott, 1996) This approach has several obvious advantages:

- Simplified though time consuming, solicitation preparation and review
- Simplified selections process – the lowest responsive, responsible offer wins

Conversely disadvantages of the low bid contracting include that:

- It makes a selection decision based solely on price
- It assumes perfect (unambiguous) plans and specifications
- It assumes that minimum requirements meet the customers needs and that exceeding minimum standards does not enhance the project
- The process may select a contractor buying into the contract with a low bid

"Construction cost containment becomes the major focus of effort, often resulting in extended construction periods, omitted features and reduce project functionality. Other considerations become secondary" (Gransberg & Ellicott, 1996).

"The US federal government's procurement system has long been saddled with regulations that push federal contracting officers to award construction projects to the apparent low

bidder. Consequently, a federal construction contracting paradigm has been built around the low bid mentality. Low bid is also easily defensible from a procurement policy standpoint. The people charged with managing projects have known for a long time that the lowest bid does not always constitute the best value for the taxpayer” (Gransberg, 1997).

“the combined effect of the price pressures, low level of craftsperson skill, minimum standards and lack of competitive advantage given to performance, has reduced the low-bid or design-bid-build delivery system to ultimately a ‘lose-lose’ situation, resulting in the following (Kashiwagi and Byfield, 2002):

1. Designers are forced to produce regulatory documents that direct the contractor on how to accomplish the construction.
2. The facility owner’s representative is forced to make decisions on acceptable performance, which results in the responsibility to manage contractors
3. Contractors are forced to make a profit by providing the ‘cheapest’ possible construction
4. Manufacturer constantly modify their systems to be more competitive
5. Owners are unable to differentiate high-quality from low-quality contractors owing to the lack of performance information, and as a result perceive that the lowest priced contractor is the ‘best value’

No thought is given to the future impact of the cost decision and the history of cost and time growth that is experienced when a minimally qualified contractor attempts to tackle a project that is beyond its technical, managerial and/or financial capacity. The worst possible case is a default, which causes the government to reprogram funds to complete and unfinished project” (Gransberg, 1997).

“The most common problem does not involve default. It generally takes the form of a minimally qualified contractor attempting to provide the minimum project quality to avoid losing money on the project” (Gransberg, 1997). And quality disputes as the contractor uses every contract clause to minimize its potential loss (Gransberg, 1997). “Therefore, every ambiguity will be used to reduce the overall quality of the completed project that, once completed, is occupied by a dissatisfied customer, resulting in another black eye for the federal construction agency. Additionally, a check of the final cost of the project will probably show that it cost more than the bids of the unsuccessful bidders” (Gransberg, 1997).

The most important element in construction procurement is contractor selection. Particularly, hiring contractors who are performers (Kashiwagi and Byfield, 2002). Why then do facility owners continue to select non-performing contractors? (Kashiwagi and Byfield, 2002)

3.2.2 Best Value Procurement

In the last five years, owners have searched for procurement processes to minimise the risk of contractor non-performance. These potential solutions include design-build, pre-qualification, construction management at risk, and job contracting.

To minimise the risk of non-performance the following should be accomplished (Kashiwagi and Byfield, 2002):

- Win-win environment: The expectations of the owner must be met by the capability of the contractor. The owner will minimise their risk only when the contractor minimises their risk. The owner must know that the contractor can perform and the contractor must meet the owner’s expectations while making a profit.
- Maximum value: Performance must be considered along with price

- Self motivation of contractors to increase performance: Contractors must be motivated to do better construction on every job regardless of the owner's expectation.
- Free market system: Contractors must compete based on price and capability of performance.
- Minimise the difference of perception and expectations: The expectation level of both the owner and contractor must be identified, with the selection of the contractor with the closest expectation that the owner can afford as the 'best value'
- Minimum control: Management theory has proved that external control by the owner and attempting to increase the contractor's capability (false expectation caused by bias) are ineffective, costly and increase risk.

3.3 Change Needed In Australian Industry

Kenley, London and Watson (1999) suggest the construction industry has been dominated by procurement methods that encourage short-term competitive behaviour, driven almost solely by price competition.

The Australian public sector has, through its peak council, the Australian Procurement and Construction Council (APCC), explored the future of the Australian construction industry. In a report titled *Construct Australia* (APCC 1997), the APCC outlined a vision of future directions for the construction industry, with the general purpose of targeting "breakthrough change". This was to be achieved through tackling underlying issues, such as the industry's adversarial culture, the general under-capitalisation of enterprises, and the fragmentation inherent in the industry and its processes (Kenley, et al.1999)..

To ensure change in the industry, it is necessary for influence to extend down the supply chain. Specifically construction supply chain procurement is the strategic identification, creation and management of critical project supply chains and the key resources, within the contextual fabric of the construction supply and demand system, to achieve value for clients (London and Kenley 1999: p110 cited in Kenley, et al., 1999).

3.4 US Public Sector Best Value Procurement

US Federal and State suggest that:

"The ultimate goal of best value procurement methods is to combine the twin goals of promoting efficiency of private construction contracting and taxpayer trust in the procurement process".

In certain acquisitions the government may select the source whose proposal offers the greatest value to the government in terms of performance and other factors. Government procurement officials authorize best value procurements where the quality performance over and above the minimum acceptable level will enhance mission accomplishment and be worth the corresponding increase in cost (Gransberg & Ellicott, 1996).

Best Value contracting – contracting procedures focused on early identification of key features and solicitations evaluation the timeliness, quality and past performance to reduce total cost. Low bid alone no longer guaranteed success (Gransberg & Ellicott, 1996).

Best value contracting ties all these initiatives together through quality based contracting. Successful best value contracting requires (Gransberg & Ellicott, 1996):

- Early determination of key parameters (features, completion date, security requirements, mobilization sites etc) – Time and money are interchangeable at this point.
- Development of performance requirements – the project execution team must prioritise key project criteria. Minimising project requirements maximizes contractor innovation and choices among alternatives.
- Development of evaluation criteria- the key to successful source selection, evaluation criteria must directly relate to the usefulness of the project and permit a rational trade-off between technical merit and cost.

Best value contracts offer several advantages over low bid procurements:

- Key players agree on important project criteria early in the procurement process
- The contractual relationship focuses on quality and value rather than only on construction cost
- The process encourages contractor innovation and solicits alternative proposals
- Best value contracting meets the customer's needs by selecting a contractor best able to satisfy those needs.

Some disadvantages include the following (Gransberg & Ellicott, 1996):

- The solicitation package requires more time and effort to prepare properly
- The evaluation process becomes more complicated and requires more attention to detail
- The process increases the danger of bid protest and subsequent delay in contract award

Best Value is a quality focused approach to government contracting that often is misunderstood and inconsistently applied. In many cases however the lowest price product or service may prove to be a false economy if, over the long term, there are excessive maintenance costs, late deliveries or quality defects that result in greater overall costs (Scott, 1995).

Government has now directed its focus of the ways to get the most value for its money. Thus we have seen a growing shift to a quality based procurement philosophy. This philosophy encourages consideration of quality factors in addition to price alone and recognizes the government can make trade offs between cost and quality factors and pay a premium for better quality, if it makes good business sense to do so (Scott, 1995). This encourages buying best value supplies and services and endorse the evaluation of past contract performance as a key quality consideration for awarding government contracts. Industry concerns about the largely subjective nature of the best value process (Bail, 1993 cited in Scott, 1995) and the lack of a commonly understood definition (Koch 1994 cited in Scott, 1994) have however led to an increasing number of protests in this area (Lieberman, 1994 cited in Scott, 1995). The CICA Competition in Contracting Act of 1984 established the foundation for the best value approach through its prescribed procedures for the planning, solicitation, evaluation and award of competitive government contracts (Scott, 1995). Primary purpose was to place severe restrictions on the government's use of noncompetitive procedures and thereby enhance opportunities for all responsible sources to compete for government contracts (Scott, 1995).

However, the complexity of the legal interactions that result from Federal and State legislation has been highlighted (Heisse II (2002)), confirming the increased complexity that best value involves

3.5 UK Best Value Public Sector Procurement

3.5.1 Best Value in Construction Not Lowest Cost

In February 2002, UK Construction Minister Brian Wilson stated to local authorities that they must look for best value not lowest cost when judging construction project tenders. Writing in Municipal Journal Mr Wilson said:

"The obsession with getting the lowest price for construction projects wastes money and cheats local communities. Lowest cost does not mean better value. I want Local Government to lead the way and be champions of best value".

"It is essential for both officials and elected members to understand and act on the culture change which has occurred. The pressure to accept the cheapest tender no longer exists. The whole public sector needs to demand more of the industry.

The DTI's Rethinking Construction initiative is a collection and adaptation of principles and practices that continue to serve other industries well. It has a number of key themes.

- Strong client leadership with a full understanding and appreciation of the people you work with and the wider community.
- Maximising the value of building work by bringing the whole construction team together at the start of the project.
- Continuous improvement.
- Forms of contract that encourage collaboration and co-operation rather than confrontation and litigation.
- Incentives for the supply chain to deliver process and product improvements.
- Measuring performance and sharing information and experience.

Mr Wilson added:

"Lowest price is easy but time and time again it fails to achieve best value. Rethinking Construction presents a challenging agenda for change. The prize is significant. Rethinking Construction Demonstration Projects have consistently outperformed industry averages in terms of cost, time, predictability, defects and accidents.

4.0 OUTLINE FRAMEWORK FOR BEST VALUE

4.1 Operational Definition For Best Value

The operational definition that has been developed for an approach to best value in Australian public sector construction project procurement is:

Best Value in a Public Sector Construction Procurement context is achieved when the outcomes are at worst neutral in their effect on other government policies.

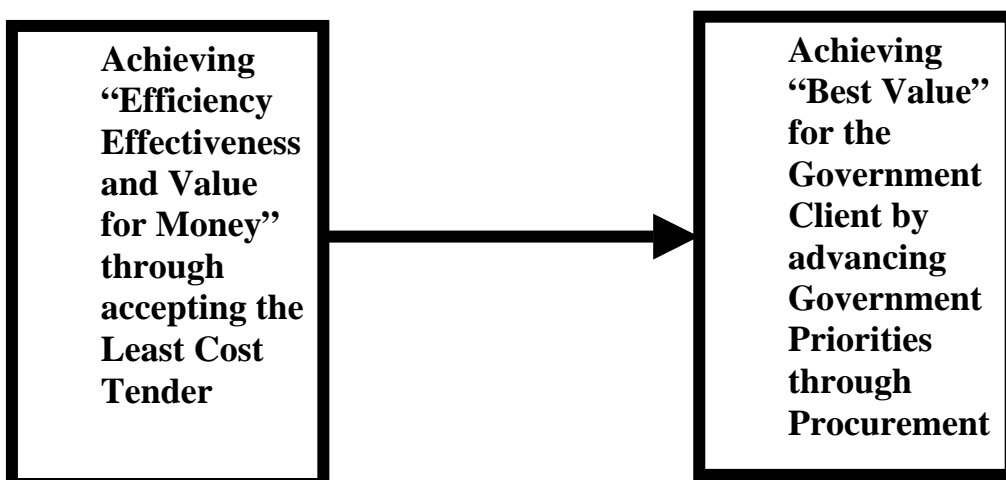
Clearly the intention of Best Value Public Sector Procurement is to not undermine any other government policy intentions. Whilst Procurement of Construction is closely linked to the policies and strategies within Government it is not the sole reason for Government Existence. Government exists for the broader reasons explored above. Whilst it does not exist solely for the purpose of Procurement, Construction has the potential to contribute to the achievement many government objectives. As has been indicated earlier, there is the potential to leverage support for other government objectives through incorporating those other government objectives in the best value framework. Best value in the public sector in UK and Australia has been descriptive rather than prescriptive. Guidance has contained descriptions of the elements that best value should contain but not prescribed any one way of achieving it, acknowledging that best value can take many forms.

Using the above definition of best value presents opportunities to leverage the following benefits from the procurement process:

- Change the rules (genuine innovation)
- Deliver more than just construction projects to the community
- Culture change in the industry
- Trickle down effect to subcontractors

Figure 4.1 illustrates the procurement role change that this approach enables.

Figure 4.1: The Procurement Role Change



4.2 Linking Purposes Of Government To 'Best Value'

The link between best value and government priorities must be through policy:

- Purposes of Government
- Policies of Government

Figure 4.2 illustrates the process that connects the political intent with the enactment of legislation.

Figure 4.2: Political/Public Service Interface

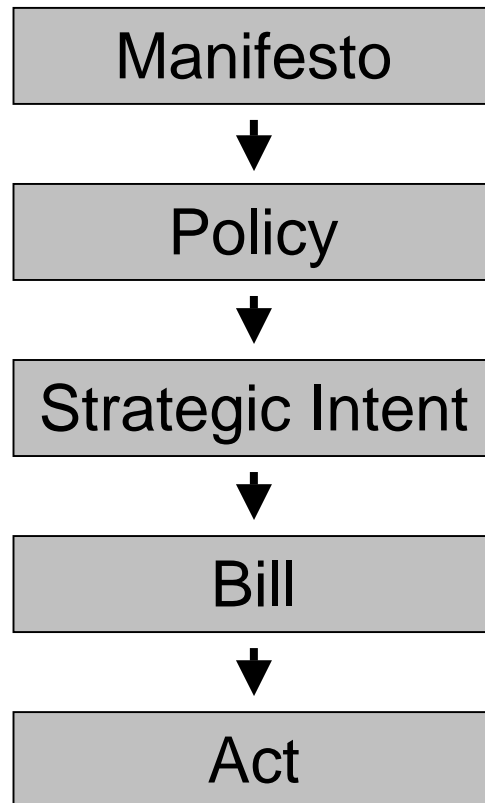


Figure 4.3: The link between policies of government, purposes of government and acts of parliament

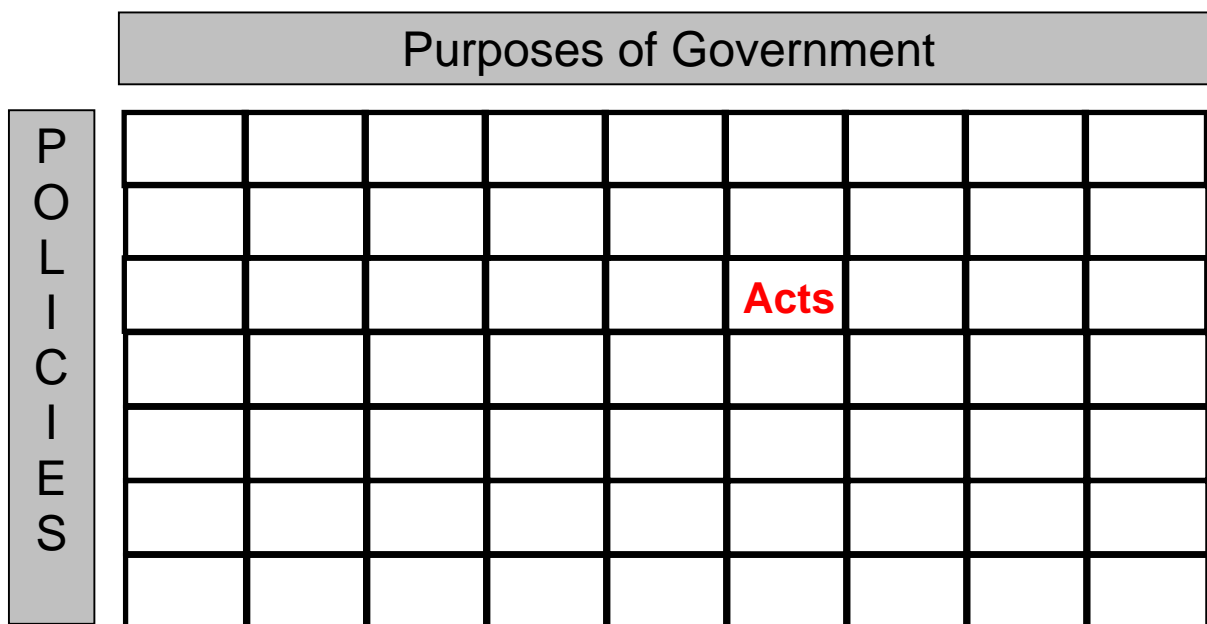


Figure 4.3 shows how government, through enacting legislation, translates its policies into acts of parliament which can then be resourced and the political intents underpinning the acts can be enabled and deployed.

4.3 Politician/Public Servant Interface

- Politicians set Priorities and Areas for Policy Focus.
- Politicians vote funds for Policy deployment.
- Public Servants identify programs, projects and activities that will address the priorities.
- Public servants allocate the funds voted by Parliament through budget processes.
- Public servants can only spend funds in a way specifically enabled by Parliament and only for the purpose for which the funds were voted.

Thus, there is a well defined set of protocols that link expenditure through legitimising legislation to the political intent described in the manifesto on which the government has sought electoral support.

Figure 4.4 illustrates how the allocation of resources to project and programs enable activities to be resourced, resulting in outputs that result in outcomes that eventually produce an impact. Figure 4.5 illustrates how the usual approach is to proceed from the left side of the diagram to the right side. However, in linking outcome performance indicators with best value, it is necessary to identify the impacts being sought and then trace those back through outcomes, outputs, activities and the resource allocation process.

Figure 4.4: The link between resource allocation and Impact (Kellogg)

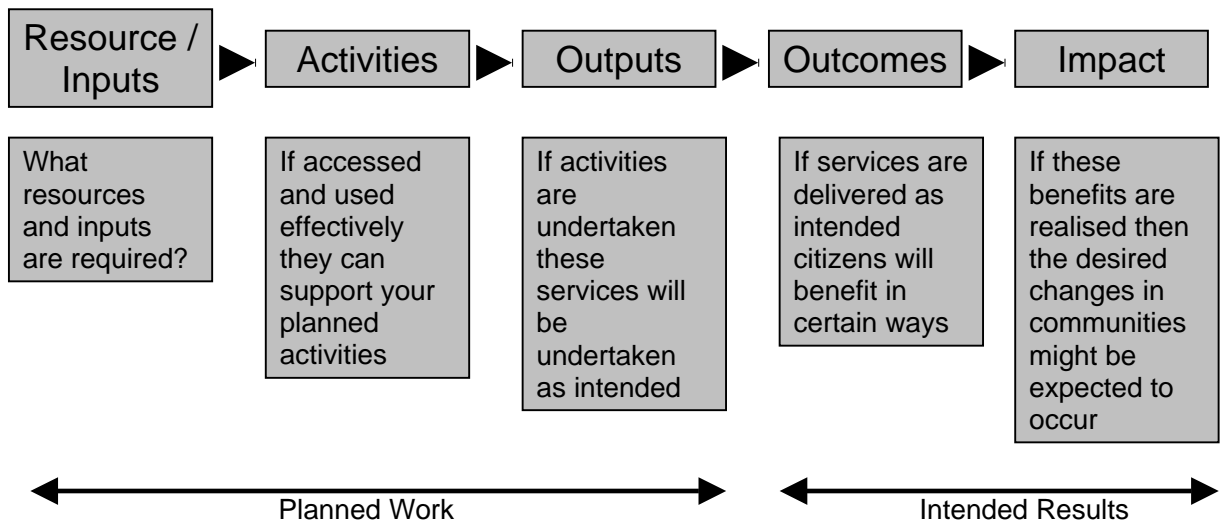


Figure 4.5: The usual approach to public sector procurement

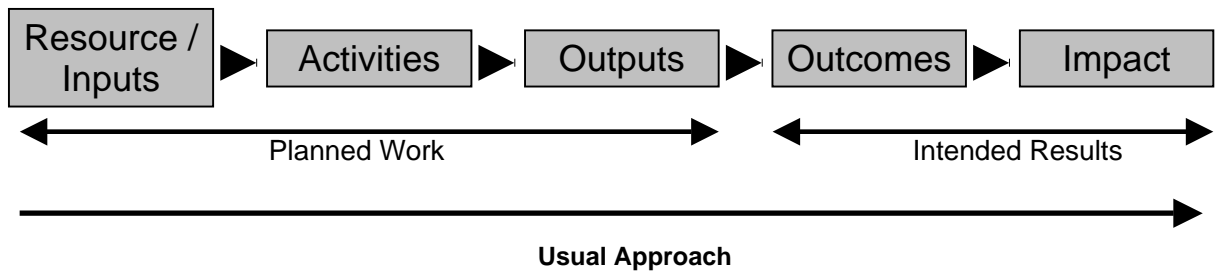
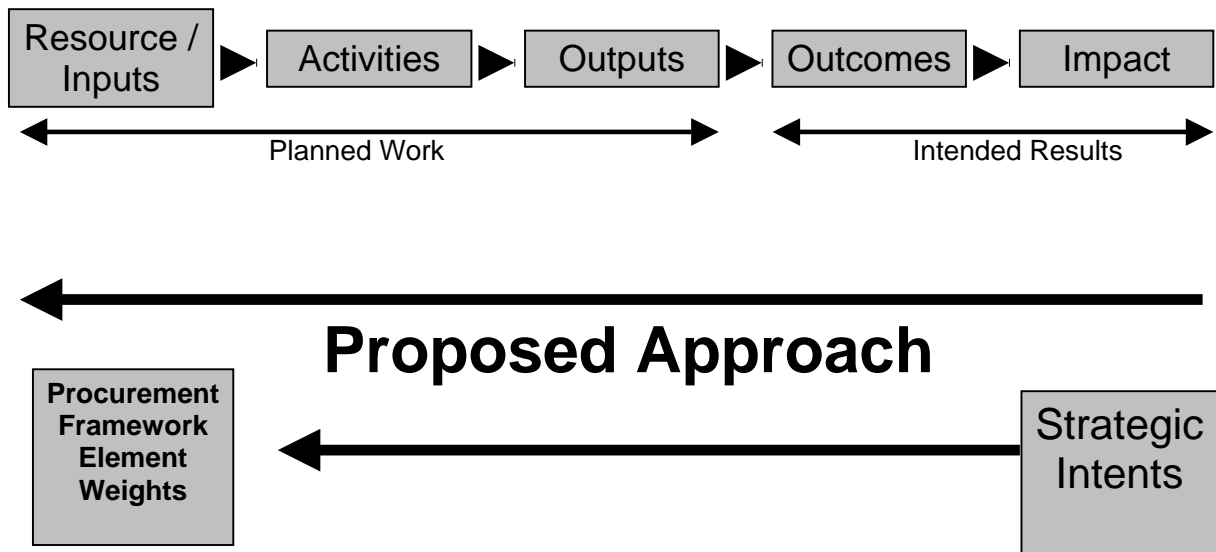


Figure 4.6: Proposed 'Best Value' Framework in Public Sector Construction Procurement



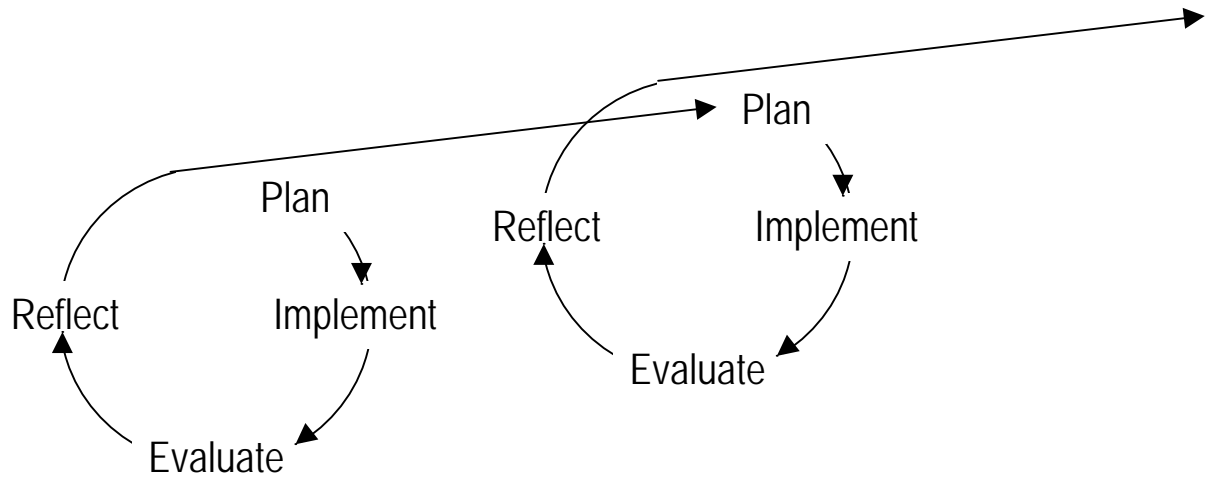
4.4 Essence Of The Best Value Framework Research Proposal

The best value framework proposal is based on identifying the strategic intents of a government entity and deriving from those tangible outcomes that relate to the strategic intents. The outcomes that are being sought will vary depending on the context. For example, the outcome being sought may involve social inclusion, equity and employment opportunity for indigenous people as a result of a construction project being carried out in Far North Queensland. It may also seek to support the economic and social sustainability of regional businesses as part of the government's sustainable regions agenda. These outcomes would be accommodated in the best value framework for this particular construction project procurement brief. Contractors would respond to the brief indicating how they would address the additional criteria and provide numerical values for the number of indigenous people who would be employed and the proportion of the value of the contract that would be subcontracted to local firms. These values would be able to be audited and verified in the course of the contract with an element of the total value withheld until the outcomes are audited successfully.

The proposed research project will have the following steps:

1. Development of a comprehensive Best Value Framework
2. Pilot implementation with industrial partners
3. Evaluation and further development of Framework

Figure 4.7: Proposed Best Value Framework Research Project



The research project proposal incorporates two or more plan – implement – evaluate - reflect cycles to enable a robust framework to be tested and refined in the real world environment.

5.0 CONSTRUCTION INDUSTRY SME PERFORMANCE MEASUREMENT AND IMPROVEMENT

The supply chain in the construction industry is less well developed than in manufacturing. This project proposes to bring world class international business profile benchmarking to assist in the development of small and medium sized (SME) subcontractors. This approach has been widely used in Europe and has enabled significant sectoral supply chain development.

The construction SME supply chain is a critical component in the delivery of all construction projects. Furthermore, it undermines the sustainability of the individual enterprise and puts construction projects and jobs at risk. Government procurement agencies view this as construction industry capacity building.

In the developed and developing worlds, SME sector firms routinely make up over 95% of companies. The construction industry supply chain is dominated by such firms. Supply chain development and capacity building have been largely neglected in the construction sector, despite rhetoric about the importance of the SME sector to the economy Love, Li, Irani & Faniran (2000) write:

If the Australian construction industry is to address the recommendations of the Construction Industry Development Agency (CIDA, 1995), and New South Wales Royal Commission (NSW, 1992) and improve its performance and competitiveness, then there needs to be a cultural and behavioural shift in the mind-set of practitioners, academics and the professional institutions.

The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets and development processes (Chan & Chan, 2004). Sanvido, Grobler, Pariff, Guvents & Coyle (1992) in Chan & Chan (2004) identified that a building project is completed as a result of a combination of many events and interactions, planned or unplanned, over the life of a facility, with changing participants and processes in a constantly changing environment.

Li, Cheng, Love & Irani (2001) indicate that the market and organisational structure of the construction industry is highly fragmented and divisive. Construction projects are organised by different parties linked hierarchically together by contracts. These parties include clients / owners, architects, engineers, general contractors, sub-contractors, suppliers etc. They possess various skills and knowledge although they belong to the same industry. Because of the diversity of these parties, they tend to have their own goals and objectives, which can be conflicting and may induce adversarial relations.

Whilst many characteristics can affect the effectiveness of project teams and project completion, the concept of project success means many different things to many different people. Measuring project success and improvement has been just as wide-ranging. Quality assurance and certification, total quality management (TQM), quality awards and business excellence frameworks, business performance measurement and key performance indicators, balanced scorecard and benchmarking are some the more common methods used within the construction industry. This report, essentially a literature review, will look at international construction industry engagement with these improvement tools.

5.1 Criteria Of Project Success

The extent of progress that a construction enterprise can make towards achieving its goals must be measured on a periodical basis using facts and data.

Construction time has been acknowledged by construction researchers and industry practitioners over the past three decades as one of the most important performance criteria of many successful projects (Chan & Chan, 2004).

Performance measurement systems historically developed as a means of monitoring and maintaining organisational control, which is the process of ensuring that an organisation pursues strategies that lead to the achievement of overall goals and objectives (Nanni, Dixon & Vollmann, 1990, cited in Amaratunga, Baldry & Sarshar, 2001). Performance needs to be measured in relation to the objectives or goals identified in the business planning processes.

5.2 Quality Assurance And Certification

How do you transform the construction industry from a fragmented and poorly organised industry to a fully streamlined and globalised industry that can competitively meet the needs of construction customers globally? Jaafari (2000) suggested that the answer that many governments and owners of businesses around the world had in 1988-1995 was simple, force businesses to operate under the then newly released ISO 9000 series quality assurance (QA) standards. The adoption of QA standards worldwide was a manifestation of the belief that managing the delivery process would ensure a quality outcome.

Nwanko (2000) indicated that quality management strategies in small firms largely revolved around quality accreditation schemes, that is, ISO 9000-type systems.

Rao, Raghunanathan, Skrabec, Aurora & Agrawal (1998) reported that the key benefits for implementing ISO 9000 were:

- Improvement in quality awareness;
- Improvement in documentation;
- Improvement in standard operating procedures;
- Improvement in accounting practices;
- Ability to sustain market share; and
- Ability to increase market share.

Various researchers have reported additional organisational benefits for those aspiring to and achieving certification to ISO 9000. Kean, Schofield and Oxley (1995) report that 80% of respondents to their survey indicated that quality assurance certification had generally benefited their business and that 58% believed that quality assurance had led to increased profitability. Ramsay (1998) writes that other benefits have been reported by Brown and van der Wiele (1995), Kean et al. (1995) and Pyra & Preston (1996) as:

- Profitability;
- Less waste;
- Maintaining or increasing market share;
- Marketing tool;
- Improved processes;
- Improved customer focus;
- Better human resource practices;
- Better supplier relations; and
- Better product quality.

Jones, Arndt & Kustin (1997) also suggested that organizations that have had quality systems in place for some time perceive greater benefits than those considering implementation or who have only recently achieved certification.

Love and Li (2000) reported that:

'Serendipitous findings are reported from an on-going research project that seeks to determine the effectiveness of quality assurance systems certified under the ISO 9000 series in Australian contracting organisations. In Australia, certification has become mandatory for all organisations wishing to do business with government agencies and major private companies. While certification was designed so that purchasers could have confidence in the quality of the vendor's product or service, not all organisations have been able to implement certification processes in a way that supports the original intent. Instead, most construction organisations have opted to go through the motions without an underlying sustainable continuous improvement philosophy. They simply wish to gain marketing benefits, while others have been overcome by the mass of paperwork required for achieving the quality 'seal of approval'.

A number of other challenges or barriers to implementation of quality systems and certification were reported. These have included:

- Employee resistance;
- Lack of information;
- Additional (quality) documentation;
- Limited resources (Rao et al., 1998); and
- Costs (Ramsay, 1998).

Kumaraswamy & Dissanayaka (2000) reports that within the Hong Kong construction industry that client driven pushes for ISO 9000 certification have overtaken any spontaneous 'pull factors' (motivators) towards quality improvements 'for their own sake'. The need for ISO 9000 certification as a prerequisite for even being considered for public sector construction works appears to have distracted some organisations from a more comprehensive organisation-specific development of their quality management system.

Implementing quality assurance is perhaps only the first hurdle of quality management that an organisation must address if it is to adopt the learning disciplines. Terziovski, Samson & Dow (1997) found that merely implementing QA does not improve organisational performance. Only when a continuous improvement philosophy is used in conjunction with an effective QA system will organisational performance improve (Oakland & Sohal, 1996, p. 18).

5.3 Total Quality Management

Total quality management (TQM) provides the overall concept that fosters continuous improvement in an organisation. TQM is an approach to improving the competitiveness, effectiveness and flexibility of a whole organisation. It is essentially a way of planning, organising and understanding each activity, and depends on each individual at each level (Oakland & Sohal, 1996, p. 18).

Love et al. (2000) writes that TQM has not been well received by the construction industry because it is perceived to be synonymous with QA. Consequently, construction organisations have not progressed to implement continuous improvement initiatives, and therefore the potential for learning has been inhibited.

Sommerville & Roberston (2000) suggest that within the construction industry there exists a set of resistance forces which may be perceived as specific to the industry's adoption of holistic TQM. This dysfunctional set may be considered as containing five broad sub-headings (Sommerville, 1994):

1. Product diversity – each construction is unique.
2. Organisational stability – consistently high number of organisational collapses in the construction industry.

3. Holonic networks and change – the projects are often very large, seldom situated in the same location and still predominantly labour intensive.
4. Contractual relationships – majority of projects executed will be carried out under some form of contract, of which there is a plethora.
5. Teamwork and management behaviour – teamwork (or the absence of it) and management behaviour may be the more cogent factor in establishing the success of TQM within the industry.

5.4 Quality Awards And Business Excellence Frameworks

In an era where global competition is highly intense, different countries apply quality methodologies in the form of strategic quality management, quality systems, quality assurance and quality control in order to gain or sustain a competitive edge (Puay, Tan, Xie & Goh, 1998). Tan (2002) goes further and writes:

Quality is no longer confined to the quality of a product or a service. It applies to delivery, administration, customer service and all other aspects of company activities. Quality encompasses all the ways in which a company meets the needs and expectations of its financial stakeholders, its customers, and the community in which it operates.....National quality awards (NQAs) are a means by which countries at a national level promote quality awareness.

Three awards have played a key role in the development of NQAs. They are the Deming Prize (Japan), the Malcolm Baldrige National Quality Award (USA) and the European Quality Award. Many countries have modelled their award programs on these awards. Tan (2002) indicates that NQAs typically contain seven to ten examination criteria and a further 20 to 30 sub-criteria.

The Australian Business Excellence Framework (ABEF) was developed in 1987 and was one of the first four global excellence frameworks. It was initially developed in response to Commonwealth Government and general industry calls for Australian enterprises to be more efficient and competitive. The Framework is reviewed and updated annually by a Committee formed of management and leadership experts to reflect the latest in management thinking and practice.

The Framework was developed with the objective of describing the principles and practices that create high performing organisations. The criteria could then be used by organisations to assess their performance and drive continuous and sustainable improvement in their leadership and management systems.

The Framework is also used as the assessment criteria for the Australian Business Excellence Awards (ABEF), organisations can be recognised for their achievements in excellence and improvement.

ABEF is Australia's Framework for innovation, improvement and long term success, applicable to all organisations, large and small, private and public, whatever their purpose. The Framework has been designed to assist organisations to measure current performance and build a pathway to long-term success (Business Excellence Australia, 2004).

The ABEF describes the principles and practices of high performing organisations and contains collective intellectual capital and business wisdom gathered over 15 years. The current edition has been streamlined to refocus organisations on the importance of the set of 12 time-honoured principles of leadership and management. The Framework also identifies 7 interrelated Categories that emphasise the holistic nature of the model. Success can only be maximised if organisations have in place sound systems and processes for all seven.

Figure 5.1: Australian Business Excellence Framework



Source: *Business Excellence Australia, 2004*

Leading Australian and Australian based organisations use the Framework to improve management and leadership practices, assess the performance of their leadership and management systems, build those results into strategic planning processes and benchmark where their organisation stands in terms of the marketplace and competitors.

The Framework has been built on time-honoured and tested principles of leadership and management, known as the Principles of Business Excellence. These Principles, which have evolved over the past 50 years, are supported by a body of published research that underpins all similar frameworks throughout the world. They form the basis of a unified theory of management.

The 12 Principles of Business Excellence, when understood and applied across the organisation, provide a powerful and integrated philosophy of leadership. Organisations that live by these principles can create best practices across the whole management system. The Framework is an integrated leadership and management system that describes the essential features, characteristics and approaches of organisational systems that promote sustainable, excellent performance. Application of the Principles, through the Categories and Items of the Framework can guide organisational improvement and success.

The ABEF complements other management systems such as ISO 9001:2000, Investors in People, Balanced Scorecards, Business Process Re-Engineering and Organisational Performance Measurement, providing an umbrella under which any or all of these programs can be brought together to form one coherent, cohesive whole.

Figure 5.2: The 12 Principles of Business Excellence

1. Clear Direction	Clear direction allows organisational alignment and a focus on the achievement of goals.
2. Agreed Plans	Mutually agreed plans translate organisational direction into actions.
3. Customer Focus	Understanding what clients value, now and in the future, influences organisational direction, strategy and action.
4. Improve Processes	To improve the outcome, improve the system and its associated processes.
5. Involve People	The potential of an organisation is realised through its people's enthusiasm, resourcefulness and participation.
6. Continual Learning	Continual improvement and innovation depend on continual learning.
7. Systems Thinking	All people work in a system; outcomes are improved when people work on the system.
8. Use Data Effectively	Effective use of facts, data and knowledge leads to improved decisions.
9. Understand Variation	All systems and processes exhibit variability, which impacts on predictability and performance.
10. Community Impact	Organisations provide value to the community through their actions to ensure a clean, safe, fair and prosperous society.
11. Stakeholders Value	Sustainability is determined by an organisation's ability to create and deliver value for all stakeholders.
12. Role-model Leadership	Senior leadership's constant role-modelling of these principles and their creation of a supportive environment to live these principles, are necessary for the organisation to reach its true potential.

Source: *Business Excellence Australia, 2004*

5.5 Balanced Scorecard

The balanced scorecard (BSC) is a widely used management framework for the measurement of organisational performance. The BSC concept suggests that the state of processes of an organisation can be best assessed by taking a 'balanced' view across a range of performance measures (Amaratunga, Baldry & Sarshar, 2001). Barsky & Bremser (1999) indicate that the BSC was introduced as a model for implementing strategy by Kaplan and Norton. It is designed to be a strategic management system that enables organisations translate strategic goals into relevant measures of performance. Financial and non-financial measures are indicators of the extent that strategies are successfully being implemented throughout the organization, and whether strategic goals are being achieved.

The Kaplan and Norton model of the BSC viewed the organisation in four perspectives that were designed to link short-term operational control to the long-term vision and strategy of the business (Amaratunga et al., 1995). These perspectives were:

1. Financial – How do we look to our shareholders?

2. Internal business processes – What must we excel at?
3. Learning and growth – How can we continue to improve?
4. Customer – How do our customers see us?

Ernst & Young (1997) identified the ten most important non-financial measures or metrics as:

1. Strategy Execution.
2. Management Credibility.
3. Quality of Strategy.
4. Innovativeness.
5. Ability to Attract Talented People.
6. Market Share.
7. Management Experience.
8. Quality of Executive Compensation.
9. Quality of Major Processes.
10. Research Leadership.

Barsky & Bremser (1999) suggest that these metrics can be easily tied into routine planning and budgeting in a balanced scorecard environment. Under such conditions, the budget is considered to be much broader in scope, reach well beyond financial performance.

When it comes to implementing the BSC, Roest (1997) suggested the following rules:

1. There are no standard solutions; all businesses differ.
2. Top management support is essential.
3. Strategy is the starting point.
4. Limited and balanced number of objectives and measures.
5. No in-depth analyses up front, but refine and learn by doing.
6. Take a bottom-up and top-down approach.
7. It is not a systems issue, but systems are an issue.
8. Consider delivery systems at the start.
9. Consider the effect of performance indicators on behaviours.
10. Not all measures can be quantified.

5.6 Benchmarking

Benchmarking of best practices has proved useful in the business and manufacturing sectors. However, benchmarking is not well established in the construction industry in general. Mohamed (1996) suggests that benchmarking is not a straightforward task due the very nature of the construction business which lacks solid data gathering and remarkable fluctuation in productivity. Benchmarking only works if consistent methods of measuring the performance of operations can be develop and introduced. However the UK construction industry has identified benchmarking as one of a number of initiatives to assist in the drive for major improvements in efficiency and economy (Garnett & Pickrell, 2000).

Jaafari (2000) states:

Knowledge of current management tools and techniques will no doubt prove useful in the quest for transforming business. However, no long lasting effect can be expected unless attention is paid to the fundamental principles and practices that govern organisational behaviour, including the views an organisation has of its customers, competitors, and itself.

Winch & Carr (2001) reinforce that construction is an increasingly global industry, and benchmarking initiatives that are restricted to a single country run the risk of complacency, as national best practice falls out of line with international best practice.

Amaratunga et al. (2001) engenders the thought that the importance of performance management in an organisation has been emphasised by many authors. Oakland (1983) cited in Sinclair & Zairi (1995) suggests that measurement plays an important role in quality and productivity improvement to:

- Ensure customer requirements have been met;
- Provide standards for establishing comparisons;
- Provide visibility and provide a 'scoreboard' for people to monitor their own performance levels;
- Highlight quality problems and determine which areas require priority attention;
- Give an indication of the costs of poor quality;
- Justify the use of resources; and
- Provide feedback for driving the improvement effort.

The challenge has been to identify where to start and what measures to use. Li et al., (2001) suggest that co-operative benchmarking should be used as a tool for achieving partnering excellence in construction projects. They developed an eight-stage process (COBAP) which can be used to improve the performance of parties entering into partnering agreements. This process can be described as:

1. Developing the COBAP team.
2. Planning what to be improved.
3. Comparing the current performance gap.
4. Gaining commitment to the needs of change.
5. Developing action plans.
6. Implementing actions and monitoring progress.
7. Feedback to the implemented change.
8. Achieving superior performance.

If superior performance is achieved then the process starts again with a new team and performance gap. If the problem is not resolved then a new action plan is developed and the process continues. This process facilitates collective learning which can sustain a competitive edge.

6.0 INTERNATIONAL BUSINESS PROFILE BENCHMARKING

The International Business Profile Benchmarking instrument which was initiated in the United Kingdom as the UK Benchmarking Index and has been developed into a diagnostic instrument for European small and medium sized firms has been successfully piloted in Australia. Dalrymple (2000) writes that the owner managers of the Australian companies which participated in the research program confirmed the validity of the instrument for their particular business.

6.1 The United Kingdom Benchmarking Index

The input data requirements for the generation of the company's profile consists of several elements which have been derived from, for example, *Management Today's* Best Factory Awards. These are Financial Revenue and Costs, and Financial Capital which form the financial data set and a Management Data set. Each of these areas has a number of elements for which data is required. Each element is accompanied in the data capture instrument by an explanatory definition. For manufacturing firms, there is an additional module which addresses competitiveness issues in manufacturing operations, including component and assembly set-up times. Only the main instrument will be dealt with in this paper.

6.1.1 Input Data Requirements

Financial Revenue and Costs Data: Home Turnover, Export Turnover, Pre-tax profit, Depreciation, Value of bought in materials, Employee remuneration, R & D expenditure, Training expenditure, Marketing expenditure, Interest paid

Financial Capital Data: Fixed assets, Capital investment, Stocks/inventory, Debtors, Cash-in-bank, Total assets, Creditors, Short term loans, Other current liabilities, Long terms loans, Other long terms liabilities, Shareholder's funds.

Customer Satisfaction Data: Number of customers, Number of orders, Number of orders not delivered when promised, Number of customer complaints, Order value of customer complaints, Orders failed before delivery, Orders rejected by customer.

Innovation Data: Turnover from new products/services, Turnover from new market segments, Turnover from new geographical markets, Number of new customers.

Suppliers Data: Number of suppliers, Value of supplies delivered on time, Value of supplies rejected at delivery.

People Management Data: Number of Managers, Number of management levels, Total number of days training per year, Number of new employees, Number of graduates, Employees directly involved in provision of service/product.

People Satisfaction: Number of leavers, Number of leavers within 6 months, Absenteeism rate (number of days), Number of accidents/incidents.

Business Excellence Data:

The business excellence elements relate to the headings recognised by the international business excellence community, namely: Leadership, Policy and Strategy, People Management, Resource Management, Business Processes, Customer Satisfaction, People Satisfaction, Impact on Society, Business Results. The data relating to these elements are qualitative data which depend on the management's perception of anything from three to five questions which have multiple choice answers.

The data requirements are, therefore, not excessively onerous for the small and medium companies. The financial data would be of the type that would be routinely collected for statutory reporting to the taxation authorities. Other data elements would be required for

statutory reporting purposes, for example, under the occupational health and safety legislation. The data can then be used to produce comparisons with international companies which have a similar turnover, number of employees operating in a common industry sector.

6.1.2 The Report

The output of the comparisons is contained in a report which provides a graphical comparison and a table showing best in class, worst in class, lower and upper quartiles and the average for the following measures:

Profitability Measures: Pre Tax Profit / Turnover, Return on Capital Employed, Return on Net Assets, Return on Total Assets, Value Added , Value Added / Net Assets , Turnover / Orders

Financial Management Measures: Short Term Assets/Current Liabilities , Gross Gearing , Net Gearing , Short Term Debt/Long Term Debt , Pre Tax Profit / Interest, Credit Payment Days, Debtor Days, Stock Turnover, Cash in Bank / Turnover , Turnover /Working Capital

Productivity Measures: Turnover/Overheads, Turnover per Employee, Value Added per Employee, Pre Tax Profit per Employee

Investment Measures: Capital Investment/Turnover,
Capital Investment/Depreciation, Marketing Expenditure/Turnover,
R&D Expenditure/Turnover, Training Expenditure/ Turnover,
R&D Expenditure/Pre Tax Profit, Capital Investment/Pre Tax Profit

Growth Measures: In all cases, two years of data are collected for the financial data. This enables an indicator to be provided for comparisons with growth year on year for the following measures: Turnover, Pre Tax Profit / Turnover, Return on Net Assets, Return on Capital Employed, Capital Investment / Turnover.

Customer Service Measures: Complaints/Orders, Complaints/Customers, Order Value of Complaints/Turnover, Orders Not Delivered When Promised/Orders, Orders Rejected During Warranty/Orders, Orders Failed Prior to Delivery/Orders

Innovation Measures: Income From New Geographies/Turnover, Income From New Market Segments/Turnover Income From New Products / Turnover, New Customers / Total Customers, Total New Income / Turnover.

Supplier Management Measures: Sub Standard Supplies/Bought In Materials, Supplies Delivered On Time/Bought In Materials Turnover/No of Suppliers, Bought In Materials/No of Suppliers.

People Management Measures: Direct/Indirect, Employee/Manager, Graduate/Employee, Number of Management Levels, Total Training Days / Employee, Training Expenditure / Employee.

People Satisfaction Measures: Total Days Lost to Absenteeism/Employees, Accidents/Employees, Early leavers/ Employees, New Employees / Employees, Total Leavers / Employees.

6.1.3 Reporting Back

The report must then be interpreted in the context of the company and its markets, environment and operations. Appropriate and skilled interpretation highlights strengths and weaknesses of the company and this enables the selection of improvement opportunities on a rational basis. The tracing of indicators at the macroscopic business level down to operational level enables potential causes of reduced competitiveness in operations to be identified. Action plans are then drawn up to seek to remedy these causes and improve the overall competitiveness of the enterprise.

6.2 The Case Study

In the case study reported here, managers of a small engineering company that manufactures stainless steel products off site and then installs the off site manufactured prefabricated units. The company, therefore, participated in the main business profile benchmarking process. As an offsite manufacturer, the company also participated in benchmarking for their manufacturing operations. The company has around 30 employees and turns over around AU\$3million. As a business, this company was compared with over one hundred and fifty other businesses with a similar number of employees and similar turnover in the same industry. The firms were from an international grouping including European and Australian companies.

The case study company was average on a number of profitability measures, but in the top quartile for having good sized orders and for adding value on the premises. This reflects the fact that the company buys in basic raw materials and engages in elaborate transformation of these. The company also makes very good use of its working capital. The company performs well on financial management, but less well in all measures of productivity. However, the company has an outstanding performance on customer service and customer satisfaction. The people satisfaction measures are all around the median. The overall concern for the company as a business lies in the fact that it is not strongly profitable and its commitment to customer focus results in the use of significant overtime penalties and there is low profit per employee and turnover per employee.

The manufacturing module indicates that the company has relative weakness in the area of scrap and rework compared to about 25 companies. This contributes to the need for overtime and lower profitability than what is feasible and being achieved by the peer group of companies. Thus, as a manufacturing business, the firm is making a profit, but improvements in the levels of scrap and rework would significantly improve the company's overall performance. The company was, therefore assisted to investigate its operations to identify opportunities for waste reduction.

The Benchmark Index has a Building Engineering Services Contractor's Module Questionnaire that facilitates additional information that is relative to the construction sector. This is in two parts and includes the interaction between the company and its customers and how the project process is carried out by the business. In this case, the case study company was compared with around 60 similar companies and it was clear that the firm had a strong market focus reflected in the fact that it performed well in the percentage of contracts won. It also performed very well on delivery on time, but that was at the cost of exceeding the planned labour costs and failure to achieve anticipated profit.

The SME subcontractor is able to be benchmarked to identify the strengths and weaknesses and in that way, any investment in improvement activity will be targeted on genuine weaknesses as opposed to perceived weaknesses. The important factor in this work is the profile, rather than any individual measure. Some measures provide direct evidence of a particular weakness, and this can be triangulated and confirmed by examination of other measures that are consequences of the actual weaknesses. A similar approach must be taken to the analysis of strengths to ensure that an apparent strength is, in fact, real. If it is, then there will be other confirmatory evidence in the profile.

6.3 Conclusion

The uniqueness, diversity and complexity of the construction industry demands an improvement tool that can establish an organisation's current status across a number of accepted quantitative and qualitative measures. Construction organisations have attempted to use a number of frameworks including ISO 9000 and TQM, National Quality Award (Business Excellence) models, balanced scorecard and benchmarking to assist them to become more competitive and sustainable.

As an instrument, the International Benchmarking Index provides an opportunity for growing SME within the construction industry to understand their strengths and weaknesses across a number of dimensions in order that growth can be firmly based on recognised strengths. It is also essential that barriers to growth which are likely to impede the growing firm are identified. Action can then be taken to address areas of weakness and prepare the firm for successful growth.

For firms that are in the offsite assembly and construction business, there are likely to be significant opportunities to supply into the changing and developing construction industry. However, there are many lessons that need to be accommodated before success is achieved. The manufacturing sector, particularly the automotive sector has pioneered the development of just in time operations management and many of the generic lessons can be learned from that experience. One of the contributors to the improved performance in the automotive supply chain SME sector companies in Europe has been and continues to be the approach based on business profile benchmarking.

7.0 COST OF TENDERING

While there is currently awareness of the cost of tendering and that efforts should be taken to minimise this cost, there is little precise understanding of it in terms of value or how it happens. The cost of tendering is not well understood in the construction industry – or other industries – in Australia or elsewhere in the world. This project proposes to determine the cost of tendering through defining the tendering process in terms of measurable components and collecting sufficient data to understand the costs incurred in each component.

Throughout Australia, government and commercial purchasers of construction works acknowledge that *the cost of tendering is significant and that efforts should be made to reduce this cost*. They further acknowledge the cost of tendering in terms of both their operations and those of the tenderers. Most larger Australian government – local, state and commonwealth – and government departments have produced tendering regulations that include such a clause. These are based on various standards and guidelines such as the *Australian Standard Code of Tendering*, AS4120 (Standards Australia 1994) and *Guidelines for Tendering*, published by Australian Constructors Association (2001).

Notwithstanding the effort to acknowledge the cost of tendering, there is no attempt to quantify this cost. While some organisations have stated policy that there will be "application of some rigor to examining the cost of tendering" (Australian Department of National Defence), when questioned the Director General Contracting Policy and Operations advised that no effort has been made to implement this initiative.

The Commonwealth of Australia (1994) contracted a Costs of Tendering Industry Survey to learn more about the attitudes of suppliers to the tendering practices of the Commonwealth of Australia. About 25 percent of those suppliers who participated in that survey are broadly classified as construction industry. While some recent improvements were acknowledged, a variety of problems are identified with the tendering process – albeit limited to supplying to the Commonwealth of Australia – that suggests a lack of concern for resolving problems associated with the cost of tendering. It seems that there is a reluctance to understand the cost of tendering. Perhaps there are indeed cultural barriers as reflected by Love, Li, Irani & Faniran (2000), who note:

If the Australian construction industry is to address the recommendations of the Construction Industry Development Agency (CIDA, 1995), and New South Wales Royal Commission (NSW, 1992) and improve its performance and competitiveness, then there needs to be a cultural and behavioural shift in the mind-set of practitioners, academics and the professional institutions.

The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets and development processes (Chan & Chan, 2004). This has exceptional consequences during the tendering phase of a project. This, combined with the highly fragmented and divisive nature of the construction industry (Li, Cheng, Love & Irani (2001), makes for a ruthless environment where only the clever and perhaps devious are able to survive.

Bearing in mind the hierarchical and complex linkage of different parties – clients, owners, architects, engineers, general contractors, sub contractors, suppliers, and others – that is assembled to complete a project, it can be expected that some form of assurance would be sought by many of those involved. This is evident in the

observation of the Giles Commission (1992) into the construction industry that collusive tendering in the construction industry is a reality.

"Involvement in collusive and anti competitive behaviour including the surreptitious receipt and payment of special and unsuccessful tenderers fees."

7.1 Previous And Current Research

The literature that does exist is largely anecdotal and conversational explanations of how tendering costs occur in practice. These works come from industry and might be perceived as efforts to influence industry policy makers and politicians. As academic literature they are not necessarily rigorous, but they do provide a source of discursive data and hints of questions for practitioners.

Apart from a current study underway at the University of Reading as referred to in Hughes et al (2001), there appears to be little research into the cost of tendering. Nothing has yet been published by University of Reading and those involved are not yet prepared to release any information. There are indications that initial reports will be released at the end of 2004.

The Commonwealth of Australia (1994) conducted a cost of tendering study that looks at the cost to tenderers of Department of Defence contracts. The survey is not conclusive about the costs of tendering, but does indicate some superficial supplier data and anecdotal opinions. The Commonwealth of Australia (1994) study notes that, while some improvements were acknowledged, a variety of problems are identified with the tendering process – albeit limited to supplying to the Commonwealth of Australia – that suggests a lack of concern for resolving problems associated with the cost of tendering. It seems that there is a reluctance to understand the cost of tendering. Yet, the costs are quite clearly distinguishable if separated into components.

Being a survey conducted by a market research company, it relies on the diligence of those providing answers to questions and assumes they understood the questions and were qualified to provide meaningful responses. The survey does present some ideas about how to structure a more detailed inquiry.

The Giles Commission (1992) into the construction industry raises the issues of collusive tendering in the construction industry.

"Involvement in collusive and anti competitive behaviour including the surreptitious receipt and payment of special and unsuccessful tenderers fees."

The implied message is that the cost of tendering is significant. This has been further substantiated by confidential discussions with construction industry representatives. Some have explained how tenderers for a project enter into an arrangement where they each add an amount which is distributed to unsuccessful tenderers.

7.1.1 Attitudes to Cost of Tendering

A worldwide survey of procurement documentation from a wide range of public and private organisations suggests it is clear that there is an awareness of the cost of tendering. However, in most cases purchasers merely acknowledge that the cost of tendering is significant and to be aware of the internal costs and those incurred by tenderers. Apart from that, there is no effort made to understand these costs.

A typical comment made about the cost of tendering is:

"If contractors are winning typically one tender if four, then we're paying four times the cost of tendering for each contract. The industry needs to find a better way to avoid wasting this money."
<http://www.contructingexcellence.org.uk>

Veterans of mid level construction industry experience have discussed their solution to the expense of tendering in terms of the collusion reported by the Giles Commission (1992). One person interviewed explained that:

"Each company submitting a tender added a certain amount that (in the event of winning the tender) was understood to be distributed among the other tenderers (those who did not win the contract)."

Without a clear understanding of the cost of tendering, an industry wide assumption has been that the cost of tendering is far too high and that it needs to be reduced. This blind sort of groping for meaning has led to a solution to reduce the cost of tendering through pre-qualification of tenderers. However, with a such a vague understanding of the cost of tendering there is an equally vague understanding of the notion of pre-qualification and in some cases there is an expectation by purchasers that tenderers should pre-qualify for each tender. This misunderstanding of the concept of pre-qualification undermines the benefits that could be derived from a well-managed pre-qualification program.

7.1.2 Barriers to Understanding Cost of Tendering

There are barriers to understanding the cost of tendering. Throughout the worldwide construction industry tendering is acknowledged to be complicated, adding considerable cost to construction. Efforts to understand the cost of tendering are confounded by issues that are both visible and invisible to formal accounting of the construction process. This suggests a need to investigate and understand the problems and their causes.

7.2 Implications Uncovered By This Scoping Project

Because of the diverse activities undertaken by constructors and limitations of accounting categories, expenses associated with tendering are difficult to capture and quantify. These problems are explained through examples. Even in those cases where there are genuine intentions to capture costs of tendering there is a failure to do so. It appears that implementation difficulties are so insurmountable that either people do not bother or management redirects effort from collecting cost of tendering data. It is also shown that the expense of tendering and uncertainty of outcomes leads tenderers to engage in concealed behaviour to reduce the uncertainty and cost associated with tendering. That is, collusion. For this reason especially, it is concluded that tendering and associated costs need to be understood in greater detail.

7.3 The Tendering Process

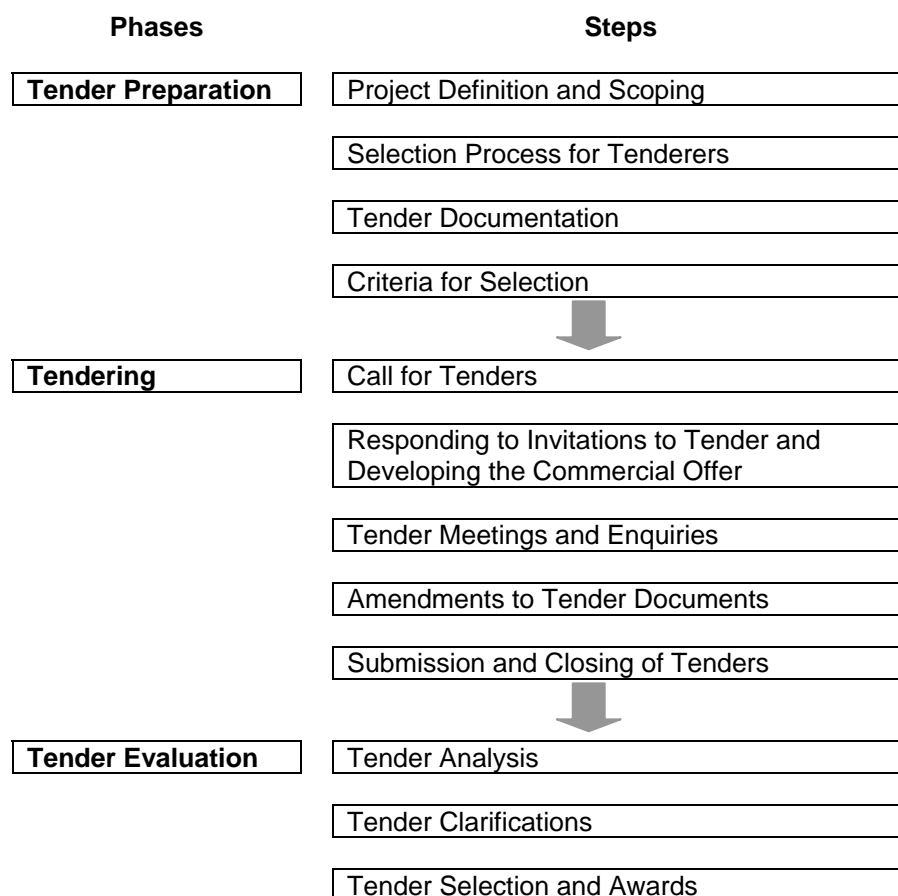
As a basis for research, it is proposed to use the tendering process that is established in the Australian Constructors Association (2001) *Guidelines for Tendering* and the six delivery methods established therein (Figure 7.1). The process in its simplest form is presented in Figure 7.2.

Figure 7.1: Project Delivery Methods

Delivery Method	Brief Description	Example
Traditional	The Client engages a designer to design and specify a project and then call tenders for the construction (or implementation).	Fixed Price Lump Sum; Schedule of Rates; Bill of Quantities.
Design and Construct	The Client contracts to a single entity (company or consortium) that is responsible for both the design and construction (or implementation) of the project	Design Development and Construct; Design, Novate and Construct; Design and Construct; Engineer, Procure and Construct (EPC); Design, Construct and Maintain.
Management	The Client engages the services of a manager of the construction process but accepts some risk and reward on the cost outcomes.	Construction Management; Engineer, Procure and Construction Management (EPCM); Project Management; Cost Plus; Cost Reimbursable Performance Incentive.
Patch Type (Maintenance and Service)	The Client engages a number of contractors to each carry out capital works and maintenance within defined geographical zones and/or time periods for specific functions.	Patch Contract; Maintenance Contract.
Relationship	This method of procurement attempts to align the goals of the Client and Contractor (and other relevant parties) so that all decisions are made for the benefit of the project.	Alliance Contracting.
Financed	This method of procurement involves the project being wholly or partly financed by someone other than the Client.	Construction Finance; Private Public Partnership (PPP); Build, Own, Operate (BOO); Build, Own, Transfer (BOT); Build, Own, Operate, Transfer (BOOT).
Other *	* Based on project specific criteria.	Specific performance type projects.

Source: Australian Constructors Association (2001) *Guidelines for Tendering*, p. 6

Figure 7.2: Tendering Process



Source: Australian Constructors Association (2001) *Guidelines for Tendering*, p. 5

7.4 Benchmarking As An Approach To Gain Understanding

Although not well established in the construction industry, benchmarking has proved useful in the business and manufacturing sectors to learn about organisational performance issues. Mohamed (1996) suggests that benchmarking is not a straightforward task due to the very nature of the construction business, which lacks solid data gathering and remarkable fluctuation in productivity. This does not mean that it is inappropriate to apply benchmarking for specific learning. In order for benchmarking to provide valid results, work methods of measuring the performance of operations need to be consistent and their application enforced. Benchmarking has been identified as one of a number of initiatives to assist in the drive for major improvements in efficiency and economy by the UK construction industry (Garnett & Pickrell, 2000).

With the anonymity provided to participants by a benchmarking approach, it is anticipated that a number of organisations involved in tendering will be interested in participating in this research. One of the criticisms of our inquiry has been that those who contribute their cost of tendering data will reveal confidential and competitive information about their operations to a study that will be made available to the general public.

Figure 7.3: Cost of Tendering Benchmark Categories - Purchasers

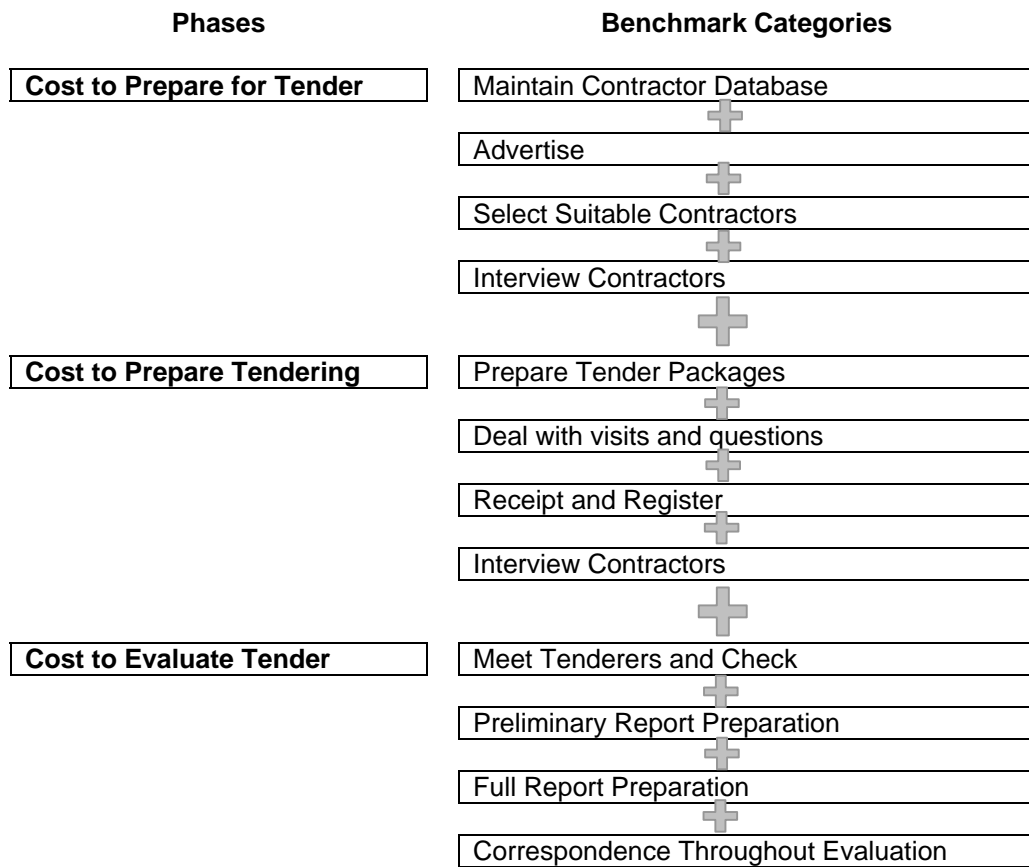
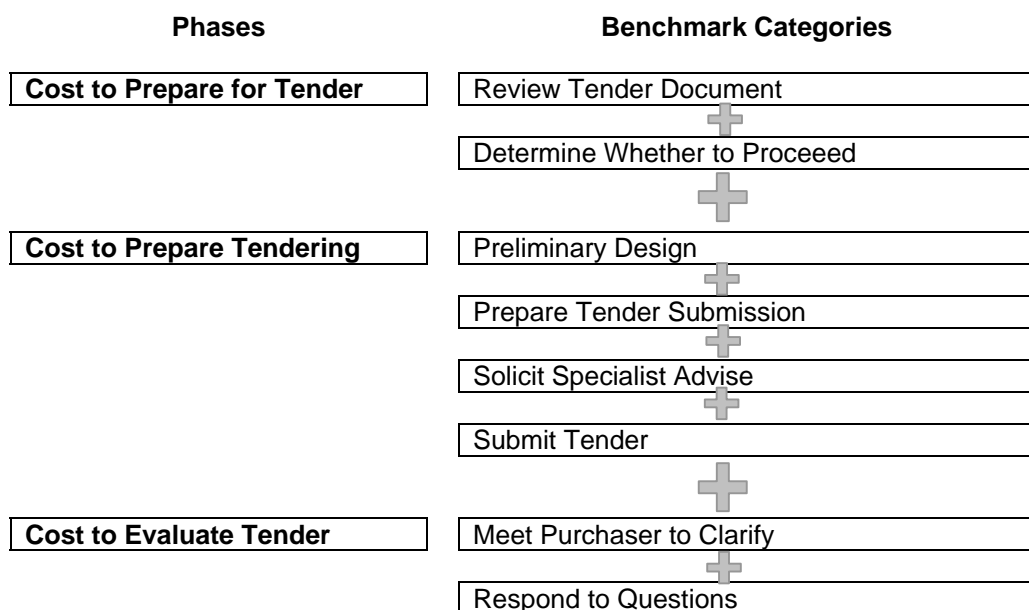


Figure 7.4: Cost of Tendering Benchmark Categories - Tenderers



7.5 Conclusion

Because of the diverse activities undertaken by both purchasers and tenderers and limitations of some accounting systems to report on custom categories, expenses associated with tendering are difficult to capture and quantify. These problems are explained through an interpretation of the literature, observations of purchases, and interview data to demonstrate the barriers to understanding the cost of tendering.

Even in those cases where there are genuine intentions to capture costs of tendering there is a failure to do so. It appears that implementation difficulties are so insurmountable that either people do not bother or management redirects effort from collecting cost of tendering data. It is also shown that the expense of tendering and uncertainty of outcomes leads tenderers to engage in concealed behaviour to reduce the uncertainty and cost associated with tendering. That is, collusion. For this reason especially, it is suggested that tendering and associated costs need to be understood in greater detail.

While there is currently awareness of the cost of tendering and acknowledgement that efforts should be taken to minimise this cost, there is little precise understanding of it in terms of value or how it happens. The cost of tendering is not well understood in Australia or elsewhere in the world. This paper proposes a model of the cost of tendering through defining the tendering process in terms of measurable components and collecting sufficient data to understand the costs incurred in each component. The paper also presents estimates of orders of magnitude of the cost of tendering based on specific cases of procurement organisations at the macroscopic level, whilst evidence from an international business profile benchmarking study provides some insights into the impost on SME sector firms in the construction industry supply chain. This data is derived from owner managers perception of the cost of tendering in their firm.

7.5.1 The Components Of Tendering Costs

Tendering is a process that takes place to provide a transparent selection process that is based on objective criteria. It is most important in organisations that are exposed to a degree of public scrutiny from stakeholders. These stakeholders could be the general public in the case of government departments, or shareholders in the case of businesses. Indeed, there are benefits to the tendering process, but there are also costs. More to the point, if these costs are not managed effectively then they can be quite significant and not provide proportionate returns.

Tendering costs occur during three phases of any tendering process. These are:

- Preparation of tender documents by purchaser
- Preparation of response to tender by prospective suppliers
- Assessment of submitted tenders and selection of supplier

7.5.2 Preparation of Tender Documents

Purchasers incur costs associated with the preparation of documents that are issued to tenderers. These include specifications and instructions specific to the item being purchased. They also incur costs to assemble a list of prospective tenderers to whom tender documents will be sent. These documents may be posted to tenderers, but more complicated purchases may require face-to-face meetings with individual tenderers or collective briefings for all tenderers to attend.

7.5.3 Preparation of Response to Tender

On receiving tender documents, prospective suppliers are required to make several levels of assessment. There is generally a time constraint to do so. In the first case, they need to understand the good or service being tendered and determine whether or not they have the capability to supply. Where they decide to proceed with submitting a tender, they then need to engage in an appropriate degree of pre-design work to demonstrate to the purchaser that they are aware of the implications of the tender and that their solution is the most appropriate. Reply to tender may take the form of a document or include physical models or involved presentations. There appears to be a concern that, once being invited to tender, refusing to do so will remove the prospective tenderer from future tender invitations. This may be leading to wasted effort preparing tenders that relate to work outside the capabilities of organisations that would be better declining the invitation to tender.

7.5.4 Assessment and Selection

When tenderers submit their responses to tender, the purchaser undertakes assessment and selection processes. As with the preparation of responses to tender, purchasers are under an obligation to complete assessment and selection within specified time constraints. Especially in cases of complicated tenders, where there is a two stage assessment, purchasers are under an obligation to complete their assessments within a reasonable time and reply to tenderers.

7.6 Barriers To Understanding Tendering Costs

Without a clear understanding of the cost of tendering, an industry wide assumption has been that the cost of tendering is far too high and that it needs to be reduced. This blind sort of groping for meaning has led to a solution to reduce the cost of tendering through pre-qualification of tenderers. However, with such a vague understanding of the cost of tendering there could be an equally vague understanding of the notion of pre-qualification and, in some cases, an expectation could be held by purchasers that tenderers should pre-qualify for each individual tender. This misunderstanding of the concept of pre-qualification undermines the benefits that could be derived from a well-managed pre-qualification program.

A worldwide survey of procurement documentation from a wide range of public and private organisations suggests it is clear that there is an awareness of the cost of tendering. However, in most cases purchasers merely acknowledge that the cost of tendering is significant and to be aware of the internal costs and those incurred by tenderers. Apart from that, there is no effort made to understand these costs. For example, a typical comment made about the cost of tendering is:

"If contractors are winning typically one tender if four, then we're paying four times the cost of tendering for each contract. The industry needs to find a better way to avoid wasting this money."
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The following sub-sections explore some of the barriers to understanding tendering costs.

7.6.1 Difficulty in Determining Resources Allocated to Tendering

Understanding tendering costs depends on collecting accurate data and being able to present it in a meaningful way. Because people and resources used to conduct

the tendering process are not specifically dedicated to the tendering process, determining what resources are consumed during tendering is difficult to do. This is further complicated by how individuals and organisations are rewarded and the manipulation of data that occurs when people may try to optimise their personal rewards.

7.6.2 Difficulty or Reluctance to Implement

While there have been initiatives put in place to record the cost of tendering, there is little evidence that these are implemented at all. Government and commercial purchasers acknowledge that *the cost of tendering is significant and that efforts should be made to reduce this cost*. They further acknowledge the cost of tendering in terms of both their operations and those of tenderers. Many large government departments have produced tendering regulations that include such a clause. These are based on various standards and guidelines such as the *Australian Standard Code of Tendering*, AS4120 (Standards Australia 1994) and *Guidelines for Tendering*, published by Australian Constructors Association (2001).

Notwithstanding the effort to acknowledge the cost of tendering, there is no reported attempt to quantify this cost. While some organisations have a stated policy that there will be "application of some rigor to examining the cost of tendering" (Defence Materials Organisation), when questioned, the Director General Contracting Policy and Operations advised that no effort has been made to implement this initiative. Other government agencies attempt to allocate costs to the tendering process. Yet, when representatives are questioned they assure that the data captured is at best a very rough estimation of the real human and material resources consumed in their tendering processes.

7.6.3 Greed and Blatant Corruption

People can be led to behave by the reward structure of their environment. Wakin (1984), drawing on Learner (1975, p. 111) suggests that 'bottom line' ethics are adhered to by 'careerists', whose behaviour suggests that their blatant self interest overrides every factor.

In some cases, it has been observed that people satisfy their greed or engage in various forms of corruption to achieve personal goals. *Gellerman (1986) speaks of good managers making bad ethical choices, but Wakin (1984), drawing on Learner (1975, p. 111) goes further, suggesting that 'bottom line' ethics are adhered to by 'careerists', whose behaviour suggests that their blatant self interest overrides every factor. There is likely to be a wide distribution along a continuum characterized by both these extremes. However, Gellerman (1986, p. 3) does refer to cases where individuals 'made a conscious, cold blooded decision to take no protective or remedial action, in the flagrant disregard of the rights of others'.*

In drawing on examples of bad ethical choices, Gellerman (1986, pp. 5-7) proposes that there are four rationalizations with which people justify their decisions. First, they perceive what they have decided to be 'within reasonable ethical and legal limits'. Second, it 'is in the individual's or the corporation's best interests'. Third, it 'is "safe" because it will never be found out or publicized'. Fourth, if the action contributes to objectives 'the company will condone it and even protect the person who engages in it'.

In the subsequent 16 years since Gellerman's article was published, some spheres may have seen an end of the discourse that leads to these rationalizations.

However, there remain examples of blatant disregard, as demonstrated by Rowell (1996) for environmental and social issues; anecdotal evidence of this are the frequent and often violent protests held to demonstrate opposition to WTO and other globalisation initiatives. While this reaction may not be warranted, it reflects a possible negative perception in the wider community.

Foucault (1973, 1978, 1991) observes that those in power influence what becomes the dominant discourse and that they impose that discourse to exert power, even to the point that they establish reality in terms of what benefits themselves. Perhaps it is because controversial discussions frequently are controlled by the discourse imposed by others that Foucault (1991, p. 381) refuses to engage in polemics. Pfeffer (1981, p. 30, 59) observes that those who 'get what they want' have 'the social power to get it'. People in positions of power might well – consciously or unconsciously – dominate decisions regarding sustainability issues and prevent appropriate discourse in the same way that doctor's gaze (Foucault 1973) prevents patients from appropriate medical diagnosis and service (McKenzie and Carey 2000).

The Giles Commission (1992) into the construction industry raises the issues of collusive tendering in the construction industry.

"Involvement in collusive and anti competitive behaviour including the surreptitious receipt and payment of special and unsuccessful tenderers fees."

The implied message is that the cost of tendering is significant. This has been further substantiated by confidential discussions with construction industry representatives. Some have explained how tenderers for a project enter into an arrangement where they each add an amount which is distributed to unsuccessful tenderers.

Veterans of many years of submitting tenders have explained their solution to the expense of tendering in terms of the collusion reported by the Giles Commission (1992). One person interviewed stated that:

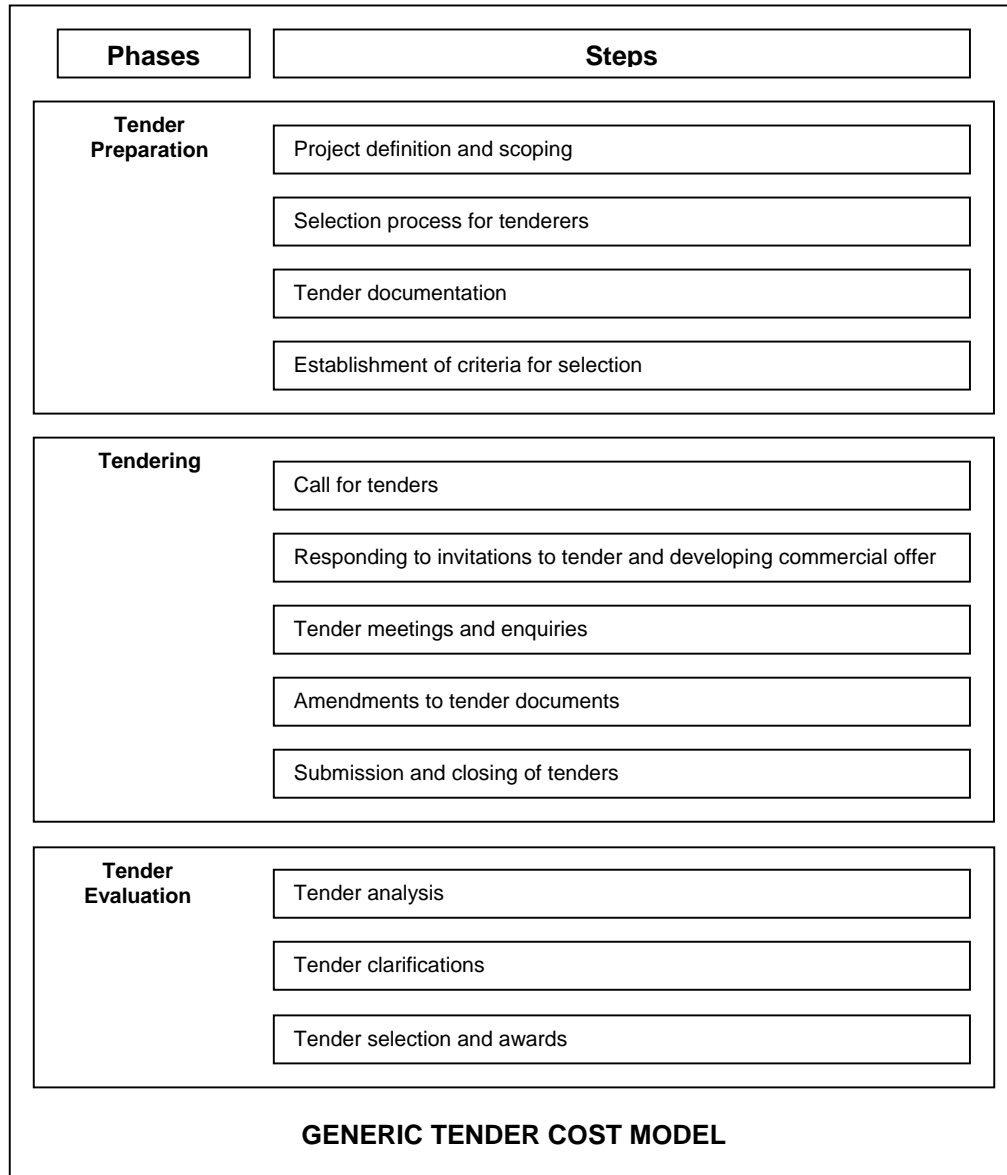
"Each company submitting a tender added a certain amount that (in the event of winning the tender) was understood to be distributed among the other tenderers (those who did not win the contract)."

7.7 Generic Tender Cost Model

Having demonstrated that it is likely that cost of tendering data will be distorted (if collected at all), it is suggested that a tender cost model will provide some guideline to categorise and verify cost of tendering data that is collected. Having such guidelines is viewed to provide a catalyst to collect data and a framework to categorise the information collected.

The following model could provide a foundation for such a framework.

Figure7.5: Generic Tender Cost Model



It is suggested that each of the proposed steps could provide demarcation of categories to which human and material resources could be allocated. It is envisioned that these categories need further development and refining.

The reason for advocating the further development of such a model is that tendering costs seem to have escalated to an extent that they can be seen as a factor in contractor's risk assessment. The costs must be weighed against the perceived likelihood of success. It is likely that the client can mitigate at least some of the costs of the tendering process. This is unlikely to eventuate in an environment where the client is unaware of the costs of tendering and consequently unaware of the additional costs that they as client are carrying as a consequence of their espoused tendering processes. In the event that the client is imposing excessive and

unnecessary costs on the contractor through the tendering process, then they are adding costs without adding value. In the quality management environment, this is classified as waste.

Major advances in productivity, profitability and quality have been achieved in manufacturing industry as a consequence of increases in knowledge and understanding of quality. One of the imperatives that drove the improvement in manufacturing performance was the development and implementation of a 'quality costs model'. This model partitioned the costs of achieving a desired standard of output into 'prevention costs', appraisal costs' and 'failure costs'. This approach enabled managers to make rational decisions about where improvement investment should be targeted. In the case of costs of tendering in public sector construction project procurement, it is likely that the use of such a model would enable the capture of cost of tendering data that enable similar rational decisions to be made about the structure and content of the tendering process. The next section, therefore, seeks to quantify the costs of tendering for a variety of circumstances based on data acquired from a variety of informants and sources.

7.8 Estimation Of Tendering Costs

The cost of tendering at the macroscopic level can be estimated on the basis of anecdotal evidence and documented sources. This is particularly useful from the perspective of the large procurement organisation, for example government departments and large national utilities. From the perspective of the small and medium-sized enterprise (SME), databases used for international business profile benchmarking that have data on construction provide some indication of the costs of tendering as experienced by procurement executives and owner managers. Although neither of these sources provide definitive audited costs, they both provide an indicative cost. In view of the fact that the cost of tendering is ultimately carried by the client, it is in the client's interests to seek to mitigate these costs to ensure that a business enterprise client returns value to its shareholders and that a public sector client obtains the triumvirate of efficiency, effectiveness and value for money. In the case of the business enterprise client, the choice is more straightforward since, if the cost of tendering is perceived to be excessive, it is open to the business to adopt another approach that is more cost effective. For that reason, this work will restrict itself to tendering costs as they might impact on public sector organisations as clients and SME sector subcontractors as suppliers.

7.8.1 Public Sector Organisations

For public sector clients, the need for transparency and openness demand that the public servants who engage with the construction industry representing the public sector client have transparent and defensible processes. This underpins the confidence that the taxpayer requires to have for the accountability of procurement processes. The requirement for accountability has placed increasing pressure on public servants and one of the approaches to securing efficiency, effectiveness and value for money has been the use of various tendering mechanisms. In fact, such was the belief in the efficacy of the tendering process, in many cases, it was mandated through legislation. More recently, there has been a move away from that belief, as public sector clients, like their counterparts in the manufacturing sector before them, began to take a more holistic view of efficiency, effectiveness and value for money. However, it is fair to say that, in the case of public sector construction project procurement, it has proved easier to criticise the failings of the tendering process than it has to find an appropriate, robust and defensible replacement.

One of the reasons for the relative inertia in the construction sector has, of course, been that, as suggested earlier in this paper, it has proved to be difficult to capture the cost of tendering. This has hampered innovation in the approach to construction procurement, since one of the major drivers of seeking a 'new approach' is to improve competitiveness. In the absence of information about the actual costs of tendering, there is also no value that can be attributed to the payoff of the innovation. The fact that these costs are frequently invisible to the client and can be very diffuse has camouflaged the real impact of cost of tendering on the total costs incurred by the client in public sector construction project procurement.

The act of initiating the tender process for a significant construction project effectively triggers a time lapsed cascade of additional tendering like processes as the major cost components of the project are identified and costed to enable the final bid to be assembled. This paper shall now seek to quantify the costs incurred in tendering a project. Clearly, the complexity of the project including the level of innovation for example, will influence the costs in any particular project. However, by engaging with experts and examining the cascade processes, it is possible to estimate the costs associated with the tendering process. In addition, the impact of the costs of tendering shall be computed for government departments with significant responsibility for construction project procurement. In many cases, the greatest cost cannot be estimated. The tendering capability of a firm may, in fact, be a limiting resource. If this is the case, then the result may be that the best and most capable contractors may not even enter the tendering process because the actual costs associated with the process cannot be justified given the perceived prospects of success, or because the opportunity costs associated with one particular project may be regarded as excessive and unjustifiable given the perceived prospects of success. If the most appropriate contractor does not enter the process because of tendering costs this is likely to be detrimental to the project to an extent far in excess of the real or perceived tendering costs.

The combination of tendering costs and the probability of success is such that the total tendering costs for any individual project will escalate as the number of contractors entering the tendering process increases as well as with the relative complexity of the project and the extent of the imaginative value adding design. For example, if a public sector client seeks tenders from six capable contractors for a design and construct project, each of these is likely to seek tenders from, say ten subcontractors, depending on the scale and complexity of the project. If each of these ten subcontractors initiated a further cascade down to twenty suppliers of different sizes and types, then the involvement of the six initial contractors has resulted in some form of response from $(6 + 60 + 1200) = 1266$ businesses in the area. Using this model, each additional contractor proceeding to tender adds a further 211 businesses to the list of those involved in the tendering process. Clearly, all businesses will have incurred costs associated with the tender, but few will receive business as a consequence. The contractors will have entered the process with an average of one chance in six of emerging successful in gaining the contract. For a relatively complex \$20 million infrastructure project where the design and schedule of quantities is provided, it has been estimated that the cost of tendering is in the region of 0.5% of the value of the contract for each contractor tendering. This does not include the costs to the subcontractors and suppliers further down the chain of supply. Thus, for a case of six contractors, the total cost is 3% of contract value, or \$600K.

For a similar design and construct project that involves each tenderer in significant design activity before the schedule of quantities and the tendering process takes place, it is estimated that the cost of tendering will escalate to around 3% of the value of the contract for each contractor. In the earlier case where six contractors were

involved, the tendering process for the contractors could amount to 18% of the value of the contract, or \$3.6 million.

Consequently, for a government department involved in significant construction project procurement activity, if we take the six contractor hypothesis, for each \$100 million voted by parliament for construction projects, anything between \$3 million and \$ 18 million is likely to be consumed by the tendering process if we ignore the cascade effect down past the contractor. The challenge is to establish whether the process of tendering is delivering that degree of value for money on one hand and whether by innovation in the process, based on a careful appreciation of the costs, could deliver an equivalent result without consuming this level of resource. This model and analysis has ignored the cascade effect of the tendering process on the subcontract sector which makes up the majority of firms in the construction sector. Evidence from another source provides some insights into that sector.

7.8.2 SME Sector Subcontractors and Suppliers

As part of a program of work that included applying business profile benchmarking to small and medium-sized enterprises, a module was used that was specifically designed for use with contractors. This work was not focused on the cost of tendering from the perspective of the public sector client, but from the perspective of a performance indicator for the construction sector SME subcontractor. The data collected includes cost of tendering as a percentage of turnover and various measures of success rates in the tendering process.

The database contained over fifty companies and a comprehensive set of performance measures that characterise the SME subcontractor sector was held for each company. For this group of companies, the cost of tendering was estimated to be around 1.7% of turnover for the lower quartile and 5.8% of turnover for the upper quartile. From the point of view of success rate, the lower quartile estimate was a 16% success rate and the upper quartile enjoying an estimated 60% success rate. From the perspective of value of business won against value of business tendered for, the lower quartile reported around 20% with the upper quartile reporting just under 60%. Thus, in the SME sector, companies may be spending between one and a half percent to around six percent of their turnover on the tendering process. The companies seem to enjoy success rates of gaining about one in every six contracts bid for to about two in every three contracts bid for. The data on the database is from a variety of contracting businesses. The evidence from the database is consistent with data from another source where it was reported that:

“Generally the cost of tendering in comparison with turnover is quoted as follows:

- *General Contractors 1% to 2%*
- *Specialist Sub Contractors (Mechanical, Electrical, Fire and Lift) 3% to 5%*
- *General Sub Contractors 4% to 8%*

Success rates (i.e the number of successful tenderers compared with number entered) is quoted as follows:

- *General Contractors 1:6 to 1:15*
- *Specialist Sub Contractors 1:10 to 1:20*
- *General Sub Contractors 1:15 to 1:50 ”*

The costs of tendering are similar to those captured by the database, but the success rates recorded in the database are somewhat better on the database than reported by the alternative source. Nevertheless, both sources of evidence indicate that the

costs and consequences of the tendering process for the SME subcontracting sector are significant and detrimental.

7.9 Conclusion

Because of the diverse activities undertaken during the tender process and limitations of accounting categories, expenses associated with tendering are difficult to capture and quantify in a rigorous way. Even in those cases where there are genuine intentions to capture costs of tendering there is a failure to do so. It appears that implementation difficulties are so insurmountable that either people do not bother or management redirects effort from collecting cost of tendering data. It is also shown that the expense of tendering and uncertainty of outcomes leads tenderers to engage in concealed behaviour to reduce the uncertainty and cost associated with tendering. That is, collusion. For this reason especially, it is concluded that tendering and associated costs need to be understood in greater detail.

There are barriers to understanding the cost of tendering. Throughout the worldwide construction industry tendering is acknowledged to be complicated, adding considerable cost to construction. Efforts to understand the cost of tendering are confounded by issues that are both visible and invisible to formal accounting of the construction process. This suggests a need to investigate and understand the problems and their causes. The evidence from various sources that is presented earlier in this paper indicates that the cost of tendering constitutes a significant impost on the costs of construction projects. A parallel was drawn with the issues associated with the cost of quality and the way that the development of a comprehensive model acted as the catalyst for quality improvement activity in the manufacturing sector. Another factor that creates an imperative towards the development of a generic model for tendering costs and a concerted effort to quantify these costs also comes from the experience in the quality costs field. Once practitioners began to collect and classify quality costs, it became more apparent what the sources and magnitudes of quality costs actually were. The experience was that many more costs than had originally been thought were able to be recognised as the costs associated with not getting things 'right first time'. Quality costs were found to amount to up to 30% of turnover for companies that had not embarked on a serious quality improvement program.

The generic model of the tender costs proposed would provide a way to predict tender costs, collect actual tender costs, and then compare planned to actual tender costs. There is also the possibility that a similar experience may emerge to that reported in the case of the development of a rigorous quality cost model in the case of quality management. The quality improvement activity was focused on eliminating or mitigating the effects of activities that added cost without adding value. With a similar experience in the case of the cost of tendering, it is possible that the approach to public sector construction project procurement could be transformed to enable a higher proportion of the taxpayers' funds to be devoted to the delivery of the construction project and less funds would be dissipated in preparation of long, complex and very expensive tender documentation on the part of the contractors who are, inevitably going to be unsuccessful in their quest to secure the contract. In the case of quality management, an influential factor was the realisation that as much cost was accumulated in making a defective product as was accumulated in the process of making a product that was 'fit for purpose'. The parallel is that there is as much cost is incurred by the tenderers for tenders where the firm ultimately proves to be unsuccessful as is incurred for those tenders that are successful.

8.0 PROJECT CONCLUSIONS

This project has collected evidence from the International literature, industry partners, procurement executives and political advisors. The evidence demonstrates that there is widespread concern about the ability of current approaches, processes, procedures and methods to deliver anything that might resemble best value to the public sector client of construction projects. From the client's perspective, the current approach provides transparency and defensibility and therefore accountability in the award of public sector contracts. The move from the current approach demands a paradigm shift, that results in an equally transparent and defensible system whilst delivering best value when taking account of the purposes and objects of government. This project has demonstrated an approach that is based on a rigorous framework that enables the objects and purposes of government to be realised and thereby delivering best value to the public sector client and therefore to the community. The framework is based on the policy objectives of government as identified in political manifestos and translated into action through acts of legislation. The further research proposed in this project leads to the piloting implementation and evaluation of the best value framework developed and reported on in this report.

In the process of exploring best value, the potential to eliminate waste through a change in the approach to tendering was also investigated. During the investigation the impost on the construction industry and its clients was estimated and found to constitute significant net addition of cost without proportionate addition of value. The project proposes further research to examine and quantify tendering costs within a comprehensive framework to establish where Pareto effects may be present. The aim of the further research is to identify the major contributors to tendering costs and explore alternative approaches with a view to optimising the costs. The elimination of a significant proportion of current tendering costs would enable a greater proportion of public funds to be devoted to the construction project rather than the pre-construction administration processes. It is also likely to reduce the adversarial culture inherent in the current processes and thereby deliver a contribution to best value in construction project procurement.

The dominant contributors to construction projects internationally are the myriad of small and medium sized companies operating as construction project sub-contractors. This project examined the application of Business Profile Benchmarking as an approach to measuring and improving the performance of the sme subcontract sector. It is of paramount importance to the construction industry and to government that the sme construction industry subcontracting sector remains vibrant and sustainable. The approach based on Business Profile Benchmarking has been demonstrated to assist companies to measure their performance against their international peer group. This enables managers to identify areas of strength and opportunities for improvement. The achievement of a vibrant and sustainable sme subcontract sector contributes to the economic wellbeing of communities and delivers innovation and value for money to the public sector procurement client. Thus, the further research proposed in this project contributes to the achievement of best value for public sector clients.

It is recognised that the further research proposed here represents a fairly radical reappraisal of the orthodox approaches currently used in the industry. However, it is unlikely that the aspirations of *Construction 2020 – A Vision for Australia's Property and Construction Industry* will be achieved without displacing orthodoxy.

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GLOSSARY

ABEF	Australian Business Excellence Framework
APCC	Australian Procurement and Construction Council
BSC	Balanced Scorecard
BV	Best Value
BVTF	Best Value Task Force (UK)
CCT	Compulsory Competitive Tendering
CICA	Competition in Contracting Act (USA)
CIDA	Construction Industry Development Agency
CPA	Comprehensive Performance Assessment
DTI	Department of Trade & Industry (UK)
EFQM	European Foundation for Quality Management
ISO	International Standards Organisation
JIT	Just in Time
LGiS	Local Government in Scotland Act
NDPBs	Non-Departmental Public Bodies
NQA	National Quality Award
PMP	Performance Management & Planning
QA	Quality Assurance
QANGOs	Quasi-Autonomous Non-Government Organisations
R&D	Research & Development
RICS	Royal Institution for Chartered Surveyors
SLGIU	Scottish Local Government Information Unit
SME	Small-Medium Sized Enterprise
TQM	Total Quality Management
VFM	Value for Money

APPENDICES

APPENDIX 1

Sample copy of Benchmark Index Report

International Business Profile

Benchmarking Report

REPORT FOR
ABC PTY LTD

PREPARED BY
John Dalrymple

RMIT University

Introduction

This report has been created to show you the results of the benchmarking exercise you have recently undertaken. The report covers each of those topics agreed with your Personal Business Advisor (PBA). The information is dealt with in a consistent manner across each section of the report.

Your performance relative to the rest of the sector you chose to be benchmarked against is shown graphically. **If you have not completed the questionnaire for any section then no data will be shown, although the section will still be printed out.**

- The charts show the relative position of your company for each factor compared to the group
- The higher your score on the charts the better your performance
- The tables show the raw data for your company and the group - with five percentiles showing the spread of data

It is important to understand that the charts are constructed to show how good your company is relative to the group. At a glance you can see how you compare. A score of 100 means you are the best in the group for that particular factor. **For some factors, such as absenteeism, a low score would seem instinctively to be better than a higher score i.e. fewer days lost are better than more days lost. However, to maintain consistency, the data has been inverted so a higher score on the chart means you have the fewer days. The inverted scores are shown in the definition of terms.**

A results table then shows both your actual scores and your relative scores in numerical form.

We do this so that you can not only see your own absolute performance, but, more importantly, you can see how you compare against other organisations.

Company Details

Company Name	ABC PTY LTD
Address	10 SMITH STREET RICHMOND NSW
Telephone	61212134568
Fax	61212345663
E-mail	abc@abc.com.au

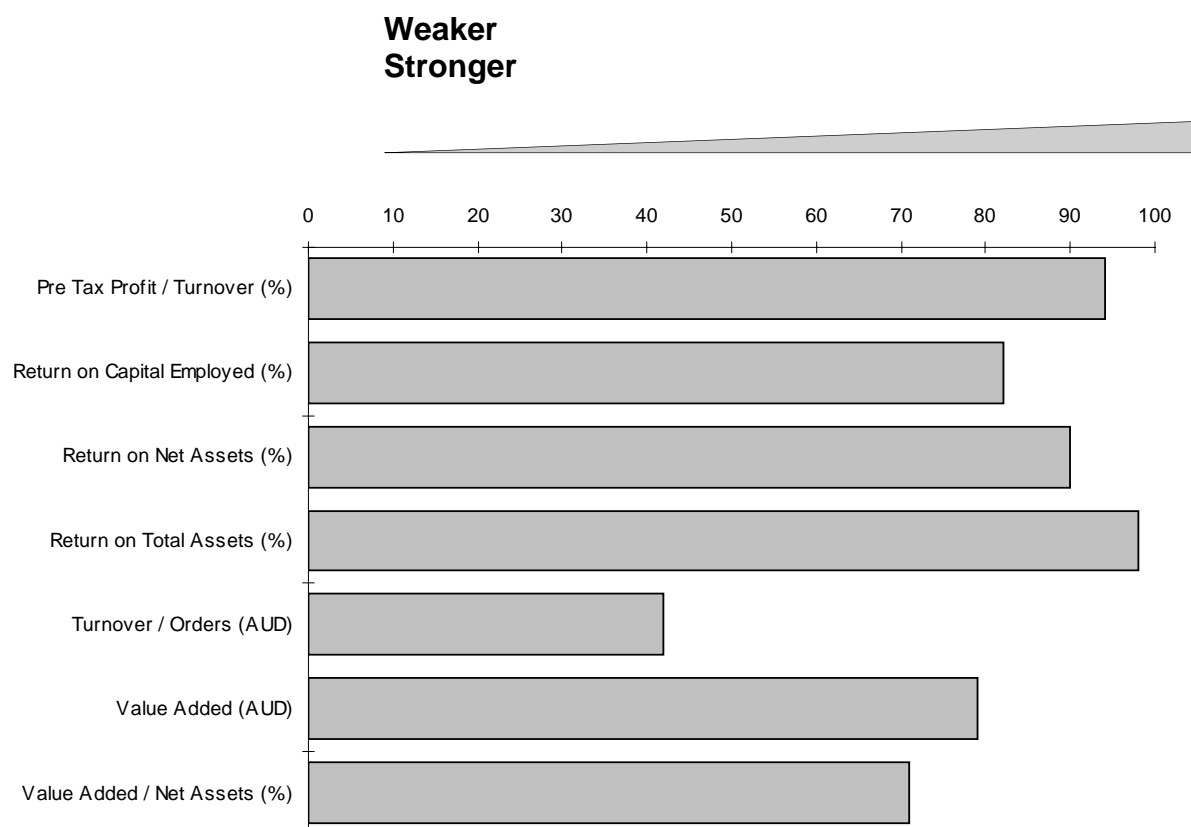
Profile

Turnover (AUD K)	7,000
No of Employees	47
SIC Code (1992)	
Business Description	Manufacturer of metal equipment for the horseracing industry

Benchmark Criteria

Employees	25 - 100
Turnover	AUD3,000K- AUD25,000K
Industry Code(s)	Metal Products Manufacture
SIC Code(s)	
Region(s)	
Country(s)	

Profitability



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Pre Tax Profit / Turnover (%)	94	13.69	-6.19	1.13	4.07	7.52	18.88	1061
Return on Capital Employed (%)	82	31.00	-21.16	4.35	13.37	25.31	79.61	1011
Return on Net Assets (%)	90	30.99	-18.21	2.87	9.87	19.99	55.90	1037
Return on Total Assets (%)	98	26.92	-9.43	1.95	6.61	12.48	30.77	1050
Turnover / Orders (AUD)	42	2,411.93	676.02	1,495.69	3,184.62	7,908.88	66.81k	289
Value Added (AUD)	79	4,311.00k	716.47k	1,527.04k	2,424.79k	3,960.27k	9,126.65k	1066
Value Added / Net Assets (%)	71	141.07	4.84	66.50	99.76	152.07	381.53	1038

Profitability - Definition of Terms

* Indicates an inverted ratio

Pre Tax Profit / Turnover (Profit Margin, %) - this is the profit before tax expressed as a percentage of turnover. It is an indicator of profitability and growth and provides a useful comparison for how well the costs have been controlled.

*Calculated as: (Pre Tax Profit / Turnover) * 100 %*

Return on Capital Employed (ROCE, %) - this is the profit before tax expressed as a percentage of the capital employed, where capital employed is taken to be the aggregate of shareholders' funds, long term loans, and long term liabilities. It is an indicator of both profitability and growth as it measures how effectively the business is using its funds in growing the size of the business itself.

*Calculated as: Pre Tax Profit / (Shareholder's Funds + Long Term Loans + Other Long Term Liabilities) * 100 %*

Return on Net Assets (RONA, %) - this is the profit before taxes expressed as a percentage of net assets (fixed, intangible and intermediate assets plus current assets less creditors and other current liabilities). It is an indicator of both profitability and growth regardless of method of financing.

*Calculated as: Pre Tax Profit / (Total Assets - Other Current Liabilities - Creditors) * 100 %*

Return on Total Assets (ROTA, %) - this is the profit before taxes expressed as a percentage of total assets. It is an indicator of both profitability and growth.

*Calculated as: (Pre Tax Profit / Total Assets) * 100 %*

Turnover / Orders (AUD) - this ratio provides an indication of the average order value expressed as pounds per order.

Calculated as: Turnover / Orders

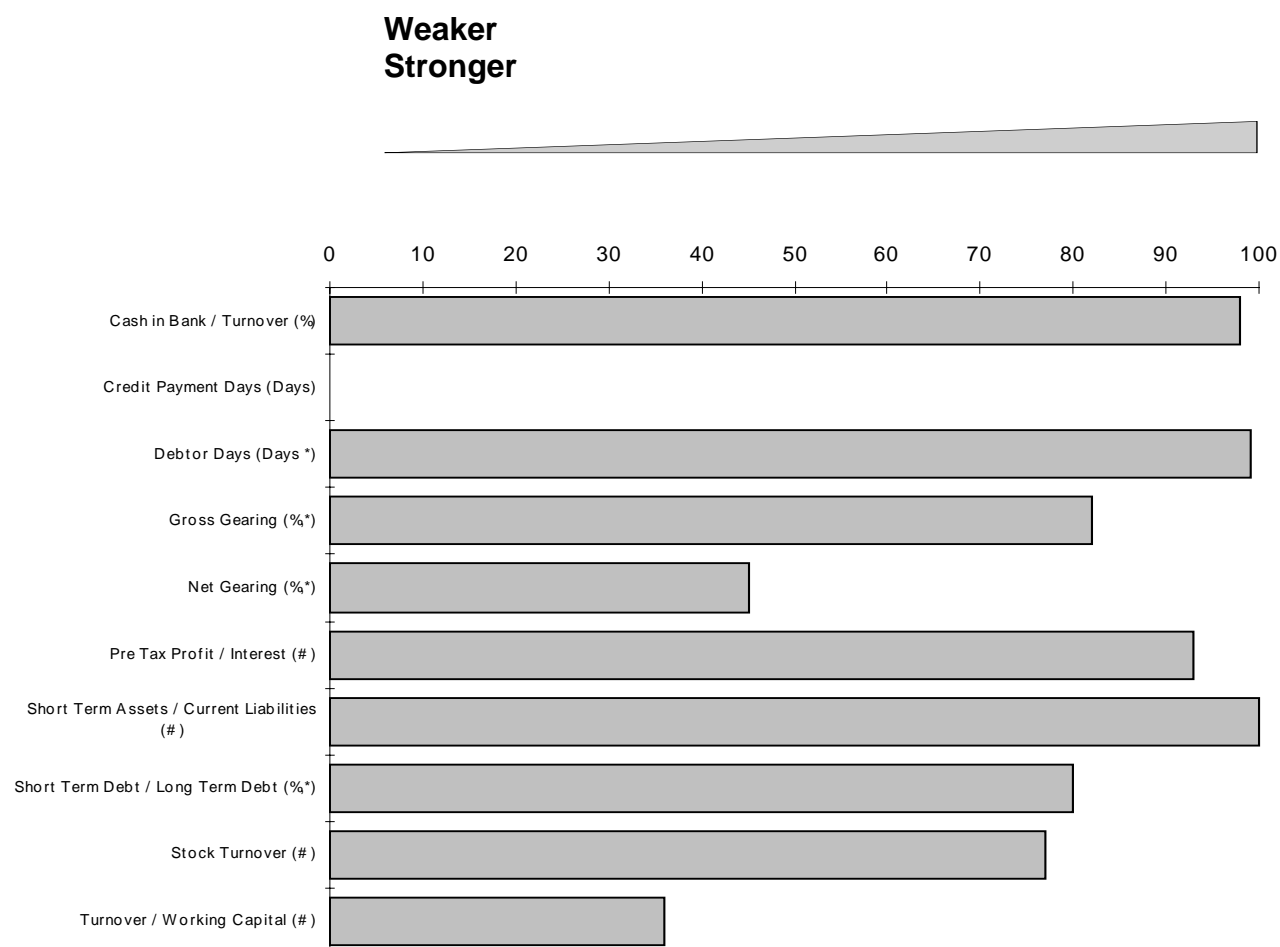
Value Added (AUD) - this is the difference between the cost of raw materials and the sale price - that is the amount of value that the business has added to the raw material.

Calculated as: Turnover - Value of Bought In Materials

Value Added / Net Assets (%) - this is the value added expressed as a percentage of net assets. It is an indicator of the ability of a business to use its assets to deliver a surplus over raw material costs.

*Calculated as: (Turnover - Value of Bought In Materials) / (Total Assets - Other Current Liabilities - Creditors) * 100 %*

Financial Management



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Cash in Bank / Turnover (%)	98	19.93	0.00	0.02	0.98	5.08	24.53	1006
Credit Payment Days (Days)	0	13.25	13.83	30.95	42.81	58.56	105.77	1050
Debtor Days (Days *)	99	31.72	25.12	60.90	74.83	89.33	125.69	1059
Gross Gearing (%*)	82	8.22	0.00	14.67	50.28	131.18	606.85	1026
Net Gearing (%*)	45	-74.88	-410.86	-137.17	-83.22	-35.92	143.46	1026
Pre Tax Profit / Interest (#)	93	35.07	-4.55	0.76	3.00	10.75	77.67	897
Short Term Assets / Current Liabilities (#)	100	5.08	0.50	0.89	1.14	1.43	2.96	1027
Short Term Debt / Long Term Debt (%*)	80	90.95	13.00	110.37	270.40	805.14	7,766.67	882
Stock Turnover (#)	77	18.84	3.80	7.07	11.02	17.54	59.34	1057
Turnover / Working Capital (#)	36	2.93	-53.53	0.88	5.33	11.83	47.04	1027

Financial Management - Definition of Terms

* Indicates an inverted ratio

Cash in Bank / Turnover (%) - small companies find the non availability of cash their largest problem. This ratio gives an indicator as to the accessibility of cash. Companies which hold too much cash may however not be investing their funds to the best advantages of their business.

*Calculated as: (Cash in Bank / Turnover) * 100 %*

Credit Payment Days - this is the creditor value divided by turnover and represents the average payment period that company takes to pay its bills. It is an indicator of profitability and supplier relationships.

*Calculated as: (Creditors / Turnover) * 365*

Debtor Days (*) - this is the debtor value divided by turnover and represents the average collection period that customers take to pay their bills. It is an indicator of profitability and customer relationships.

*Calculated as: (Debtors / Turnover) * 365*

Gross Gearing (% , *) - this figure demonstrates a company's ability to finance liabilities from liquid assets.

*Calculated as: ((Short Term Loans + Long Term Loans) / Shareholder's Funds) * 100 %*

Net Gearing (% , *) - this ratio is a measure of the dependence of the company on loan finance.

*Calculated as: ((Short Term Loans + Long Term Loans - Stocks - Debtors - Cash) / Shareholder's Funds) * 100 %*

Pre Tax Profit / Interest (Interest Cover #) - this ratio indicates the proportion of profit taken up by interest payments. The larger the ratio the less vulnerable a company is to a fall in profits or rise in interest rates.

Calculated as: Pre Tax Profit / Interest Paid

Short Term Assets / Current Liabilities (Acid Test, #) - this ratio measures the company's liquidity, and it's ability to pay all their short-term liabilities instantly.

Calculated as: (Debtors + Stocks + Cash in Bank) / (Creditors + Short Term Loans + Other Current Liabilities)

Short Term Debt / Long Term Debt (% , *) - this ratio shows how an organisation has structured its debt. Generally it is preferable to have long term debt rather than short term debt. A large ratio relative to other businesses may indicate that they are managing their debt more effectively.

*Calculated as: (Short Term Loans + Other Current Liabilities) / (Long Term Loans + Other Long Term Liabilities) * 100 %*

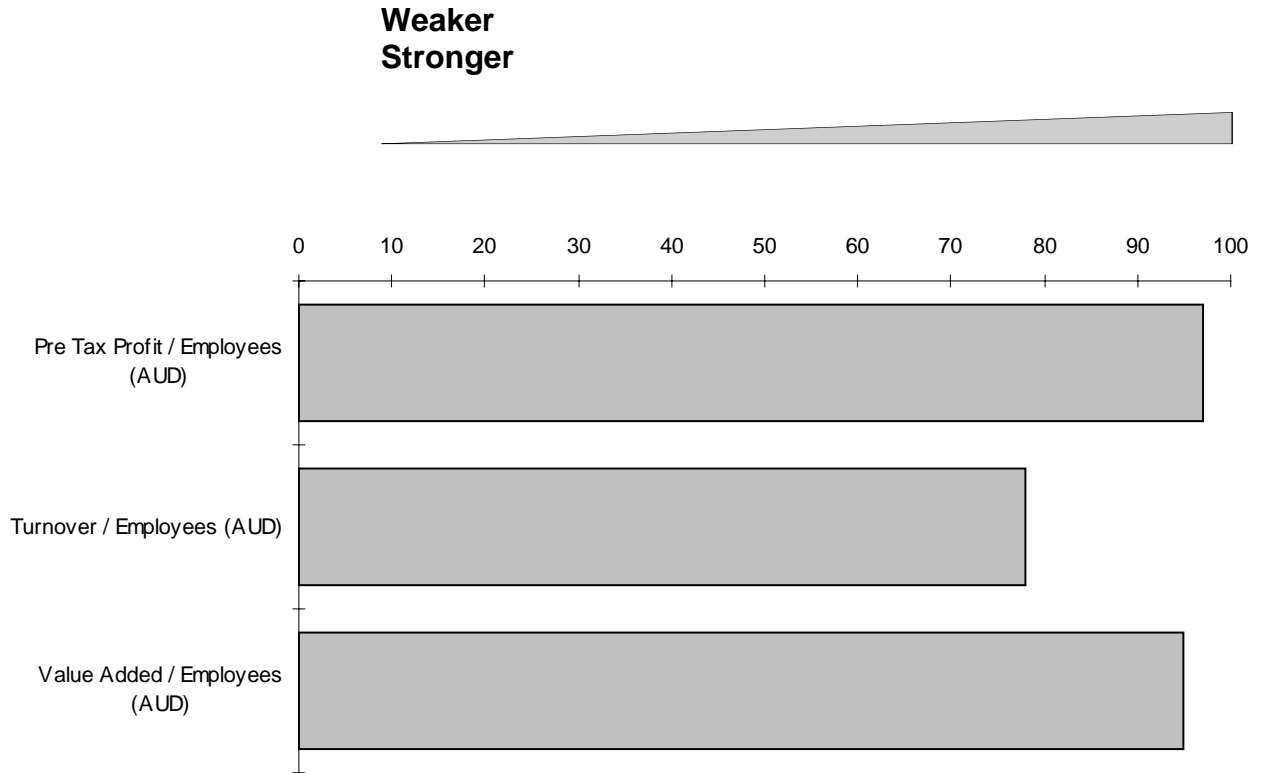
Stock Turnover (#) - this is the turnover divided by stocks, giving the number times stocks are turned over during a year, or how quickly stocks are moved through the business. It is an indicator of profitability.

Calculated as: (Turnover / Stocks)

Turnover / Working Capital (#) - this ratio measures a company's ability to generate sales from available working capital. A high figure signifies more effective use of working capital.

Calculated as: Turnover / (Total Assets - Fixed Assets - Creditors - Other Current Liabilities - Short Term Loans)

Productivity



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Pre Tax Profit / Employees (AUD)	97	21.52k	-6.60k	1,296.41	4,658.40	9,111.95	27.43k	1062
Turnover / Employees (AUD)	78	157.16k	59.08k	86.97k	114.58k	151.51k	273.59k	1066
Value Added / Employees (AUD)	95	97.98k	18.06k	36.15k	46.73k	68.03k	117.01k	1066

Productivity - Definition of Terms

* Indicates an inverted ratio

Pre Tax Profit per Employee (AUD) - this is pre-tax profit divided by the number of employees. It is an indicator of profitability.

Calculated as: Pre Tax Profit / No of Employees

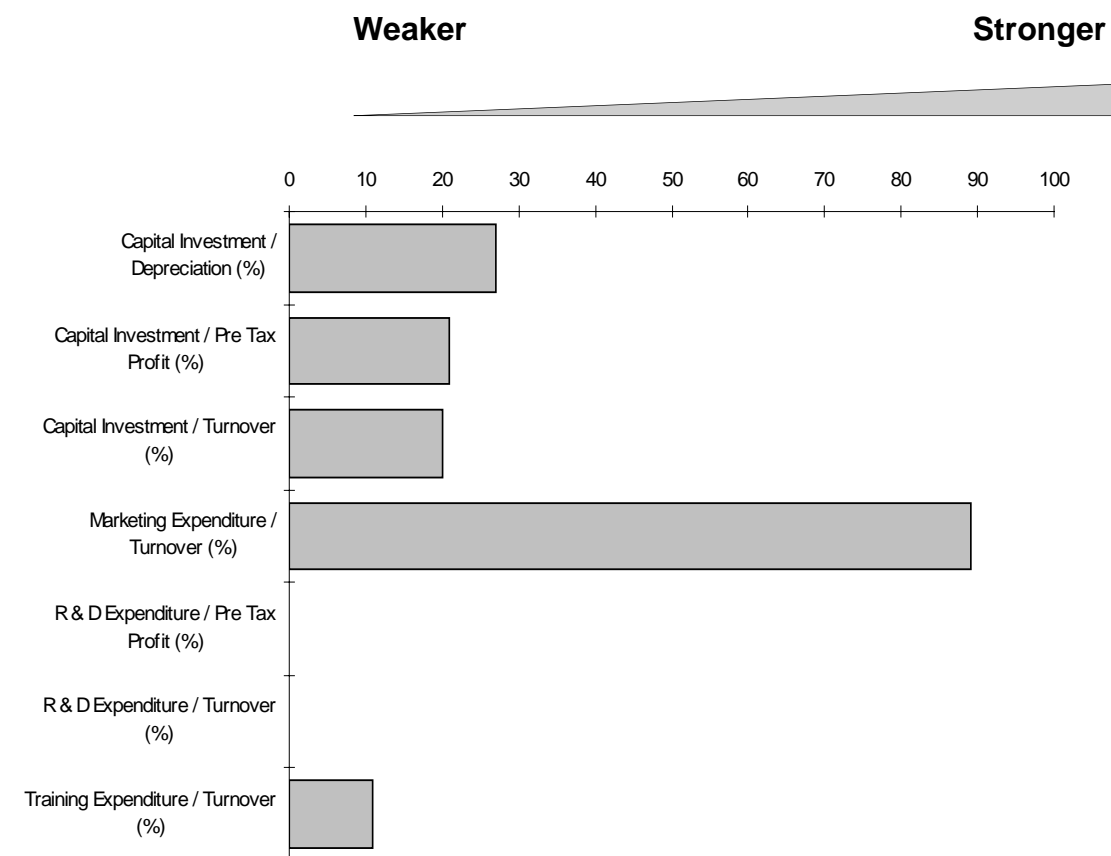
Turnover per Employee (AUD) - this is the ratio of sales divided by the number of employees. It is an indicator of profitability.

Calculated as: Turnover / No of Employees

Value Added per Employee (AUD) - this is value added divided by the number of employees. It is an indicator of profitability.

Calculated as: (Turnover - Value of Bought In Materials) / No of Employees

Investment



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Capital Investment / Depreciation (%)	27	55.83	0.00	50.06	83.05	161.50	549.29	286
Capital Investment / Pre Tax Profit (%)	21	9.61	-174.84	15.27	58.13	183.10	3,750.00	290
Capital Investment / Turnover (%)	20	1.32	0.00	1.66	3.24	5.82	25.50	299
Marketing Expenditure / Turnover (%)	89	1.42	0.00	0.14	0.43	0.79	3.02	294
R & D Expenditure / Pre Tax Profit (%)			0.00	0.00	0.00	10.00	250.00	259
R & D Expenditure / Turnover (%)			0.00	0.00	0.00	0.32	2.37	266
Training Expenditure / Turnover (%)	11	0.03	0.00	0.09	0.17	0.39	1.47	286

Investment - Definition of Terms

* Indicates an inverted ratio

Capital Investment / Depreciation (%) - this is a measure of the level of investment compared to the depreciation of the current fixed assets.

*Calculated as: (Capital Investment / Depreciation) * 100 %*

Capital Investment / Pre Tax Profit (%) - this is an indication of a company's ability to fund investment from profit.

*Calculated as: (Capital Investment / Pre Tax Profit) * 100 %*

Capital Investment / Turnover (%) - this is an indication of how much the company continues to invest in itself.

*Calculated as: (Capital Investment / Turnover) * 100 %*

Marketing Expenditure / Turnover (%) - this is an indication of the companies investment in its marketing activity.

*Calculated as: (Marketing Expenditure / Turnover) * 100 %*

R&D Expenditure / Pre Tax Profit (%) - this is an indicator of a company's investment in it's future expressed in terms of profit generated by it's current products.

*Calculated as: (R&D Expenditure / Pre Tax Profit) * 100 %*

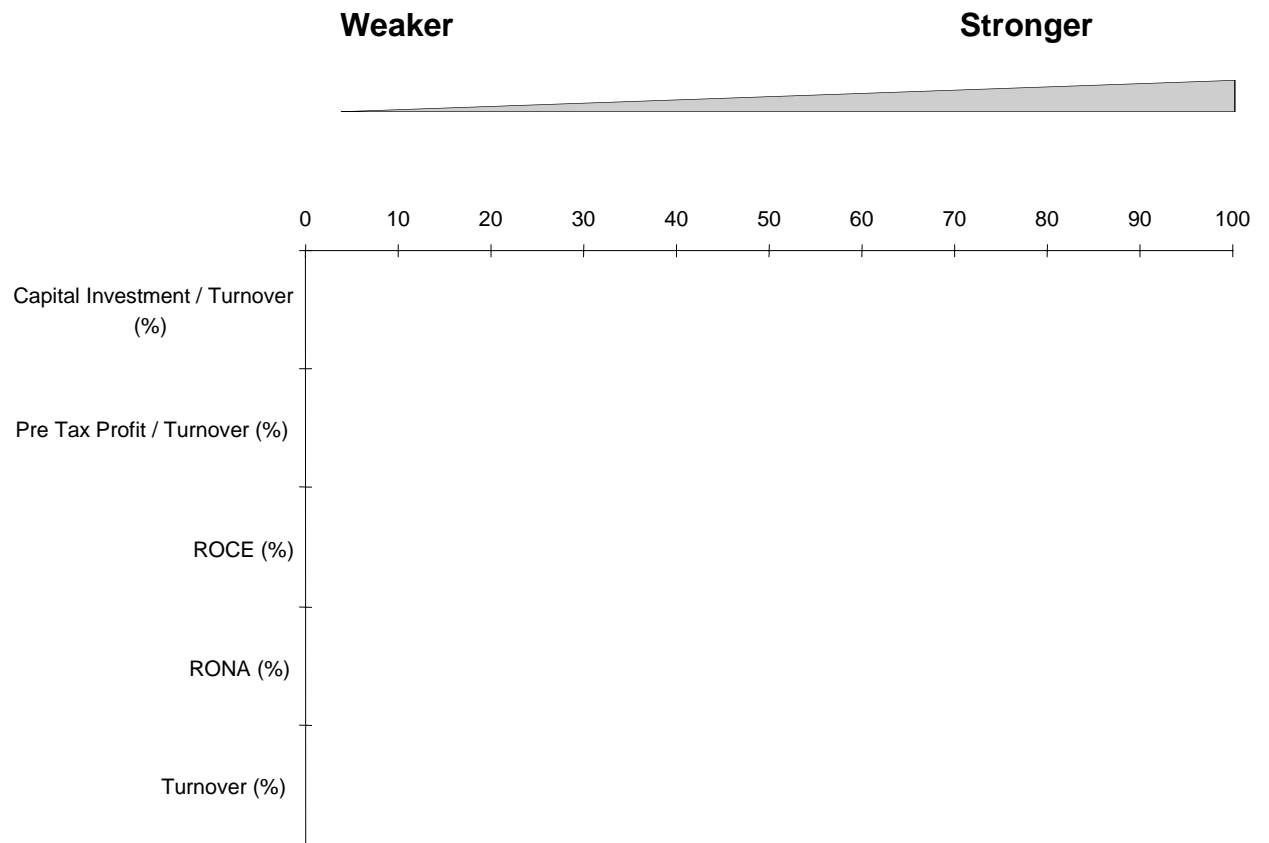
R&D Expenditure / Turnover (%) - this is an indication of the companies investment in the future, of its capacity to be innovative.

*Calculated as: (R&D Expenditure / Turnover) * 100 %*

Training Expenditure / Turnover (%) - this is an indicator of the company's investment in it's employees.

*Calculated as: (Training Expenditure / Turnover) * 100 %*

Growth



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Capital Investment / Turnover (%)			-87.30	-31.05	-0.16	65.02	764.48	262
Pre Tax Profit / Turnover (%)			-365.73	-54.45	-6.62	43.02	568.05	1023
ROCE (%)			-344.29	-59.48	-14.63	32.98	757.07	983
RONA (%)			-1.48k	2.17	471.91	1,447.06	4,771.79	997
Turnover (%)			-24.95	-2.46	6.56	15.96	54.05	1033

Growth - Definition of Terms

* Indicates an inverted ratio

Capital Investment / Turnover (% Growth) - this is an indication of a company's investment in itself on a percentage of turnover related to the previous year.

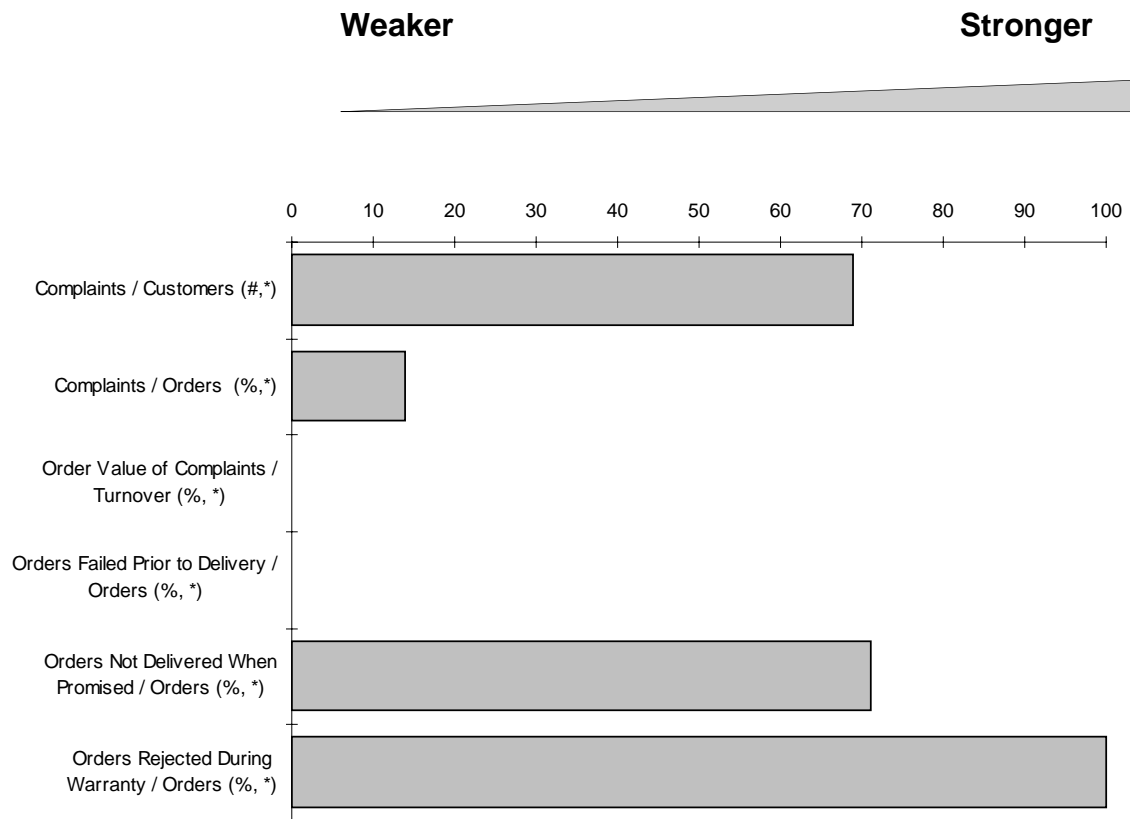
Pre Tax Profit / Turnover (% Growth) - this indicates the changes to the profit margin compared to the previous year. It indicates how well costs have been controlled when compared to growth changes.

Return on Capital Employed (% Growth) - this indicates the how much more or less profit the client company is making with the capital employed in the business. It measures how profitable the growth is. The sector comparison indicates how profitable the growth in other companies has been.

Return on Net Assets (% Growth) - this indicates the how much more or less profit the client company is making on the assets of the business. The sector comparison indicates how well others are using their assets, regardless of the financing structures of the companies.

Turnover (% Growth) - this indicates the company's change in sales compared to the previous year. The sector data indicates sales changes for the companies in the chosen set.

Customer Satisfaction



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Complaints / Customers (#,*)	69	0.13	0.00	0.10	0.20	0.76	3.50	268
Complaints / Orders (%,*)	14	4.92	0.03	0.72	1.36	3.15	14.80	270
Order Value of Complaints / Turnover (%,*)			0.00	0.17	0.93	1.69	12.32	236
Orders Failed Prior to Delivery / Orders (%,*)			0.00	0.00	0.68	1.98	12.00	237
Orders Not Delivered When Promised / Orders (%,*)	71	4.19	0.00	3.05	10.00	19.90	58.00	258
Orders Rejected During Warranty / Orders (%,*)	100	0.00	0.00	0.00	0.20	0.84	7.15	237

Customer Satisfaction - Definition of Terms

* Indicates an inverted ratio

Complaints / Orders (% , *) - this is a method of assessing customers satisfaction with the product and services supplied. It is sometimes desirable to seek complaints from customers as it is better to know that they are not happy with the product or service in order to put it right. However, it is important to look at the nature of complaints to ensure that repeat ones are rectified as soon as possible. The trend for this measure can be useful to indicate improvements in performance, and is also a key indicator for lost business.

*Calculated as: (No of recorded customer complaints / No of orders received) * 100 %*

Complaints / Customers (#, *) - this is a method of assessing the average number of complaints per customer independent of number of orders and customers. The trend for this measure can be useful to indicate improvement in performance.

Calculated as: (No of recorded customer complaints / No of customers)

Order Value of Complaints / Turnover (% , *) - this figure expressed as a percentage measures the total dissatisfaction of customers independent of the number of orders and customers.

*Calculated as: (Order value of recorded complaints received / Turnover) * 100 %*

Orders Failed Prior to Delivery / Orders (% , *) - this measure shows how effective a company is at preventing failed products from reaching the customer. It also measures the quality of the production process.

*Calculated as: (No of orders which are failed before delivery to customer / No of orders received) * 100 %*

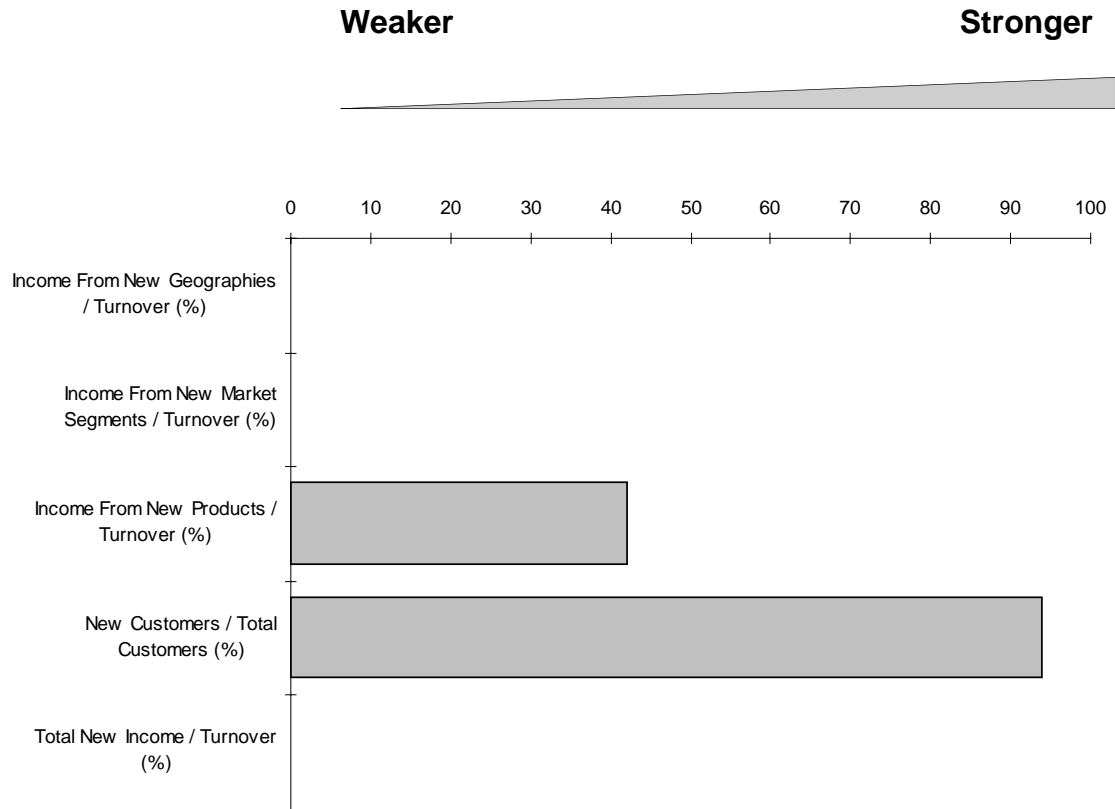
Orders Not Delivered When Promised / Orders (% , *) - this shows how well a business is meeting it's commitment for delivery promises. A lower figure indicates better performance.

*Calculated as: (No of orders which were not delivered when promised / No of orders received) * 100 %*

Orders Rejected During Warranty / Orders (% , *) - this shows how satisfied customers are with the quality of the products supplied. The lower the percentage, in general, the better, as it means that more orders are supplied with which customers are satisfied with.

*Calculated as: (No of orders rejected during the specified warranty period / No of orders received) * 100 %*

Innovation



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Income From New Geographies / Turnover (%)			0.00	0.00	0.00	2.03	8.51	234
Income From New Market Segments / Turnover (%)			0.00	0.00	0.00	2.50	16.22	234
Income From New Products / Turnover (%)	42	2.44	0.00	0.00	3.42	6.85	27.27	243
New Customers / Total Customers (%)	94	31.14	0.00	4.40	11.88	20.00	40.62	268
Total New Income / Turnover (%)			0.00	0.30	5.47	11.22	38.97	220

Innovation - Definition of Terms

* Indicates an inverted ratio

Income From New Geographies / Turnover (%) - this identifies how successful a company is being at developing new geographical territories.

*Calculated as: (Turnover from new geographical markets / Turnover) * 100 %*

Income From New Market Segments / Turnover (%) - this identifies the ability of a company to generate sales from new market segments.

*Calculated as: (Turnover from new market segments / Turnover) * 100 %*

Income From New Products / Turnover (%) - this measures how successful a company is at developing and introducing new products.

*Calculated as: (Turnover from new products and services / Turnover) * 100 %*

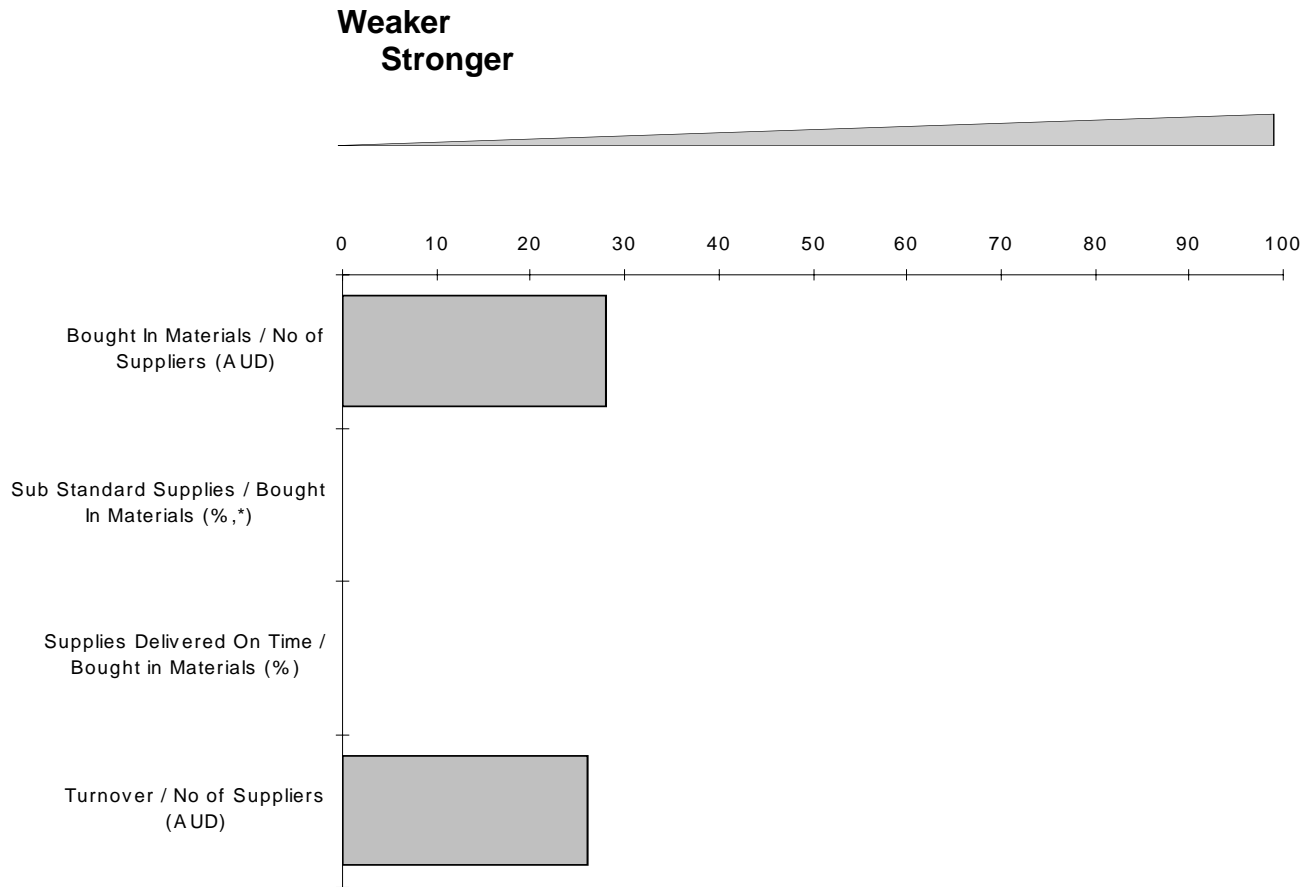
New Customers / Total Customers (%) - this figure, expressed as a percentage, identifies the growth in customer numbers regardless of new business generated.

*Calculated as: (No of new customers / No of customers) * 100 %*

Total New Income / Turnover (%) - this identifies the ability of a company to generate additional turnover from new customers.

*Calculated as: (Turnover from new geographical markets + Turnover from new market segments + Turnover from new products and services / Turnover) * 100 %*

Suppliers



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Bought In Materials / No of Suppliers (AUD)	28	28.93k	6,220.06	23.37k	43.08k	153.82k	926.08k	281
Sub Standard Supplies / Bought In Materials (%.*)			0.00	0.28	1.19	2.30	10.11	233
Supplies Delivered On Time / Bought in Materials (%)			0.10	75.91	85.00	95.00	100.00	215
Turnover / No of Suppliers (AUD)	26	76.83k	18.90k	74.42k	149.16k	389.40k	1,646.14k	296

Suppliers - Definition of Terms

* Indicates an inverted ratio

Bought In Materials / No of Suppliers (AUD) - this ratio measures the average value of business for each supplier. A higher figure demonstrates a minimising of supplier relationships.

Calculated as: (Value of bought in materials / No of suppliers used for delivery of core products and services)

Sub Standard Supplies / Bought In Materials (% , *) - this figure highlights the quality of suppliers expressed on a percentage of total purchases.

*Calculated as: (Value of supplies which are sub standard on delivery / Value of bought in materials) * 100 %*

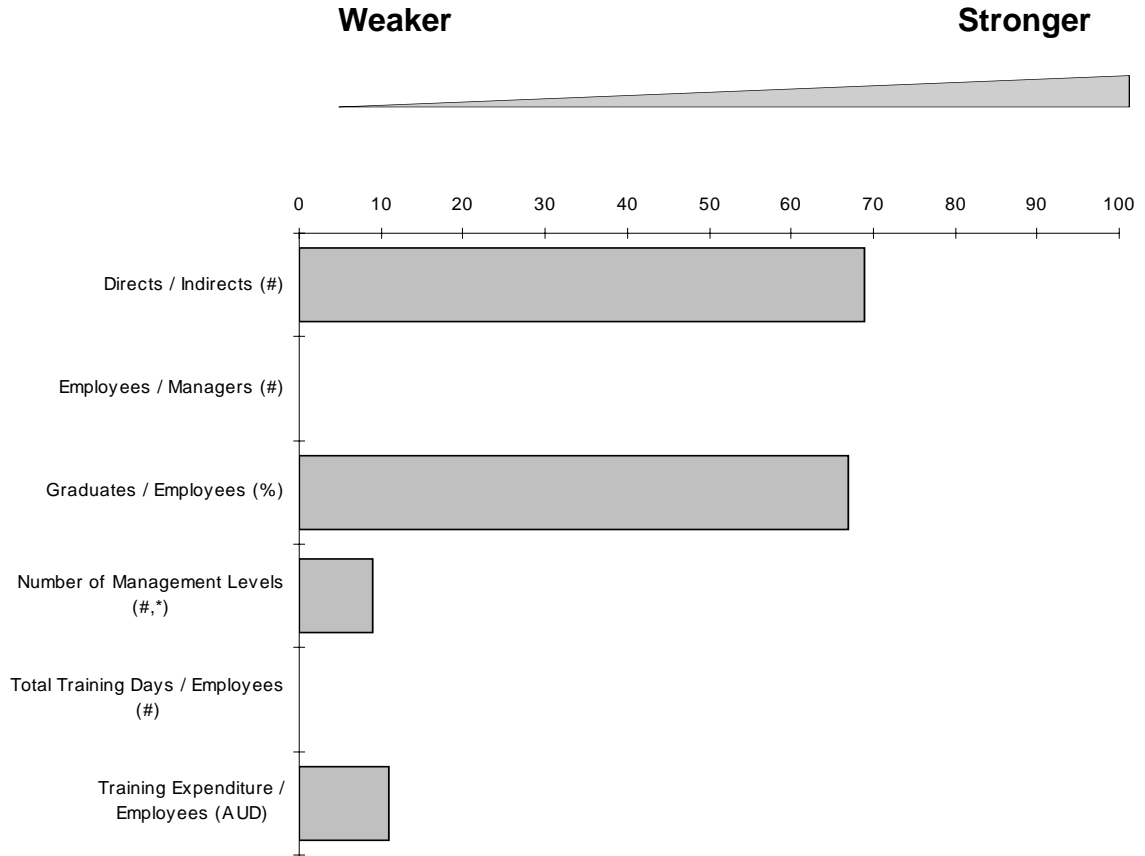
Supplies Delivered On Time / Bought In Materials (%) - this percentage measures the ability of a company's suppliers to deliver on time. A higher figure demonstrates use of reliable suppliers.

*Calculated as: (Value of supplies delivered on time / Value of bought in materials) * 100 %*

Turnover / No of Suppliers (AUD) - this ratio demonstrates the number of suppliers for the turnover of the organisation. A higher figure demonstrates a minimising of supplier relationships.

Calculated as: (Turnover / No of suppliers used for delivery of core products and services)

People Management



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Directs / Indirects (#)	69	3.63	0.49	2.05	2.93	4.15	9.33	278
Employees / Managers (#)	0	4.00	4.67	7.25	10.00	13.75	22.00	302
Graduates / Employees (%)	67	4.55	0.00	0.00	2.86	6.00	13.56	293
Number of Management Levels (#,*)	9	3.00	1.00	2.00	3.00	3.00	4.00	303
Total Training Days / Employees (#)			0.00	0.45	0.97	2.18	8.28	266
Training Expenditure / Employees (AUD)	11	45.45	0.00	124.91	255.77	585.13	2,054.33	287

People Management - Definition of Terms

* Indicates an inverted ratio

Directs / Indirects (#) - this measures the number of employees directly involved in output-related activities compared with supporting activities

Calculated as: (No of employees directly involved in the provision of service or product / (No of employees - No of employees directly involved in the provision of service or product))

Employees / Managers (#) - this measures the number of employees to each manager / supervisor. It enables organisations to see the appropriateness of their level of management and supervision.

Calculated as: (No of employees / No of managers)

Graduates / Employees (%) - this looks at the ratio of graduates to all employees. It is one way of assessing the level of education that is incorporated within the organisation.

*Calculated as: (No of graduates / No of employees) * 100 %*

Number of Management Levels (#, *) - this assesses the relative flatness or hierarchical nature of the organisation.

Calculated as: (No of management levels)

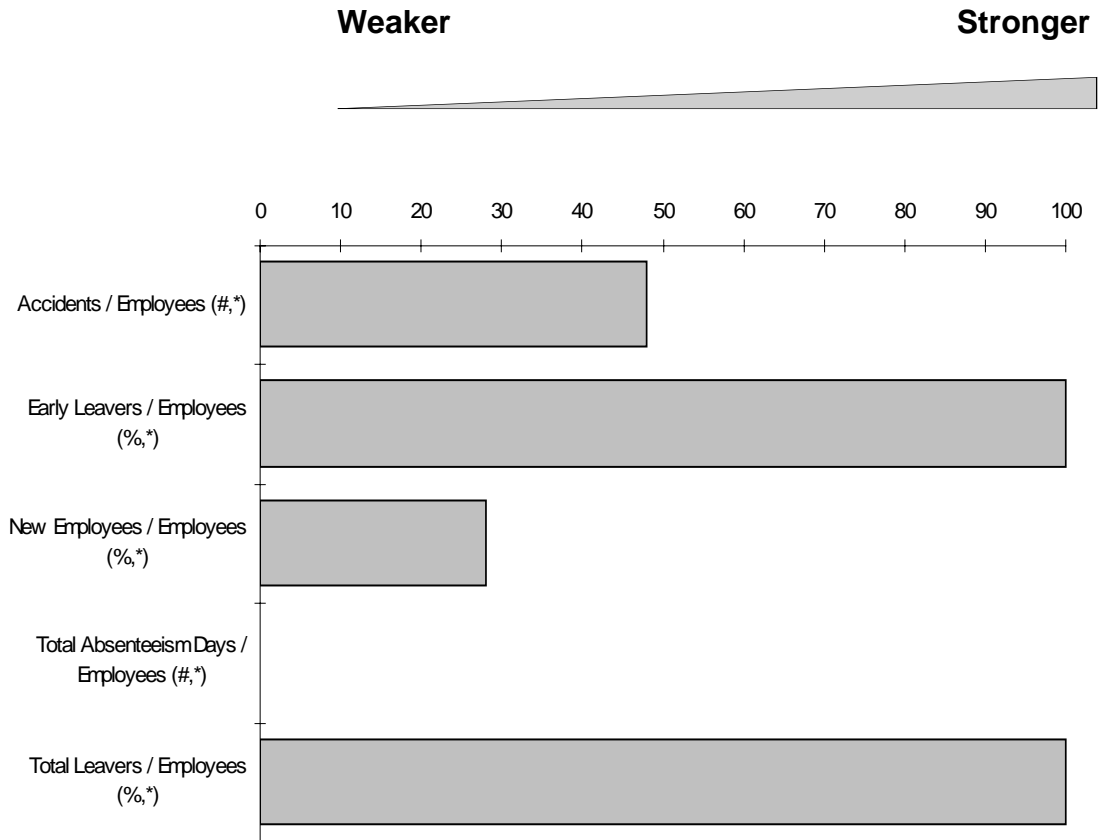
Total Training Days / Employees (#) - this measures a company's level of investment in it's staff expressed on an average number of days training per employee.

Calculated as: (Total number of days training per year / No of employees)

Training Expenditure / Employees (AUD) - this measures the company's financial investment in it's employees, expressed as an average training spend per employee.

Calculated as: (Training expenditure / No of employees)

People Satisfaction



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Accidents / Employees (#,*)	48	0.14	0.00	0.03	0.13	0.27	0.70	289
Early Leavers / Employees (%,*)	100	0.00	0.00	0.00	2.00	5.71	33.33	289
New Employees / Employees (%,*)	28	18.18	0.00	5.45	11.11	19.54	48.28	297
Total Absenteeism Days / Employees (#,*)			0.16	1.84	3.64	6.00	15.23	280
Total Leavers / Employees (%,*)	100	0.00	0.00	4.91	7.60	15.55	47.06	298

People Satisfaction - Definition of Terms

* Indicates an inverted ratio

Accidents / Employees (#, *) - this measures the number of accidents per employee. It demonstrates the level of commitment to safety that the organisation displays and importance that is attached to providing a safe working environment.

Calculated as: (No of accidents or incidents / No of employees)

Early leavers / Employees (% , *) - this indicates the extent to which the organisation has been successful in recruiting and selection people who are right for the position and right for the organisation. A large ratio of early leavers to employees indicates a mismatch of expectations between the individuals recruited and the organisation or job that they were recruited to perform.

*Calculated as: (No of people who leave within six months of joining / No of employees) * 100 %*

New Employees / Employees (% , *) - this is a measure of the relative experience level of a workforce. A higher figure signifies a low experienced workforce or it may reflect a high growth rate.

*Calculated as: (No of new employees / No of employees) * 100 %*

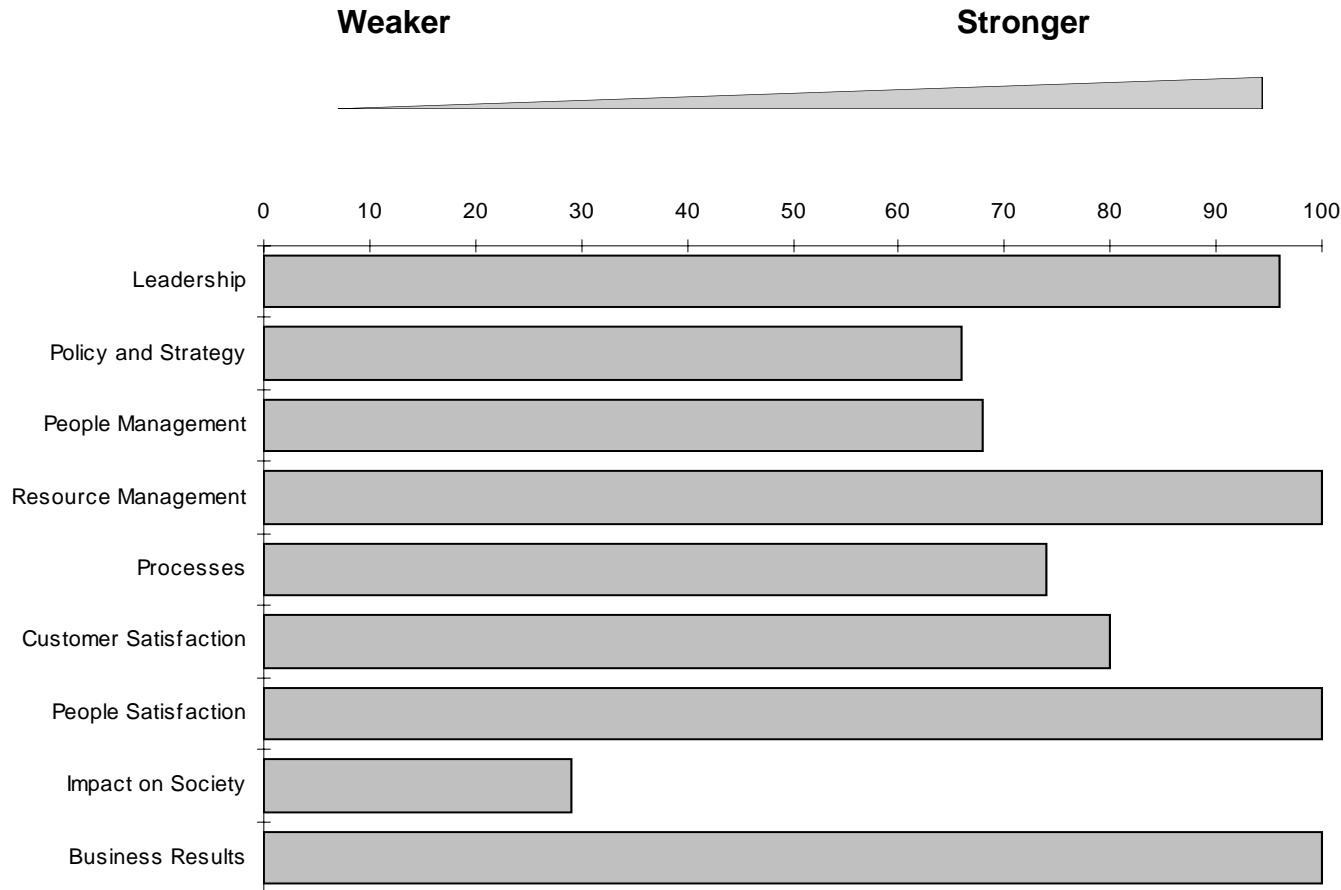
Total Days Lost to Absenteeism / Employees (#, *) - this measures the amount of time that people spend away from work due to sickness, unexplained absence and other reasons why people do not attend work on a “voluntary” basis.

Calculated as: (Absenteeism rate / No of employees)

Total Leavers / Employees (% , *) - this measures the rate at which the staff of an organisation turnover per year. It can give an indication as to how happy staff are with their workplace, it can also demonstrate the effectiveness of the selection procedures in terms of getting the right people in the right positions.

*Calculated as: (No of people who leave the organisation / No of employees) * 100 %*

Business Excellence



Measure	Relative	Your Actual	Low	Low Qtile	Median	Upper Qtile	High	Sample
Leadership	96	14.00	0.00	10.00	11.00	13.00	15.00	4806
Policy and Strategy	66	8.00	0.00	6.00	8.00	9.00	11.00	4806
People Management	68	13.00	0.00	9.00	12.00	14.00	18.00	4806
Resource Management	100	10.00	0.00	5.00	7.00	8.00	10.00	4806
Processes	74	11.00	0.00	8.00	10.00	12.00	15.00	4806
Customer Satisfaction	80	12.00	0.00	8.00	10.00	12.00	15.00	4806
People Satisfaction	100	15.00	0.00	7.00	9.00	11.00	14.00	4806
Impact on Society	29	3.00	0.00	3.00	5.00	6.00	9.00	4806
Business Results	100	14.00	0.00	6.00	8.00	9.00	12.00	4806

Leadership - this section covers the role senior managers play in shaping the organisation through its values, mission and vision, and behaviour. The actual behaviour and involvement of the senior managers are emphasised, rather than relying on statements or policies. The extent to which managers demonstrate their commitment to the customers and to the quality standards of the company is also assessed.

Policy and Strategy - this section seeks to identify the existence of policy and strategy statements. It looks at how planning activity takes into account any policies and strategies of the organisation. It also examines how the company relates its performance to the company strategy and objectives.

People Management - this section looks at how the organisation views the development of its employees. It also examines the way that peoples performance and training needs are assessed, and the way that these are related to the needs and requirements of the business. The degree of employee empowerment, and the scope of internal communications are also assessed.

Resource Management - this section looks at the way that key business information is organised and communicated throughout the company. The alignment of resources such as IT, finance and new technologies, with the goals and targets of the organisation, are also assessed.

Processes - in this section the key processes of the organisation are identified. The means by which they are managed and controlled is also covered in this section. Changing the processes and improvement activities, and how these are communicated and acted upon, are also examined.

Customer Satisfaction - this section covers the type of relationships the organisation builds with their customers. It asks about customer perceptions and the measurement of them, and then looks at understanding what the customer measures are used for.

People Satisfaction - this section covers the measurement methods and communication of employee satisfaction. How these are used for comparative purposes is also covered. It also examines the type and level of employee empowerment existing within the company.

Impact on Society - this section looks at the involvement of the organisation in the community in which it operates, beyond any legislative responsibility. It also addresses issues of ethical standards and how they are identified and communicated.

Business Results - this section covers the management of financial and non-financial performance measures. It also looks at various measures and comparisons that the organisation makes on its performance.

The Company: the client company whose data has been collected

Benchmark Set: the companies which have been chosen, using benchmarking criteria, as the basis for comparing the Company's data against.

Graphs

All graphs within the report are a plot of Relative vs. Measure.

Relative performance calculations have been made so that for all measures a small bar indicates that the company is performing weaker when compared to the chosen benchmarking set, and a larger bar indicates that the company is performing stronger.

Tabular Information

Measure: a ratio derived from the input questions which is used for benchmark comparisons. Some ratios are regarded as Inverted Ratios.

Relative (Relative Performance): for a given measure, this is the company's relative performance figure when its value is compared to the other companies in the benchmark set.

Relative performance is a percentile calculation which ranks a Company's performance for a given measure against all the other companies performance in the given benchmark set.

Your Actual: is the companies actual value for the given measure, expressed as either a percentage (%), a number (#) or in AUD depending on the individual measure.

Group Actual Data: five data points (see below) for each measure which gives an indication of the "spread" of the current database.

Low: this figure represents the 5th percentile of the database. This has been chosen so that the very extremes of the database are not displayed. Consequently, there is a five percent band of companies' information below this point and therefore a Company may have an actual figure which is lower than the "low" but a relative performance of greater than zero.

Low Qtile: this figure represents the 25th percentile (also known as the Lower Quartile) of the database.

Average: this figure represents the 50th percentile (also known as the Median) of the database.

Upper Qtile: this figure represents the 75th percentile (also known as the Upper Quartile) of the database.

High: this figure represents the 95th percentile of the database. This has been chosen so that the very extremes of the database are not displayed. Consequently, there is a five percent band of companies' information above

this point and therefore a Company may have an actual figure which is higher than the “high” but a relative performance of less than 100.

Sample: for each measure, this figure represents the how many companies worth of data is being used for the comparison.

Other

Inverted Ratios: in most cases, a higher actual value for a given measure is better (E.g. A higher Profit Margin is preferable to a low one). In some cases, however, a lower value is generally better (E.g. Absenteeism). It is these ratios which we refer to as Inverted Ratios.

When the relative performance is calculated for inverted ratios, this is automatically taken into account so that when the graphs are plotted a larger bar will **always** mean a stronger performance.

APPENDIX 2

STAGE 1 PROPOSALS

Best Value

Cost of Tendering

Construction sme Subcontractor Performance Improvement

(Maximum one page submission)

Date Submitted		Proposal Number	(to be added by CRC CI)
Proposed Project Name	Developing a Best Value Framework for Construction Project Procurement		
Proposer	Name	Professor John Dalrymple	
	Organisation	RMIT	
	Telephone	(03) 9925 1385	
	Email	john.dalrymple@rmit.edu.au	

Idea Description

The use of non-price criteria in the procurement of construction projects has been viewed as desirable for some time. This project proposes the development and testing of a coherent, robust framework for best value procurement for use by public sector purchasers. The framework is grounded in the 'purposes of government'.

Customer/Organisation Need

Public sector procurement requires that clear, transparent and defensible criteria be used to make procurement decisions. However, the meaning of 'best value' has not been clearly defined and there are many definitions that are stated or implied. The consequence is that it is not entirely clear to the contractor or the customer exactly what is being sought in 'best value'.

Market/Industry Opportunity

Both public sector procurement officers and private sector contractors recognise that there must be a better approach to the procurement of major construction contracts than using the 'lowest price' method. Developments in manufacturing management identified these issues some 20 years ago. The contracting industry and their clients are keen to support these developments.

Resource Availability

A research team of academic and industrial partners has been engaged in a scoping study for this project and the resources are all intellectual. The team is keen to advance the project from the scoping stage to the development and field testing of the framework with industry partners.

Industry Sponsors (potential or actual)

Name:	Gerry Schutt		
Organisation:	John Holland Group		
Telephone:		Email:	
Name:	John Collin		
Organisation:	Queensland DWP		
Telephone:		Email:	

Research Sponsors (potential or actual)

Name:	Dr John Dalrymple		
Organisation:	RMIT Business		
Telephone:	(03) 9925 1385	Email:	john.dalrymple@rmit.edu.au
Name:	Dr Tony Sidwell		
Organisation:	QUT Building, Construction and Engineering		
Telephone:	(07) 3864 4108	Email:	a.sidwell@qut.edu.au

Version 3.0 (Sept 02)

Value Proposition

Part of the focus of the CRC Construction Innovation is to bring about culture change in the construction industry. This change requires a catalyst and it is likely that the only such catalyst will be the public sector client. This project will benefit the construction industry by initiating the process of changing the culture from one of 'lowest price' to 'best value'. The benefits that will flow include:

- ❖ Better value for the public sector client with the advancement of multiple policy objectives on behalf of the government, for example, apprentice training, innovation, sustainable communities, etc
- ❖ Improved outcomes for the communities in which the construction projects take place, for example, local content, economic activity, improved facilities, etc
- ❖ Improved outcomes for the construction industry, for example, improved sme subcontract sector, improved profitability, opportunities for innovation, transparency in no-price criteria.

(Maximum one page submission)

Date Submitted		Proposal Number	(to be added by CRC CI)
Proposed Project Name	Cost of Tendering Research Investigation		
Proposer	Name	Professor John Dalrymple	
	Organisation	CMQR, RMIT Business, RMIT University	
	Telephone	(03) 9925 1385	
	Email	john.dalrymple@rmit.edu.au	

Idea Description

The funds devoted to tendering represent a significant impost on both contractors and customers. This impost is an example of the addition of cost without attendant value being added. There is scant research of the actual costs of tendering to either the customer or the contractor. This project proposal fills that gap.

Customer/Organisation Need

The addition of cost without addition of value is of concern to contractors and clients. The costs of tendering appear to be escalating and may have the inadvertent effect of discouraging the 'best' contractor from participation in a particular project. Contractors and clients have identified this as one of the top ten concerns of industry partners.

Market/Industry Opportunity

Both sides of the industry recognise the potentially wasteful process of tendering, but rigorous quantification has not been undertaken. Thus, the much needed evidence required to encourage improvement and changed behaviour on both sides of the industry. This project seeks to quantify tendering costs and explore alternative approaches to contracting.

Resource Availability

There is a project team currently undertaking a scoping project in this area with a view to developing a proposal for a rigorous study of the total costs of tendering borne by contractors and clients. The resources required include the capability of the current team and access to industry partners' data.

Industry Sponsors (potential or actual)

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Research Sponsors (potential or actual)

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Name:	Dr Helen Lingard		
Organisation:	QUT Building, Construction and Engineering		
Telephone:	(03) 9481 5633	Email:	

Value Proposition

In circumstances where costs are added without the accompanying addition of value, waste is the result. At present, there does not appear to be rigorous research into this example of waste in the construction industry process. This project will provide value to the participants by:

- ❖ Benchmarking their costs across the elements of tendering costs
- ❖ Clarifying the tendering and associated costs for different organisational forms

The project will provide value to the industry by:

- ❖ Rigorously quantifying the costs associated with tendering and its elements
- ❖ Providing a focus for discussion within the industry of approaches to the management of the costs associated with tendering and the development of 'a better way'

The project has the potential to enhance the image of the CRC Construction Innovation and provide an income stream by:

- ❖ 'Seeding' a business process benchmarking database with data that can be used in benchmarking the cost of tendering and its elements.
- ❖ Providing a process benchmarking service for costs of tendering on a fee for service basis.

(Maximum one page submission)

Date Submitted		Proposal Number	(to be added by CRC CI)
Proposed Project Name	Construction Industry Supply Chain Development		
Proposer	Name	Professor John Dalrymple	
	Organisation	CMQR, RMIT Business, RMIT University	
	Telephone	(03) 9925 1385	
	Email	john.dalrymple@rmit.edu.au	

Idea Description

The supply chain in the construction industry is less well developed than in manufacturing. This project proposes to bring world class international business profile benchmarking to assist in the development of small and medium-sized (sme) subcontractors. This project will target development of specialist subcontractors and their early involvement in procurement.

Customer/Organisation Need

The construction sme supply chain is a critical component in the delivery of all construction projects. Underperformance in this sector inevitably results in underperformance on all construction projects. Furthermore, it undermines the sustainability of the individual enterprise and puts construction projects and jobs at risk. Government procurement agencies view this as construction industry capacity building.

Market/Industry Opportunity

In the developed and developing worlds, sme sector firms routinely make up over 95% of companies. The construction industry supply chain is dominated by such firms. Supply chain development and capacity building have been largely neglected in the construction sector, despite rhetoric about the importance of the sme sector to the economy.

Resource Availability

The team currently scoping the 'best value' project is currently piloting the use of international business profile benchmarking and the 'contractor's module' to enable full scoping of the project proposed here. Professor Dalrymple has access to this instrument, which has proved successful in Australian manufacturing sme sector companies.

Industry Sponsors (potential or actual)

Name:	John Collin		
Organisation:	Queensland Department of Public Works (QDPW)		
Telephone:	(07) 3224 5124	Email:	john.collin@publicworks.qld.gov.au
Name:	Michael Swainston		
Organisation:	Queensland Department of Main Roads (QDMR)		
Telephone:	(07) 3834 5458	Email:	michael.j.swainston@mainroads.qld.gov.au

Research Sponsors (potential or actual)

Name:	Dr John Dalrymple		
Organisation:	RMIT Business		
Telephone:	(03) 9925 1385	Email:	john.dalrymple@rmit.edu.au

Name:	Dr Tony Sidwell		
Organisation:	QUT Building, Construction and Engineering		
Telephone:	(07) 3864 4108	Email:	a.sidwell@qut.edu.au

Version 3.0 (Sept 02)

Value Proposition

The vast majority of the companies in the construction industry are in the small and medium-sized enterprise (sme) sector. This project is an opportunity for the CRC Construction Innovation to contribute to the ‘professionalisation’ of the sme sector companies. This will benefit the industry by:

- ❖ Improving the management of the sme sector companies
- ❖ Improving the competitiveness of sme sub-contractors
- ❖ Assembling a data bank of key performance measures for companies in the industry to enable policy level information about relative strengths and weaknesses to be extracted and used in evidence based policy development.

The benefit to the CRC Construction Innovation is that the research project would move the CRC activity into its next phase of integration and application through:

- ❖ Education and improvement of sme sector owner managers capabilities in the management of their businesses.
- ❖ Enabling ‘supplier development programs’ for the sub-contract sector
- ❖ Enabling ‘joint ventures’ with industry associations, for example, the Master Builder’s Association, to provide ‘member company development programs’ providing an income stream to the CRC

APPENDIX 3

STAGE 2 PROPOSALS

Best Value

Cost of Tendering

Construction sme Subcontractor Performance Improvement

Form 2A
**Preliminary
Research
Proposal**

Program No:	C	Program Director:	Tony Sidwell
Program Title:	Delivery and Management of Built Assets		

Proposal No			
Project Name	Developing a Best Value Framework for Construction Project Procurement		
Project Proponent	Name:	John Dalrymple	
	Organisation:	RMIT University	
	Telephone:	03 99251385	
	Email:	john.dalrymple@rmit.edu.au	
Date Gate 1 Approved	27 August 2004		
Date Form 2A Submitted			

RESEARCH PARTNERS

Name	Organisation	Telephone	Email
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INDUSTRY PARTNERS:

Name	Organisation	Telephone	Email
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Michael Swainston	Queensland Department of Main Roads (QDMR)	(07) 3834 5458	michael.j.swainston@mainroads.qld.gov.au
Roger Frith	Building Commission	(03) 9285 6414	rfrith@buildingcommission.com.au
John Oliver	Rider Hunt	(02) 9929 5297	joliver@ridersyd.com.au
Gerry Shutt	John Holland	(03) 9934 5288	gerry.shutt@jhg.com.au

Project Background

The need to change the culture of the construction industry from the adversarial to the more collaborative approach has become increasingly apparent. However, such change is highly unlikely to occur without an appropriate catalyst. One catalyst is the use of a modified approach to construction project procurement. This project proposes a modified approach based on the concept of 'best value' as a substitute for 'lowest cost'.

Project Description

There is increasing interest in the use of non-price criteria in the tendering process for construction projects. In some cases, there has been discussion of a trade off between initial construction costs and, for example, heating/cooling costs, maintenance costs, etc. However, for certain sectors, for example the public sector, 'best value' is being adopted by governments. However, the lack of a rigorous framework underpinning the multifaceted nature of 'best value' has undermined the achievement of the full benefits of the approach. This project will address the narrowness of some of the alternatives being suggested.

This project will build on the exploratory work of the scoping project 2002-035-C and will develop and pilot a flexible framework for use in construction project procurement based on 'best value'. The framework will incorporate a range of non-price criteria related to the outcomes that the procuring agency seeks to deliver. The agency will be able to select from the range of non-price criteria. This will be done to match the outcomes being sought to the circumstances of the project. This selection of non-price criteria will then be incorporated into the tender documentation and used as a basis for tender evaluation. The delivery pledged on the non-price criteria will then be audited during and after project completion.

For example, in the case of public sector procurement, the non-price criteria may include innovation, apprentice training, supplier development, regional involvement, equity participation, etc. In that way, a public sector entity would make effective use of their significant investment in infrastructure to deliver on a number of the government's priorities.

In the case of an institutional investor, the non-price criteria may include life cycle costs, innovative designs to provide features that would enhance the long term rental value, design for ease of refurbishment, reconfiguration or renewal.

Project Objectives

The project objectives are to enable:

- (i) a different approach to construction project procurement that will deliver best value to the client
- (ii) the development and implementation of a rigorous framework that allows non-price criteria to be incorporated in the tender evaluation criteria
- (iii) incorporation of the criteria in an open and transparent process
- (iv) auditing of the delivery of the outcomes pledged by the successful tenderer.

Alignment with CRC Objectives

The project will contribute to progress towards the vision of Construction 2020 by helping industrial partners progress towards cooperation and collaboration in the interests of sustained profitable business for all.

Customer/Organisational Need (include Value Proposition)

The vision outlined in Construction 2020 acknowledges that there is a need to change the nature of the relationships in the construction industry and to incorporate more advanced management practices that have proved successful in other business management environments. The public sector annual budgets for capital programs are several billion dollars in each State. That purchasing power places public sector procurement agencies in a unique position to influence behaviour in the industry. However, there is a need to enable that process by providing the tools and approaches that can be used to leverage the changes in the construction industry whilst maintaining the highest standards of probity and transparency. This project will provide a flexible framework that will enable public sector procurement agencies to act as a catalyst and drive change in the sector.

Value Proposition

Part of the focus of the CRC Construction Innovation is to bring about culture change in the construction industry. This change requires a catalyst and it is likely that the only such catalyst will be the public sector client. This project will benefit the construction industry by initiating the process of changing the culture from one of 'lowest price' to 'best value'. The benefits that will flow to the public sector client include:

- ❖ Better value for the public sector client with the advancement of multiple policy objectives on behalf of the government, for example, apprentice training, innovation, sustainable communities, etc

- ❖ Improved outcomes for the communities in which the construction projects take place, for example, local content, economic activity, improved facilities, etc
- ❖ Improved outcomes for the construction industry, for example, improved sme subcontract sector, improved profitability, opportunities for innovation, transparency in non-price criteria.

In the medium term, it is likely that the institutional investors, superannuation funds, etc will also be more focused on 'best value' in construction project procurement, since this approach will take account of factors like whole of life costs, innovation in construction, etc. The benefits that will flow to the institutional investors include higher rental income, lower vacancy rates, better return on investment in the longer term.

Market Opportunity

The purposes of government are complex and involve numerous stakeholders. This project provides an opportunity for public sector procurement to deliver outcomes that are central to the achievement of the impacts that government seeks to achieve for constituent communities. Most governments have moved through the phase of using 'the market' to achieve efficiency, effectiveness and value for money. However, that phase has is recognised as having resulted in a failure to deliver the outcomes desired. The move to 'best value' demands a different approach – and governments recognise that there must be 'another way', and the more advanced agencies have tried other approaches. This project will consolidate the work already done and develop a rigorous and flexible framework that will enable agencies to deliver on the outcomes desired by governments for the communities that they serve.

Proposed Project Outcomes

This project recognises that the purchasing power of the public sector client has considerable potential to drive change throughout the construction industry. The project will provide the mechanisms and approaches to enable that level of change to be achieved. This project will produce a valuable rigorous and robust framework that will facilitate clients establishing criteria for tender evaluations that increase the likelihood of producing the desired project outcomes and impacts. This will assist clients in reducing risk and delivering outputs that address the client's priorities. For a public sector client, it will involve outputs that may include greater participation in apprentice training producing a better trained and more sustainable workforce, or more inputs sourced locally resulting in economically sustainable regions, or the employment of minority groups improving social inclusion and equity, etc. The focus is on the public sector client producing desired outcomes for and on behalf of the community. For an institutional investor, it may involve the project incorporating characteristics that will maximise the utility of the building in the medium to long term, for example, 'whole of life costing', lowering maintenance costs, innovative design resulting in a more desirable workplace or attractive features producing higher long term occupancy rates. For a property developer it will involve the delivery of the project returning improved value to the developer's shareholders.

Proposed Methodology

The project will involve the further development of the 'best value' framework to the stage where it can be used by a variety of public and private sector organizations in their construction project procurement activity. At this stage, it is envisaged that public sector procurement agencies will be the major users. The project team will work with industrial partner procurement agencies to tailor the framework to match their government priorities and hence the outcomes from the outputs from the individual construction project. The appropriate framework elements will then be selected and incorporated into the tender documentation and the use of the approach will be piloted. There are currently two potential models. The first involves the development and use of an 'index number' including weightings for government priorities to determine the 'best value' tender. The alternative is to develop a system that takes a 'whole of government approach' with 'policy coordination across functional areas' that enables a 'bounty' to be paid on the basis of the delivery of outcomes matched to the government priorities. This latter approach may require inter-departmental negotiation.

The changed approach will involve significant changes in the way that both procurement agencies and contractors approach their work. In both cases, it will be necessary to provide elements of education and training for both sides of the industry to enable the process to be understood and to ensure transparency of process.

Each pilot implementation will be evaluated through the 'Plan – Do – Study – Act' cycle and the subsequent pilots will reflect the improvements that have been identified in the 'study' element of the pilot projects. Phase 1 of the project will engage with industrial partners in one jurisdiction with the Phase 2 and subsequent phases including partners from other jurisdictions. In the course of the latter part of Phase 3 of the project, the potential of engaging with the institutional property market will be explored.

Proposed Measurement Criteria

This project is part of a concerted effort to engineer significant change in the construction industry. The goal is to reposition the relationships between client and contractor and construction project and the community. The success of this project will be measured by the extent to which industrial partners embrace the approach and adopt it more generally in construction project procurement. This will depend on the evaluation and the extent to which the new approach does, indeed, deliver auditable outcomes that match government priorities, delivering a successful construction project and additional benefits to the community..

Proposed Costs

The project will have three major cost components. Firstly, personnel costs will include a mature senior researcher who is skilled in working with senior procurement executives and contractors. Cost will be \$90k per annum for 2 years = \$180k
Second, there will be extensive travel to conduct pilot studies, education and training and evaluation. Cost is estimated to be \$25k per annum for 2 years = \$50k
Thirdly conference attendance and dissemination \$6k per annum for 2 years = \$12k
Total costs = \$242k over 2 years.

Potential Commercial Returns

The main thrust of this project is to act as a catalyst for change in the construction industry from 'lowest price' to 'best value'. Success in this project will result in significant demand for education and training to facilitate more widespread adoption of the 'best value' framework. The education and training would be provided by the CRC in conjunction with delivery partners and has potential to provide a commercial return to the CRC from both public sector and institutional investors seeking 'best value' in their construction project procurement.

Preliminary Literature Review

The preliminary literature review is incorporated in the report on the scoping project 2002-035-C

Additional Comments

Has this proposal been reviewed by the ICT Platform Director?

No

Yes

Comments:

Form 2A

Preliminary Research Proposal

Program No:	C	Program Director:	Tony Sidwell
Program Title:	Delivery and Management of Built Assets		

Proposal No			
Project Name	Cost of Tendering Benchmarking Research Investigation		
Project Proponent	Name:	John Dalrymple	
	Organisation:	RMIT University	
	Telephone:	03 99251385	
	Email:	john.dalrymple@rmit.edu.au	
Date Gate 1 Approved	27 August 2004		
Date Form 2A Submitted			

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INDUSTRY PARTNERS:			
Name	Organisation	Telephone	Email
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Michael Swainston	Queensland Department of Main Roads (QDMR)	(07) 3834 5458	michael.j.swainston@mainroads.qld.gov.au
Roger Frith	Building Commission	(03) 9285 6414	rfrith@buildingcommission.com.au
John Oliver	Rider Hunt	(02) 9929 5297	joliver@ridersyd.com.au

Project Background

The funds devoted to tendering represent a significant impost on both contractors and clients. This impost is an example of the addition of cost without attendant value being added. There is scant research of the actual costs of tendering to either the customer or the contractor. However, there is general agreement that "There must be a better way". This project follows on from the feasibility study that identified significant concern and identified a benchmarking study as an approach to overcome reluctance of individual partners to provide data in isolation. The benchmarking process also provides a return on the investment made by the participants through engagement in the activity.

Project Description

Both sides of the industry recognise the potentially wasteful process of tendering, but rigorous quantification has not been undertaken. Anecdotal evidence suggests that, in some cases, the

most appropriate contractor may decline to participate in the tendering process because of perceived costs and probability of success. The Gyles Royal Commission (1992) refers to Commissioner Holland's Report on Collusive Tendering (1992) that indicated that the tendering costs were dealt with (illegally) by 'cost sharing' among the tenderers. Thus, tendering costs have been a cause for concern for some time, and the quantification of these costs is a prerequisite to change, since it is by identifying the major cost components that change for the better can be achieved. The approach being proposed involves an element by element benchmarking process to identify the elements of greatest impost on the contractors. A similar approach will be used with the client's processes. Thus, the project will deliver the much-needed and long overdue evidence required to encourage improvement and changed behaviour on both sides of the industry. This project seeks to quantify tendering costs and explore alternative approaches to contracting that will reduce the tendering costs.

Project Objectives

The project will contribute to significant change in the construction project procurement process and forms part of an integrated approach to ensuring that improved value for money is achieved by the client, since excessive tendering costs are eventually absorbed by the client. At the same time, the project will enable an improved approach to risk management on the part of contractors, since high tendering costs erode the value of work to the contractor. In the medium to longer term, the project will enable a more cooperative and collaborative approach to construction project procurement.

Alignment with CRC Objectives

Construction 2020 presents a vision of the construction industry where the adversarial system of tendering and contracting is replaced with a more collaborative and cooperative approach. The cost of tendering is currently a cause of significant discord within the industry, whilst these costs have been largely neglected by the academic research community. This project provides an opportunity to contribute to the achievement of the Construction 2020 vision.

Customer/Organisational Need (include Value Proposition)

The tendering process imposes significant costs on both contractor and client. Anecdotal evidence suggests that the combination of success rate and cost of tendering has led to circumstances where the 'most appropriate' contractor has declined to participate in the tendering process. In one case, it was suggested that the initiation of a \$10million construction project could result in 3000 business entities being involved in the 'tendering process'. The 'client' will, of course, pay the cost of both successful and unsuccessful tenderers, albeit with a time lag for the unsuccessful, since tendering is not a cost free process. The first step in improvement of the process is to study it and quantify the costs incurred by both client and contractor.

Value Proposition

In circumstances where costs are added without the accompanying addition of value, waste is the result. At present, there does not appear to be rigorous research into this example of waste in the construction industry process. This project will provide value to the participants by:

- ❖ Benchmarking their costs across the elements of tendering costs
- ❖ Clarifying the tendering and associated costs for different project types

This will provide invaluable insights into what appears to be a significant and increasing impost on their businesses in an area where the costs are currently unavoidable.

The project will provide value to the industry by:

- ❖ Rigorously quantifying the costs associated with tendering and its elements
- ❖ Providing a foundation for the industry to evaluate the costs associated with tendering and advance the development of 'a better way'

The project has the potential to enhance the image of the CRC Construction Innovation and provide an income stream by:

- ❖ 'Seeding' a business process benchmarking database with data that can be used in benchmarking the cost of tendering and its elements.
- ❖ Providing a process benchmarking service for costs of tendering on a fee for service basis.
- ❖ Contribute an internationally recognised contribution to knowledge in the discipline.

Market Opportunity

The market for public sector construction capital projects amounts to several billion dollars per annum. Some of the estimates of tendering costs indicate that they may lie in a range of 0.5% to 3% of contract value. In the event that there are 4 contractors tendering, this range becomes 2% to 12% of contract value. For every \$1billion spent, between \$20million and \$120million is being spent on costs that do not benefit the contractor, client or community.

Proposed Project Outcomes

The project will inform the industry of the extent of the impost that the tendering process makes on the contractor and client communities. The element by element approach to benchmarking will enable the costs of elements to be quantified and this will provide the basis for discussion within the industry of a more appropriate approach. Identification of 'a different approach' will lead on to a trial and evaluation of cost reduction. This will result in more of the resources being devoted to the project delivered and less resources being devoted to the non-value-adding elements of the delivery process. This will produce better outcomes for contractors, clients and the community.

Proposed Methodology

The approach to be adopted is to recruit at least ten contractors to participate in a construction tendering process benchmarking exercise. The development of an element by element map of the process, coupled with strict definitions of the elements will result in a benchmarking exercise that protects the anonymity of the individual participant's data, whilst comparing like with like. This will enable the cost of tendering for contractors to be quantified and summary statistics produced to provide rigorous quantification of the total costs as well as the costs of each element. Each participant will be provided with a benchmarking report that is specific to that organization and can be used as a guide to where their processes are out of line with their potential competitors. The identification of strengths and weaknesses using the benchmarking results can then be used for improvement activity.

The benchmarking process will be repeated for the client group of at least ten clients and the results will be reported in a similar way.

The summary statistics generated will then provide a definitive basis for discussion with and within the industry on ways to improve on current practice whilst maintaining the highest standards of probity and transparency. The final element of the project will be to trial and evaluate 'a different approach' that reduces the impost on clients and contractors.

Proposed Measurement Criteria

The success of the project will be measured by the participation of contractors and clients in the benchmarking process. The move towards a new approach will follow discussions within the industry and will depend on the extent to which the industry regards the change as a priority.

Proposed Costs

The project will have three major cost components. Firstly, personnel costs will include a mature senior researcher who is skilled in working with senior procurement executives and contractors. Cost will be \$90k per annum for 2 years = \$180k

Second, there will be extensive travel to collect data, discuss with industry partners and provide feedback on the results of the benchmarking process. Cost is estimated to be \$20k per annum for 2 years = \$40k

Thirdly conference attendance and dissemination \$6k per annum for 2 years = \$12k

Total costs = \$232k over 2 years.

Potential Commercial Returns

The project provides the potential to use the database that has been 'seeded' by at least ten benchmarking process participants for cost of tendering benchmarking for individual organizations on a fee for service basis. In most cases where this type of service is provided, the challenge is to 'seed' the database to enable the fee for service offer to be made. The latter part of the project will investigate the extent to which there is a market for such a service and, if appropriate, develop a business case and business plan for the CRC Construction Innovation to enable a partnership to be formed to provide the benchmarking service.

Preliminary Literature Review

The preliminary literature review is incorporated in the report on the scoping project 2002-035-C

Additional Comments

Has this proposal been reviewed by the ICT Platform Director?

Yes

No

Comments:

Version 6.0 (August 2004)

Form 2A
**Preliminary
Research
Proposal**

Program No:	C	Program Director:	Tony Sidwell
Program Title:			

Proposal No			
Project Name	Construction sme Development through Business Profile Benchmarking		
Project Proponent	Name:	John Dalrymple	
	Organisation:	RMIT	
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Date Gate 1 Approved	27 th August 2004		
Date Form 2A Submitted			

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Project Background

The concept of supplier development in the construction industry is less well developed than in manufacturing and other industries. This project proposes to bring world class international business profile benchmarking to assist in the development of small and medium-sized (sme) construction industry subcontractors. This project will target development of specialist subcontractors and their early involvement in procurement.

Project Description

This project will bring an internationally recognised approach to supplier development to the Australian construction sme subcontract sector. The project will be carried out in two phases. The first phase will deliver an international business profile benchmarking report to a group of companies, coupled with a follow up action plan. These companies will then be provided with assistance to identify an improvement project and then provided with supported implementation of that project. The business profile benchmarking instrument provides a comprehensive assessment of company performance across over eighty different measures of business performance. In addition, further modules are available for companies with a manufacturing element in their activities as well as a module specific to contractors that will be used in this project.

The second phase of the project will be to approach industry associations in the construction sector with a view to partnering with these associations to provide international business profile benchmarking and improvement services to their members. This phase will involve working in conjunction with one or more industry associations and demonstrating the value of this approach to business improvement and development. On completion of this phase, the next step will be to make the approach more widely available to provide supplier development to the construction sector. This would be done as a joint venture between the industry associations and the CRC and provided on a fee for service basis, improving the performance of the industry and providing an income stream for the CRC.

Project Objectives

This project will improve the performance of the sme subcontract sector through providing a major tool for use in supplier development. The construction industry, in common with many other industry sectors is dominated by sme firms. The project will also provide an instrument for focused education and training in the management of sme sub-contractors. The project will therefore bring the benefits of the CRC to the vast majority of companies making up the construction industry, helping to improve performance, reduce costs and improve overall competitiveness.

Alignment with CRC Objectives

The project will contribute to progress towards the vision of Construction 2020 by helping industrial partners to improve the performance of the all-important sme subcontract sector in the interests of sustained profitable business for all participants in the industry. The adoption of supplier development will bring the construction industry into closer alignment with best practice that predominates in the manufacturing and other sectors.

Customer/Organisational Need (include Value Proposition)

Public sector procurement is strongly influenced by the need to obtain 'best value' for the communities it serves. Currently, much of the data required for participation in business profile benchmarking is collected through the pre-qualification process. It is not used in advancing supplier development. Simultaneously, other departments of the public sector entity are investing in programs to improve the performance of small and medium-sized companies. This project will bring together these activities and achieve better value for communities through a concerted approach to integration of pre-qualification and supplier development.

Industry associations exist for the advancement of their members with a focus on sustained profitable business for their membership. This project will provide access to a world class instrument for company diagnostics, action planning and improvement implementation.

Value Proposition

The vast majority of the companies in the construction industry are in the small and medium-sized enterprise (sme) sector. The benefit to public sector procurement organizations is that they will be able to add a 'supplier development' element to their current pre-qualification system. This can be done with a relatively small additional investment of time and effort. This will benefit the public sector procurement agencies by:

- ❖ Reducing the sme sector failure rate.
- ❖ Improving the performance of sme sub-contractors.
- ❖ Contribute to the development of a vibrant sme sector, creating jobs and economic development.

Assembling a data bank of key performance measures for companies in the industry to enable policy level information about relative strengths and weaknesses to be extracted and used in evidence based policy.

This project is an opportunity for the CRC Construction Innovation to contribute to the 'professionalisation' of the sme sector companies. This will benefit the industry by:

- ❖ Improving the management of the sme sector companies
- ❖ Improving the competitiveness of sme sub-contractors

- ❖ Assembling a data bank of key performance measures for companies in the industry to enable policy level information about relative strengths and weaknesses to be extracted and used in evidence based policy development.

The benefit to the CRC Construction Innovation is that the research project would move the CRC activity into its next phase of integration and application through:

- ❖ Education and improvement of sme sector owner managers' capabilities in the management of their businesses.
- ❖ Enabling 'supplier development programs' for the sub-contract sector
- ❖ Enabling 'joint ventures' with industry associations, for example, the Master Builder's Association, to provide 'member company development programs' providing an income stream to the CRC

This project will significantly enhance the reputation of the CRC Construction Innovation by demonstrating the relevance of the research to the over 95% of companies that make up the industry. This will constitute a significant contribution to the case for renewal of the CRC Construction Innovation.

Market Opportunity

Many small and medium-sized businesses fail as a result of inadequacies in business management, rather than lack of technical capability. This brings disruption to the smooth delivery of construction projects, personal tragedy for owner managers, loss of employment for employees and financial losses for the company's suppliers. The project brings the opportunity to ameliorate the effects of poor management on companies by identifying strengths and weaknesses in management and action planning to address weaknesses. Public sector procurement agencies and industry associations share an interest in supplier development activity that will improve the performance of the sector.

Proposed Project Outcomes

This project will demonstrate the value of business profile benchmarking, action planning and improvement implementation for the construction sme sub-contracting sector. For the individual firm the process of performance measurement, action planning and improvement will result in improved company performance. Improved capability and performance of the individual firm will result in more competitive and capable sme sub-contract sector. This will result in improved employment, economic sustainability of the sector and lower total costs within the industry. In order to extend the significant benefits of the project to the wider industry it will explore partnership agreements with public sector agencies, industry associations. This will provide a potential revenue stream for the CRC Construction Innovation, whilst improving the performance of the individual companies that have participated in the project.

Proposed Methodology

The project will be conducted in conjunction with industry partners. In Phase 1, a group of sme sub-contractors will be recruited to the project. Each one will be briefed on the process, including the requirements and expectations that the research team has. Managers will also be briefed on the benefits that are likely to be gained from participation and reference sites will be provided from the pilot study. Data collection instruments will be provided to the participants and arrangements made to facilitate the assembly of the data set. In the process, managers will be encouraged to consider whether there is data that may help them in running their business that they do not currently collect on a routine basis. Managers will also be invited to nominate the type of company that they wish to be benchmarked against. This will include company turnover, number of employees and industry sector. At this stage, two or three data sets will be collected. First is the data relating to the running of the business and includes financial data, people management and people satisfaction data, customer satisfaction data, etc. The second data set is specifically related to companies in the contracting business, and includes success rates, cost of tendering, etc. The third data set relates to companies that are involved in a manufacturing process prior to going on site. These may be manufacturers and installers of fixtures and fittings. The data would include production schedule adherence, set up times, scrap and rework, etc.

The data will be used to benchmark the company's performance against an international database, and a comprehensive report will be provided across about one hundred measures of performance. On the basis of the profile of strengths and weaknesses in the report, underlying causes of the weaknesses will be identified. Action plans will be developed for the company and implementation of an element of the action plan will be facilitated as part of the supplier development process. Once this has been completed for the first group of companies, the benefits will be apparent and the next group of companies will be recruited in conjunction with selected industry associations. Phase 2 will be conducted in partnership with the industry association as a prelude to the service being offered as a joint venture between the CRC and the industry association.

Data collected in Phase 1 and Phase 2 will be analysed with a view to identifying patterns of strength and weakness in the sme sub-contract sector. This will be used to advise the CRC Construction Innovation of the status of the sector and enable the CRC to provide policy level advice to Government regarding sub-contract sector development needs.

Proposed Measurement Criteria

The success of this project will be measured by the number of sme construction sub-contractors participate and endorse the program in the course of the rigorous evaluation process. This will be reflected in the success in attracting industry associations to participate in Phase 2, and the commercial success of the program delivery partnerships.

Proposed Costs

The project will have four major cost components. Firstly, personnel costs will include a mature senior researcher who is skilled in working with sme sector firms. Cost will be \$90k per annum for 2 years = \$180k

Second, there will be extensive travel to conduct and facilitate benchmarking, action planning and implementation. Cost is estimated to be \$20k per annum for 2 years = \$40k

Thirdly access to the benchmarking database \$9000 per annum for 2 years = \$18k

Fourthly conference attendance and dissemination \$6k per annum for 2 years = \$12k

Total costs = \$250k over 2 years.

Potential Commercial Returns

The commercial return on this project to the CRC Construction Innovation depends on the business model adopted. For example, a joint venture with one or more industry associations resulting in the creation of a new venture, or a partnering arrangement with one or more industry associations to contribute to the association's member development activity.

Preliminary Literature Review

The preliminary literature review is incorporated in the report on the scoping project 2002-035-C

Additional Comments

Has this proposal been reviewed by the ICT Platform Director? Yes
No

Comments:

Version 6.0 (August 2004)

AUTHOR BIOGRAPHIES

Professor John F Dalrymple

John is Professor of Quality Management and Founding Director, Centre for Management Quality Research at RMIT University. John Dalrymple began his professional career as a physicist, graduating as the first physics graduate of the University of Stirling in Scotland. He then moved to the University of Strathclyde in Glasgow to undertake Doctoral research in the field of wastewater treatment. After teaching Applied Physics for a time, John then moved back to the University of Stirling to the Management Science Department where he taught in the quantitative methods and materials science area.

As a management academic, John began to work on projects with industry, taking a keen interest in the manufacturing sector. Here he worked on problems in manufacturing logistics and developed an interest in quality management. Along with colleagues, John established the Scottish Quality Management Centre at the University of Stirling to underpin the teaching and consultancy activities of the Department with research in the field of quality management. He has worked on a wide range of problems and was awarded more than 1 million pounds sterling to conduct research in companies in areas related to quality management. The Scottish Quality Management Centre was designated a Centre of Excellence in 1993 under his Direction.

More recently, he began work on the service element of the product/service package and led a team investigating the application of service quality measuring instruments established in the private sector to public sector services. John moved to Australia to take up the Professorship of Quality Management and Directorship of the Centre for Management Quality Research at RMIT in November 1997.

Since John has been in Australia he has been heavily involved in a variety of research projects involving small and medium sized companies. The focus of this research is performance measurement and performance management and improvement in small and medium sized companies. John has contributed to the sustainability of sme sector companies through his research in innovation, and research & development, entrepreneurship and quality management. His long association with research in public sector management continues with funding projects and doctoral research students. John's research activities in Australia have attracted over 2 million dollars funding.

Dr Peter J Bryar

After serving for 21 years in the Australian Army, Peter decided to form his own consultancy specialising in human resources management and training and development. To substantiate his field experience in human resources management, he completed a Master of Business in Industrial Relations and Human Resources Management at Victoria University of Technology in 1997. During this program, he became unsatisfied with the direction of his work and wanted to improve his knowledge and praxis relating to consulting skills and change issues. In 1995 he enrolled in the RMIT Master of Applied Science (Innovation and Service Management) program. During this course of study he changed both the direction of his worklife and the way he practiced. He graduated in 1998.

Peter graduated Doctor of Philosophy in 2004 following study in the area of horticultural quality systems in the sme supply chain. Small Horticultural Enterprises (SHE) are the heart of the Australian fresh fruit and vegetable industry. Market demands and consumer awareness have pressured the horticultural industry into rethinking the way that they manage the food supply chain from paddock to plate. SHE, like their larger counterparts have an important role to play in producing food safe and quality lines of produce. This action research based project was essentially exploratory in nature and researched SHE developing, implementing and managing a Hazard Analysis Critical Control Points (HACCP) based quality system. The results should encourage the development and adoption of a systems approach to quality management and produce safety within on-farm components of the food supply chain.

Dr Lionel J Boxer

Since 1981, Lionel has been consulting to business and government as an industrial engineer (Ryerson Polytechnical University, in Toronto, Canada, 1982), through his business Intergon, as well as through KPMG and Computer Power Group. His profession has led him initially into materials requirement planning, facility planning and materials handling. This technocrat focus has been complemented by regular and reserve military experience over three decades, that provided him with an understanding of leadership and teambuilding. He has been working in Australia since 1987 and has also worked in New Zealand and Hong Kong and Southern China.

Starting in the mid 1980s, Lionel has been predominantly developing business management systems and working with people to introduce various participation and continuous improvement programs. He was licensed as a NIES TQM Consultant in 1991 and is qualified as an internal quality auditor in 1992. He has trained almost 200 internal quality auditors in various organisations and many more in continuous improvement approaches, such as total quality management. He completed the RMIT MBA program in 1998. Lionel graduated Doctor of Philosophy in 2003 after researching in the area of triple bottom line. He recently published a book titled *The Sustainable Way* that was based on his doctoral research.

Warren J Staples

Warren holds a Bachelor of Science from Monash University and a Master of Business (Research) from RMIT University. Warren's Master research investigated an international comparison of access to call centre services for the hearing impaired based on the Disability Discrimination Legislation in three different jurisdictions. Warren has embarked upon doctoral research in the Centre for Management Quality Research at RMIT University. Warren holds an RMIT Doctoral Research Scholarship.