Using principles of information architecture to organise and present the information elements of strategic planning

James McKee
University of Wollongong

Recommended Citation
McKee, James, Using principles of information architecture to organise and present the information elements of strategic planning, MA (Hons, BA (Hons), BSc thesis, Department of Information Systems, Faculty of Informatics, University of Wollongong, 2009. http://ro.uow.edu.au/theses/3356

Research Online is the open access institutional repository for the University of Wollongong. For further information contact Manager Repository Services: morgan@uow.edu.au.
This online version of the thesis may have different page formatting and pagination from the paper copy held in the University of Wollongong Library.

UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.
Using Principles of Information Architecture to Organise and Present the Information Elements of Strategic Planning

A Thesis submitted in partial fulfilment of the requirements for the award of the degree of

DOCTOR OF PHILOSOPHY

From

THE UNIVERSITY OF WOLLONGONG

By

JAMES McKEE

MA (HONS), BA (HONS), BSc

DEPARTMENT OF INFORMATION SYSTEMS

2009
# Table of Contents

Acknowledgements 6  
Abstract 7  
1 Introduction 8  
1.1 Overview of Research Aims 8  
1.2 Background to Strategic Planning and Information Systems 13  
1.2.1 Strategic Information Systems Planning & Alignment with Business 14  
1.2.2 The Need for Transparency of Governance 15  
1.2.3 Power of Communication and Teamwork 16  
1.2.4 The Need for Performance Measurement 17  
1.2.5 Problems Associated With Planning 18  
1.2.6 Plan Formality and the Role of Information Architecture 19  
1.3 Outline of Thesis 21  
2 Literature Review 24  
2.1 Strategic Planning 24  
2.1.1 Organisation Strategic Planning (OSP) 27  
2.1.2 Strategic Information Systems Planning (SISP) 39  
2.1.3 SISP Alignment with OSP 41  
2.1.4 Governance of Organisations and Information Systems 44  
2.1.5 Teamwork and Communication of Planning Strategies 46  
2.1.6 Performance Measurement of Organisations 48  
2.1.7 Interactions between Secondary Objectives of Strategic Planning 55  
2.2 Planning Methodologies 56  
2.2.1 Information Engineering (IE) 61  
2.2.2 Porter’s Five Forces Model and Value Chain Analysis 64  
2.2.3 Limitations of these Planning Methodologies 65  
2.2.4 Possible Enhancements to a Planning Methodology 68  
2.2.5 Lou’s Place – An Implementation of the OPM Methodology 75  
2.3 Major Factors Affecting Success of Strategic Planning 79  
2.4 Summary of Identified Problems with Strategic Planning 84  
2.5 Discussion of Strategic Planning Literature 87  
2.6 Relationship between Strategic Planning and Architecture 89  
2.6.1 Levels of Architecture from Enterprise to Infrastructure 97  
2.6.2 Advantages gained by using an architecture 99  
2.6.3 Information Architecture 103  
2.7 Factors Regarding the Strategic Planning Process 127  
2.8 Need for an Information Architecture Reference Model (IARM) 130  
2.8.1 Towards an Information Architecture Reference Model (IARM) 132  
2.8.2 Examples of Strategic Planning Documentation Templates 135  
2.9 Conclusion of the Literature Review 139  
3 A Strategic Planning Reference Model 147  
3.1 Strategic Analysis Methodologies 148  
3.2 A Process Reference Model for Strategic Planning 150  
3.3 An Information Architecture Reference Model (IARM) 155  
3.4 The IARM Can Point to Planning Problems 158  
4 Research 160  
4.1 Research Aims and Methodology 160  
4.1.1 Discussion of the Empirical Research 165  
4.1.2 To Evaluate some of the Concerns in Strategic Planning 167  
4.1.3 Problems in Validating the IARM 171
4.1.4 What is Normative Research 172
4.1.5 Normative Validation of the IARM 174

4.2 Research Investigations 177
4.2.1 Survey of the Planning Process 177
4.2.2 Survey Concerning Strategic Plan Usability 180
4.2.3 Interview Executives and Examine Documentation 183

5 Research Findings 186
5.1.1 Data Analysis of the Planning Process Survey 189
5.1.2 Data Analysis of Survey on Strategic Plan Usability 195
5.1.3 Interviews with SV Group Executives 207
5.1.4 “Lou’s Place” Discussion of an OPM Plan 217
5.1.5 Analysis of a Well Publicised Strategic Plan 223
5.1.6 Summary of Issues from Examination of Documents 239

6 Using the IA Reference model 240
6.1 The IARM and University Strategic Plan Documentation 240
6.2 The Mismatch Factors between a University Strategic Plans and IARM 256
6.3 Example: using the IARM to present University Planning Information 258
6.4 Conclusions Drawn from Applying the IARM 261

7 Conclusions 263
7.1 Introduction 263
7.2 Research Conclusions 263
7.3 The significance of this research 267
7.4 Limitations of this research 268
7.5 Future research Directions 269
7.6 Concluding Remarks 270
7.7 Conclusion 272

Publications 274
References 275

Appendices 282
Appendix A. Bailey and Peak Framework for Organisational Planning 283
Appendix B. Questionnaire for Survey of planning process 284
Appendix C. Questionnaire for Survey of plan usability 289
Appendix D. Comments of a general nature 292
Appendix E Covering Letter 296
Appendix F. Sample Raw Data 297
Appendix G. Survey Data SPSS format see CD
List of Figures

Figure 1. Conceptual diagram comparing vague planning processes with a more formal strategic planning process and the use of information architecture to present the plan. ................................................................. 21
Figure 2. Part of the Bailey and Peak (2003, p.42) planning framework showing objectives, KPIs and CSFs and their relation to each other within the planning hierarchy of process steps .................................................................................................................. 25
Figure 3. Information Engineering approach to delivering an Information Systems Plan ........................................................................................................................................... 63
Figure 4. Martin diagram showing relationship of goal to organisational unit ............... 64
Figure 5. The BPTrends Enterprises Architecture Pyramid (Harmon, 2004) ................. 96
Figure 6. The TOGAF 8.1 diagram of the Architectural Vision .......................................... 98
Figure 7. Showing the Architecture levels suggested by Koontz (2000) ....................... 99
Figure 8. Framework for the development of the information resource (Brancheau & Wetherbe, 1986) ................................................................................................................. 104
Figure 9. Four-stage model of IS planning (Brancheau & Wetherbe, 1986, p.455) ... 122
Figure 10. The conceptual diagram of the Critical Success Chain (Peffers et al., 2003, p.59) ........................................................................................................................................... 122
Figure 11. Example of the CSC for student recruitment and quality (Peffers et al., 2003, p.62) ........................................................................................................................................... 123
Figure 12. Metadata structure for goals and critical success factors (Martin, 1990, fig 5.5) ........................................................................................................................................... 124
Figure 13. Critical Information, Assumptions, Decisions and CSFs (Martin, 1990, p.99) ........................................................................................................................................... 124
Figure 14. The critical assumption set, critical decision set and critical information set provide inputs to the strategic data model. This is used to build the executive information systems and decision support systems (Martin, 1990, fig 5.5) ................................................................. 125
Figure 15. The EDS Business Improvement Framework .................................................. 133
Figure 16. EDS templates: A Strategy Map based on focus areas from EDS .......... 136
Figure 17. EDS templates: A Strategy Map based on focus areas from Balanced Scorecard ........................................................................................................................................... 137
Figure 18. EDS templates: A strategy Map based on a single focus area ................. 138
Figure 19. EDS templates: The criteria definition for a specific objective .......... 139
Figure 20. First level of the IARM for focus areas and objectives ............................... 156
Figure 21. Second Level Abstraction Showing Objective to CSF relationship .......... 157
Figure 22. The definition of key performance indicators to monitor achievement of the CSF ........................................................................................................................................... 158
Figure 23. A multi-methodological approach to IS research (Nunamaker et al., 1991) 162
Figure 24. The blue skies diagram showing communication gap between Executives and Management ........................................................................................................................................... 165
Figure 25. Map relating the data gathering method to the research objective .......... 189
Figure 26. SPSS results for factor analysis of questions 5, 6 and 7 ............................. 202
Figure 27. Dialogue of analysis of two KPIs ................................................................ 222
Figure 28. The University Strategic Planning Process 12 month Schedule .............. 226
Figure 29. First level of the IARM for focus areas and objectives ............................. 245
Figure 30. The Focus areas and Goals from the UOW Strategic Plan as an IARM model level one ........................................................................................................................................... 246
Figure 31. Second Level Abstraction Showing Objective to CSF Relationship ......... 248
Figure 32. Information elements from University strategic plan 2005-2007 shown via IARM level 2 ........................................................................................................................................... 249
Figure 34. One focus area from University Plan with two sets of objectives [IARM: Action Plans]......................................................................................................................................................253
Figure 35. Strategic Plan Reference Model – showing CSF and KPIs for one objective ..........................................................................................................................................................260

List of Tables

Table 1. Overview of the research objectives .................................................................164
Table 2. Coding of questions 9 to 17 for planning process ..........................................190
Table 3. Frequency Counts for Questions 1, 2, 3, 5, 6 and 7 .......................................197
Table 4. Frequency counts for usefulness questions .....................................................197
Table 5. Frequency counts for ease of use questions ...................................................198
Table 6. Frequency counts for planning document attributes ......................................199
Table 7. Showing crosstab and correlation of Q5 * Q8 frequency by usefulness ..........203
Table 8. Showing crosstab and correlation of Q5 * Q16 frequency by ease of use .......204
Table 9. Showing crosstab and correlation of Q5 * Q19 frequency by accuracy ..........204
Table 10. Critical success factor 1 and associated strategies .......................................220
Table 11. Key performance indicators for strategy 1.1 ..................................................220
Table 12. Applying SMART criteria to KPIs in Table 7 ..............................................222
Table 13. Appendix 1 of the University Strategic Plan Showing KPIs and Aligned Plans ..................................................................................................................................................230
Table 14. The Format of the Faculty Direction Plan – Forward Planning ..................235
Table 15. The Format of the Faculty Direction Plan – Program Development and Delivery ...........................................................................................................................................235
Table 16. Comparison of planning terms between University Strategic Plan and the IARM ..................................................................................................................................................243
Table 17. Reproducing Table 13 from section 5.1.5.3 ..................................................251
Table 18. Comparison of objectives between L & T Plan and Faculty Plans ............254
Acknowledgements

I would like to acknowledge the role played by the following people.

Firstly, to my supervisor Dr. Peter Hyland without whom this thesis would never have been finished. Owing to my being a long way off campus, Peter has had to put in a great deal of effort over the last two years, sending me voluminous criticisms, corrections and requests for clarification. His meticulous attention to detail has resulted in a much better result from me.

Secondly, to my neighbour and friend Mr Bob Mooney who spent a lot of time reading the early drafts, listening to my problems and offering suggestions and corrections. His involvement in the early days gave me incentive to keep going.

Thirdly to my wife Jacqueline who kept reminding me of the effort already put in and suggesting it would be a shame to waste the effort by not finishing the thesis. This was particularly relevant when I had retired and moved away from the academic environment, and it was tempting to go to the beach instead.

Finally to all those people: friends, family and colleagues who asked me what I was writing about and in listening to my explanation, helped me crystallise what I was trying to say.
Abstract

This thesis describes the development of a strategic planning reference model that comprises a process reference model and an information architecture reference model. The purpose of the information architecture reference model is to provide a succinct and unambiguous presentation of the most important pieces of information that makes up a strategic plan. A strategic plan that is more easily understood and used would assist the staff of an organisation to better manage the organisation and also assist the information systems developers provide information systems better aligned to the organisations needs.

To validate the information architecture reference model a normative research methodology is used which examines the current status of strategic planning and explores the need for improvement. In following the normative approach, it was then necessary to formulate what possibilities existed to change things and then to develop a proposal (the strategic planning reference model) to improve the process. The final step was to evaluate the proposal by using the information architecture reference model to develop a strategic planning model from an existing strategic plan.

University of Wollongong
Thesis Declaration

I, James McKee, being a candidate for the degree of Doctor of Philosophy, hereby declare that the work described in the attached thesis is my own original research and has not been submitted for any other degree at the University of Wollongong or for a degree at any other university or institution.

Signature: _______________________
Date: _______________________
1 Introduction

1.1 Overview of Research Aims

Organisations are becoming increasingly information driven and are shifting focus rapidly from processing data to requiring information, much of which is external to the organisation (Drucker 1998). The information of course is not useful unless it is being communicated and it particularly needs to be communicated to the person that needs it, “[e]verything a manager does involves communication. Not something but everything! A manager can’t make a decision without information. That information has to be communicated” (Robbins and DeCenzo, 2001, p. 376).

Information systems have two primary functions: one function is to provide the operational features for day to day activities and the other increasingly important function is to support an organisation by providing essential information to managers. For the information system to be designed correctly to provide the essential information, it is necessary for the information system developers to know what the essential information is for the organisation.

The seed idea for this research started with this researcher being appointed to a large scale information system/ information technology (IS/IT) reengineering project for a major system, and investigating available documentation to understand what the overall project requirements were. The documentation that was available was either incredibly detailed data models containing hundreds of data entities and thousands of data elements; or comprised high level management documents containing general directions and objectives for the organisation. There were no documents that explicitly led from the visionary high level objectives of the organisation to the major business processes and the related high level information requirements, and then down to the general level information system processes and the relevant data entities.

The architecture group of this organisation, which included this researcher, was required to set out all the high level design requirements to future proof new information systems by developing an enterprise architecture for the organisation. The enterprise architecture would include a technology policy, applications architecture, infrastructure architecture...
and information architecture. A difficulty soon became apparent in that the concept of what was understood to be an information architecture was not easily discovered and was generally thought to be the data models. Moreover these data models were not very useful when trying to identify the high level critical information about the organisation that was necessary to achieve the organisation’s objectives.

Perkins describes enterprise architecture as the “organisation of information pertaining to the following corporate-level enterprise-wide elements:

- Strategic goals, objectives and strategies
- Business rules and measures
- Information requirements
- Application systems
- Relationships between applications and data elements

The difficulties encountered in the start of the above reengineering project led to examining the proposition that existing strategic planning processes and their resultant documentation were often not in a user friendly format for communication of both the organisation’s objectives and action requirements throughout the organisation. Would the principles of an information architecture which set out the strategic direction of an organisation in a concise and unambiguous manner be useful? An information architecture could structure and present those pieces of information (information elements) critical to describing both the organisational direction and how to achieve that direction, e.g. objectives and actions, in an organised and clear manner. Part of this concept is a proposal that these information elements would be best derived as part of the organisation’s strategic planning process and should form part of the essential strategic plan documentation. The thought was that this documentation would enhance the communication process throughout the organisation and also assist the development of the strategic information system planning (SISP) within the organisation. Better strategic plan documentation could provide better requirements determination toward improved alignment between the organisation’s strategic planning (OSP), the SISP and the resultant information systems.

Many authors would argue that information systems are not always successful in providing the information a manager requires and state that it is necessary to align the
IS with the organisational strategic direction. The lack of success in having the right
information available for managers may be due in part to the lack of alignment between
the SISP and the organisation’s direction and goals. This lack of alignment could inhibit
the resultant IS from fully supporting the organisation’s direction. To develop an IS that
meets the organisation’s goals, the developers need to know and understand what the
organisation’s goals are and what strategies are to be implemented to achieve them,
such that the IS can effectively support the organisation.

It follows from the arguments for alignment, that it would be incongruous to have a
process for developing a strategic IS plan without relating it to the organisation’s
strategic plan; the two plans need to be developed in conjunction with each other. This
would ensure the two plans are integrated for optimum advantage to both plans. In order
for information systems to support an organisation effectively, those responsible for the
development of the information systems need to know what the organisation’s
intentions are, what future activities the organisation is going to be involved in and
what the information requirements of the organisation will be. It might be expected that
these information requirements should be organized and described in the strategic plan
of the organisation.

It is widely recognised by many authors (Campbell, Kay & Avison, 2004; Ward &
Peppard, 2002; Teo & King, 1997; Martin, 1990; Earl, 1989; Lederer & Mendelow,
1986) that the SISP process must be related to the OSP process and the two processes
should be developed in conjunction.

The importance of management information to an organisation is raised by several
authors “The availability of effective management information is essential when coping
with today’s complexity and dynamism, both within and around organisations”
(Lohman, Sol, & de Vreede, 2003, p. 1). Lohman, Sol and de Vreede go on to write that
“[i]nformation [t]echnology can be used to derive such information … However the
contribution of the management information generated is disappointing. Many projects
do not produce the results that organisations expect”. This disappointing view is also
expressed by Davenport and Prusak who cite Gell-Mann as saying “[t]he ‘information
explosion’ about which so much has been said and written, is to a great extent an
explosion of misinformation and badly organised information … the digital revolution
has only made the problems more acute” (Gell-Mann 1995, cited in Davenport & Prusak 1997, p.3).

One significant problem is the definition of ‘information’ and this will be examined together with the problems caused by using the term inappropriately. This may be aggravated by lack of understanding that what is considered to be information at one level of the organisation may only be data at a more senior level. This creates an imperative to determine what ‘information’ is required to drive the organisation effectively, at each major level in the organisation.

The strategic plan is possibly the essential document for the purpose of communicating the business intentions to the whole organisation, setting out the organisation’s goals and strategies. This raises the questions: is there a need for strategic planning in the organisation?, what are the arguments that have been put forward for saying it is unnecessary?, and what are the factors that seem to lead to a failure in the strategic planning process or in the implementation of the plan?.

With regard to the amount of strategic planning that should be carried out by an organisation, Mintzberg writes “too much planning would lead to chaos, but so too would too little, and more directly” (1994, p. 416). This is a crucial point in the arguments for and against planning. The problem is, therefore, to have just enough planning to be optimally effective in managing the strategic direction of the organisation. It is possible that the critical planning information belongs in the strategic plan and therefore this document should not be too complex for staff to follow, nor so brief that the document has insufficient explanation or informative statements of actions needed.

One way to achieve the concepts of alignment and communication is to have a planning methodology to follow; one that gathers a wide spectrum of input into the planning process and massages the proposed strategic ideas and concepts from the planning team into a documented set of objectives and action statements that can be shared with the whole organisation. It would be useful if these objectives and action statements (information elements) have embedded performance indicators clearly defined, that will allow monitoring of the business performance of each objective, to allow decision makers to know if the strategy is working or not. The documentation of the performance
indicators would be more specific if it also showed the related operational activity the measurement stems from.

A lack of formality in the planning process, leading to either a lack of documentation that can be distributed, or a poorly organised document that is unable to communicate organisational intent; may be a key issue in some failures concerning the strategic plan implementation. The primary aim of this research is to improve the documentation of the strategic plan and allow simple unambiguous communication of the strategic information via a well structured, concise presentation. The search is, firstly, for the nature of the important pieces of information that form the core of the strategic plan - the information elements (e.g., objectives, action statements and measurements) that are the key structural elements of the forward planning in a strategic plan (SP), separating these elements from the background information and the justification statements. Secondly, for a model that would present the information elements in the clearest way. The model for the presentation of the information elements of the SP will use the principles of information architecture (IA), and a reference model will be proposed for the IA that would allow the information elements (IEs) to be organised and presented in a simple way, as part of the documentation of the SP.

In summary, the primary aim of this thesis is: to improve the documentation of a strategic plan and in the process will need to achieve the following objectives:

a. Identify the strategic information (information elements) such as objectives, action statements, target measurements, which would be most useful in a strategic plan.

b. Show how the principles of information architecture would present this information (by way of a reference model) in a clearer and more succinct way than narrative alone.

c. Explain how the resulting documentation combining point’s a. and b. would allow for better communication of organisational intentions, which could improve management generally and also allow better alignment between SISP and OSP.

d. Note that the literature review is expected to raise a number of issues that will need up-to-date clarification that the issues are still current. This will be done by a variety of methods including a survey of organisations.
1.2 Background to Strategic Planning and Information Systems

There is a debate in the literature between advocates for and against formal organisational strategic planning (Hill & Jones 2004; Bailey & Peak 2003; Collins & Porras 2002; Mintzberg 1994). At one end of the spectrum is the idea of a BHAG (Big Hairy Audacious Goal), a predominant single goal espoused by a chief executive of a company as proposed by Collins and Porras (2002). In their book *Built to Last*, Collins and Porras (2002) advocate that a BHAG is more efficacious for better organisational performance than formal strategic planning. At the other end of the spectrum, Hill and Jones (2004, p.3) review a number of organisations and conclude that on average, strategic planning improves organisational performance.

For many organisations, a strategic plan may be needed to communicate goals and directions to the staff in order to be competitive. Without a plan, the organisation can only react to market and other changes and may, therefore, be behind more successful competitors.

A number of themes related to the concept of strategic planning recur throughout the literature (Hill & Jones 2004; Bailey & Peak 2003; Collins & Porras 2002; Mintzberg 1994). Some of these themes that should be considered in the process of developing an organisational strategic plan are:

1. Strategic information systems planning and its alignment with the business.
2. The need for organisational transparency of governance.
3. The need for good communication of organisational strategic intent.
5. Problems encountered in the planning process.
6. The need for formality in the planning process and the use of an information architecture to provide that formality.

A brief introduction to each of these themes is presented next, with a more complete discussion presented in the literature review; the first four of these themes could well be reformulated as secondary objectives of the strategic planning process.
1.2.1 Strategic Information Systems Planning & Alignment with Business

Many authors (Campbell, Kay & Avison, 2004; Ward & Peppard 2002; Teo & King 1997; Martin 1990; Earl 1989; Lederer & Mendelow 1986) support the view that for an information system to truly support the business activities, the SISP needs to align with the OSP. An IS needs to do more than simply replace manual operational business transactions; it needs to be able to provide information to enable the effective management of operational activities, for tactical management and perhaps to provide the information for decision support systems that can aid in strategic decision making. To be effective in these latter areas the IS must be developed to specifically support the business strategies which means the SISP must be done in alignment with the OSP. To go further, there needs to be interaction between the two strategic planning processes so that new developments in IT and IS can be incorporated into business forward planning as well as developing the IS to provide essential information to support an organisation’s goals.

Martin (1990) writes that “[t]o do strategic planning of information systems in isolation from strategic business planning is to ask for trouble. It is likely to lead to expensive systems that do not fully serve the needs of the enterprise” (p.17). IT and IS have become increasingly pervasive throughout most organisations and are essential to most organisations’ well-being, providing functions that range from activities for controlling costs to those providing competitive advantage. This has resulted in an increase in complexity of systems, as organisations increasingly integrate their processes and software applications. Earl (1989) suggests, in support of developing an IS architecture, that as information systems integration complexity increases, an “architecture provides a framework for and a mechanism to, consider and design necessary interfaces, compatibility and integration” (p. 97). Another reason to adopt an IS architecture, according to Earl (1989), is that an architecture assists in resolving the choices over time that are necessary to meet accelerating business needs.

One definition of an architecture, is that it is a blueprint setting out the specifications for something that is required, whether it is a building, the road infrastructure of a new town, a computer system or the information elements of a strategic plan. Having an architecture defined for the planned development of each of the IS (eg., the computer system, the network, etc.) also enables the effective implementation of the IT/IS requirements of the business. This is enabled by having clearly defined technology blueprints of requirements for the organisation to work toward. This could also be said
for an information architecture that describes the future direction of an organisation for the staff to work toward.

1.2.2 The Need for Transparency of Governance
Since the demise of several very large organisations such as WorldCom and Enron, where senior executives have been prosecuted for malfeasance, the media have stressed the shareholders’ and public’s concern for greater transparency of corporate governance. Hill and Jones (2004) write about the collapse of Enron and the concern that senior managers at Enron deliberately mis-stated the company’s financial position, with the losers being key stakeholders. In the USA this concern resulted in the Sarbanes – Oxley (SOX) Act (Ruzbacki, 2004). The government of the USA regarded the large scale collapses so significant that special legislation was developed, “SOX was enacted … after the spectacular failure of the once highly regarded firms Enron and WorldCom. These firms entered bankruptcy proceedings in the wake of revelations of fraudulent accounting practices” (Romano, 2005, p.1). In response to these large corporate collapses, governments and industry bodies paid increasing attention to corporate governance, in an attempt to achieve more accountability for top executives. “Corporate governance can be described as the top management process that manages and mediates value creation for, and value transference among, various corporate claimants in a context that ensures accountability to these claimants” (Fort and Schipani, 2000, p.1).

The response to the concern about how to ensure managers implement strategies that are in the long term interest of the stakeholders have given rise to Hill and Jones (2004) writing about the use of corporate governance and business ethics as tools to make sure the interest of stakeholders are included into the strategy making process. They review four external governance mechanisms: board of directors, stock based compensation, financial statements and takeover constraints. They also advised that a governance mechanism should be applied within a company.

The corporate governance mechanism advised by Hill and Jones (2004) for use within the company is to provide strategic control systems. The purpose of these systems is to have targets for performance measurement, a monitoring system and to take action if necessary. This requirement for strategic control systems would be assisted by having an unambiguous, well defined and structured strategic plan; the key information elements that describe the detail of the organisational direction, objectives and measurement indicators would be documented in a strategic plan. Where it is possible,
these indicators would be monitored and presented without bias by an aligned IS. The senior management of an organisation would need to detail what goals they had for the organisation, what strategies will be used, how the success of each strategy will be measured and how to report on the progress toward achieving the strategies and goals. This would give other managers and stakeholders a clearer picture of the goals of the organisation, how they were achieved and measured and also give them a better understanding of their role in achieving the objectives.

1.2.3 Power of Communication and Teamwork
In considering the need for communication of the strategic intent of the organisation, it is worth looking at the literature on how team effort can improve performance. There is discussion in management literature on the advantages of team effort (Hackman 2004); this is, however, often described in terms of middle and lower management project teams. The relevance of the arguments in favour of team effort should be considered, with the idea that the organisation as a whole could improve performance if performing together as a team; at the very least, the executive management should work together as a team. For this team approach to happen, the organisation needs to have good communication and a clear definition of goals with a shared understanding of how those goals are to be achieved. The strategic planning process and the resulting plan would be a useful vehicle to provide this communication. To do this, the process and methodologies of strategic planning and the format and presentation of the resulting strategic plan will be reviewed and analysed within this thesis.

As part of the strategic planning process it is worth considering the concept of the senior management ‘team’; the challenge is how to make the ‘team’ more effective in managing an organisation. A ‘team’ which is a group of people actively collaborating, rather than a workgroup of people that have been merely collectively assigned to a job, has distinct advantages in performance; this is because they are working in conjunction with each other and not creating unnecessary effort going in different directions, which may require backtracking and correcting (Hackman, 2004).

A key characteristic for the effectiveness of a team is good communication, the basis of which will be a clear project description and a clear definition of goals and milestone targets, with unambiguous performance indicators. This can be translated to the idea of the organisation as a team and the strategic plan being the clear project description.
Martin (1990) refers to one purpose of the strategic plan being the need to act as a communication tool.

The relationship between the management team and OSP and the use of the SP as an effective communication tool will be examined in section 2.1.5.

1.2.4 The Need for Performance Measurement

The Australian Quality Council (1998) proposed *A Framework for Business Improvement and Long Term Success*. The common principles are listed below, with several points bolded to emphasise their relation to this research; of particular note are the last two points that refer to the management of improvements via measuring and monitoring targets. The principles are to:

- communicate information through the company,
- understand manage and continuously improve processes,
- set direction and negotiate clear values,
- base decisions on fact and data and
  - use a planned and structured approach to improvement, finally
- monitor and review the deployment of improvements, which
- requires them to have targets that can be measured.

It should be noted that this set of principles is useful in any good strategic planning process.

The issue of performance measurement is strongly pursued by software vendors selling what is termed ‘Business Intelligence’ software (Cognos 2002). The term ‘Executive Dashboard’ is also commonly used, and is intended to provide the key information needed to support the enterprise embarking on new initiatives. These software packages focus on searching existing data within the company data sets to see what can be found to support management. This approach to developing a set of management indicators for guiding the organisation provides an argument that it is necessary to integrate, collate and aggregate existing data to find the best performance measures for a particular management function. This can be very useful but perhaps less effective than the concept of, firstly, determining what information the organisation needs for optimal performance and, then, determining where that information must come from.
Is there an essential need to identify the contextual information concerning the organisation?; that is, to determine the information elements that will define what is necessary for success of the organisation, at an early stage in the strategic planning process? Can this be done by deciding what the primary goals should be and, from them, developing action statements required to achieve those goals, together with designated targets to be achieved and the indicators required to measure progress toward the targets?

1.2.5 Problems Associated With Planning
Organisational strategic planning may fail to achieve the desired results for either procedural or technological reasons. Executives and managers may lack good processes for converting objectives and strategies into action statements and may omit quantifiable measures for specified targets. Line managers and other staff require these action statements and measures to enable them to work toward the objectives, and to track the business performance toward attaining the objectives. There are already significant problems in tracking business and operational performance and, even when quantifiable measures are expressed, they can be difficult to match to operational data and require special effort to aggregate or combine them or otherwise derive the target measure (Tarr 2001). These problems need to be reviewed during planning to determine how the measures will be obtained; otherwise, the measures may be unobtainable or misleading.

The concept of strategic planning has a number of organisational constructs comprising the makeup of the planning group (Earl, 1993), the planning process and methodologies used (Lederer and Sethi 1988), the construction of the planning document itself and the actual implementation of the plan. Many failures of strategic planning are said to be in the implementation of the plan, although this does not preclude the possibility that the implementation problems still have their root in the makeup of the planning team and the planning process. It can be postulated that both of these factors (planning team and planning process) will affect the quality of the documentation of the strategic plan; this research, however, will only review the planning process and investigate the quality of the documented strategic plan. How can the documented plan be improved, so that the plan communicates to all the necessary staff, what the organisations strategic objectives, action plans and measurable targets are?; to enable the staff to better act as a team to achieve the organisational strategic direction?.
1.2.6 Plan Formality and the Role of Information Architecture

What is the case for a well-described and well-structured strategic planning document that could improve SISP and information systems alignment to the organisation’s objectives and could also improve the quality of managing the organisation and the transparency of governance? Would the planning document need to be clear, unambiguous and concise, in order to achieve these objectives? It is proposed to examine the concept of an IA to assist in the organisation and presentation of the information elements of the strategic plan, as described by Brancheau & Wetherbe “[a]n information architecture is a high level map of the information requirements of an organisation” (Brancheau & Wetherbe 1986, P.453). To achieve the purpose of a clear concise planning document, an information architecture reference model (IARM) will be developed to show how the information elements comprising the organisational strategic direction could be represented in a clear and simple manner.

Robbins and DeCenzo (2001, ) argue for formal written planning:

In informal planning very little if anything is written down. What is to be accomplished is in the head of one or two people. Furthermore the organisation’s objectives are rarely verbalised … The planning is general and lacks continuity.

In response to their own question “Why should managers formally plan?” they answer “planning provides direction, reduces the impact of change, minimises waste and redundancy, and sets the standards to facilitate control” (Robbins and DeCenzo, 2001, p.81). The authors do not distinguish what kind of planning they refer to and it would seem that their arguments could equally apply to planning organisational strategy or to the planning for the strategic development of information systems, which would result in information systems better aligned to support the strategic direction of the organisation.

In order to understand the importance of using the concept of information architecture to assist in the development and formatting of the strategic plan, the literature review will explore the use of the term ‘architecture’ in other disciplines and will try to clarify what distinguishes the term architecture (i.e. its ability to aid in the long term sustainability of an endeavour) from meaning just a large scale design. Looking at various definitions from Bredemeyer, architecture in the general sense could be defined
by the document that lists all the components that make up the whole, that has for each component a clear and specific description and that all the interrelationships between components are well defined (Bredemeyer 2001).

The literature review will explore the concept of architecture in more detail, with particular reference to the different levels that are used within the information systems planning domain. The concept will be examined to see if the idea of an information architecture could be used to organize the strategic plan more effectively. What components or information elements will comprise the architecture to be investigated? Might these components include clearly described goals and their targets, together with the actions to achieve the targets and the inter-relationships between activities? Whether these components can be used as information elements within an information architecture reference model to assist in creating a more useful management document will be considered. Can a strategic plan that is built on the basis of following the information architecture reference model aid in providing more transparency of governance and, by creating better alignment of the business goals with the SISP, will it enable the resulting IS to be designed to provide improved performance measurement and thereby better quality management?

One of the problems that must be carefully considered when deciding on the content of the strategic plan is a difficulty with the definition of ‘information’. One definition is that information is data that can be used immediately to make a decision or take action and that does not need further manipulation in order to make it useable by the relevant level of the organisation (Alter 2002, p.71). To justify using the information architecture concept, the importance of information in strategic planning will be explored. Davenport and Prusak suggest that “making explicit the high level ‘information intent’ of a firm actually makes a lot of sense in an information pervasive world” (1997, p. 35). Taking a slightly different perspective, Porter and Millar discuss information in relation to creating competitive advantage and state “the information revolution affects all nine categories of value activity” (1985, p.5, p.8).

The issues discussed in this background section are shown diagrammatically in Figure 1. The first section of the diagram suggests that informal and vague procedures for the planning process will result in an informal and vague strategic plan. This kind of planning document would be a poor communication tool for the organisation to use and
would lead to non-optimal performance by the organisation. The second part of the diagram shows a better chance of communicating what is needed and a greater probability of improved organisational performance, by having a more complete and formal strategic planning process and a structured strategic plan that uses an information architecture reference model to organise and lay out the critical information elements.

Figure 1. Conceptual diagram comparing vague planning processes with a more formal strategic planning process and the use of information architecture to present the plan

These, then, are some of the issues to be explored by this thesis through the literature, by surveys of organisations and the detailed analysis of a selected organisational strategic plan.

1.3 Outline of Thesis

In the search for factors that would lead to improvement in the content, organisation and structure of the documentation of the strategic plan, this thesis will first explore the
nature of strategic planning for an organisation, and then examine the relationship between organisational strategic planning (OSP) and strategic information systems planning (SISP). A proposition will be investigated that, if an IS is to truly support an organisation, it must not only maintain the operational activities of the organisation but must also be able to monitor those activities through performance indicators. More importantly, the IS needs to be able to monitor, where possible, key performance indicators relating to the strategic objectives, to ensure the organisation is on track to achieve the organisational goals set out in the OSP. These objectives and key performance indicators, therefore, can only be achieved by information systems developed from an SISP aligned with an OSP that spells out these information requirements.

The literature will be examined to determine what arguments and propositions exist in the area of strategic planning, performance measurement, planning methodologies and systems architectures that would have a bearing on the documentation and implementation of a strategic plan. Discussions will be presented from the literature, on the problems encountered in trying to achieve successful OSP and SISP and the implementation of the resulting plans. The relationship between planning methodologies and the resulting documentation will be examined.

The main proposition of this thesis is that there needs to be an improvement in the strategic planning documentation and that the organisational principles associated with architecture will assist in this improvement by developing an IA for the key information elements of the strategic planning documentation. An IA reference model (IARM) will be developed to demonstrate an improved presentation of information elements of strategic planning. There will be discussion on the premise that the IA reference model will improve communication of strategic intent throughout the organisation which would allow the OSP and SISP to be better aligned.

The literature review will be followed by a proposal for a strategic planning reference model (SPRM), which is an abstract representation of the concepts and components that can make up the strategic planning process. The SPRM can act as a reference for those people involved in strategic planning and assist the development of the strategic plan and aid the design of the strategic information model that will lead to an effective implementation plan. The SPRM will comprise both a process reference model (PRM)
for the strategic planning process and an IARM to present the information elements of
the strategic plan.

There will be a description of surveys conducted as part of this research. The first
survey examined the strategic planning processes of organisations, to determine an up-
to-date view of strategic planning, the information elements included in the planning
and the degree of formality in the process. The second survey investigated the
perception of staff within a particular organisation that has a formal strategic planning
process, as to the usability of the strategic planning documentation.

Survey data will be analysed for significant relationships and indication of support for
the proposed IARM. Following this analysis, case studies of the strategic planning
processes in several organisations and a detailed analysis of a strategic plan from a
single organisation will be presented. The analysis of the strategic plan will investigate
the content and structure of the OSP documentation and will use the proposed IARM as
a tool to evaluate the effectiveness of the documentation.

The conclusion will summarise the strategic planning problems identified in the
literature and report the findings of the surveys and interviews. The final section will
describe the possible benefits that could result from the proposed IARM and link any
related material between surveys, interviews, strategic plan analysis and the proposed
IARM.
2 Literature Review

The literature review is organised in two main parts. The first part is covered by sections 2.1 to 2.5 and deals with strategic planning issues, which include the strategic planning process, the methodologies involved in planning, and the factors relating to success and failure of the planning process. Implementation failures are examined to identify any limitations in planning processes with particular reference to the documentation of strategic planning.

The literature on strategic information systems planning (SISP) will then be reviewed to determine the requirements needed for alignment between OSP and SISP. Various considerations will be examined that could be part of a strategic planning process whether OSP or SISP. These considerations include governance, communication and teamwork, and performance measurement and these considerations could, if required, become secondary objectives of the planning process. Also important for consideration are the possible interactions between these secondary planning objectives. These issues together with a sampling of planning methodologies will be reviewed to determine whether there are any factors that are related to the documentation of the plan. The main focus must therefore be on the implementation phase of any methodology, because this phase should include the determination of the information elements describing the organisational strategic direction and the documentation, if any, of this planning information.

The second part of the literature review is covered in sections 2.6 to 2.8 and reviews the concept of architecture in relation to information systems, with a particular focus on information architecture and the way the principles of architecture might be used to improve the organisation of information contained in a strategic plan.

2.1 Strategic Planning

The topics to be covered by the literature review are summarised in the concept map shown in Figure 2 which also indicates the approximate relationship that might exist between topics. In the Figure; the italic text is an assumed function that is not covered by this thesis and the underline text and symbols indicate the research investigations and suggested future strategic planning scenario that might exist.
The literature concerning the strategic development of organisations is reviewed to identify what each author considers to be the key information elements that determine the strategic direction for the organisation: these key information elements are then examined to see if there is a common set of information elements that will enable the development of the proposed IARM. Alternative planning models used to represent the concept of OSP will be reviewed to identify if there is any commonality of process.

Ball (1982) defines strategic planning as a “process for exercising favourable influence over future events” (p.33). Barry (1998) writes that “strategic planning is the process of
determining what your organization intends to accomplish and how you will direct the organization and its resources toward accomplishing these goals in the coming months and years” (p.1) and, from a different perspective, Gordon (2005) writes states “for stakeholders the strategic plan is their roadmap to the future they have envisioned” (p.1).

Hill and Jones (2004) discuss the concept of strategic planning at various organisational levels: from corporate level strategy, to global strategy, business level strategy and, at the lowest level, the functional level strategy. Hill and Jones (2004) state that business level strategic planning is aimed at translating the direction and intent of the corporate level managers into strategies for each individual business. The functional level strategic planning is aimed at improving the company’s operations, while bearing in mind the business level strategies such as SISP which is an example of functional level strategic planning.

The literature review indicates there is considerable confusion with strategic planning terminology and which planning functions are encompassed within each author’s consideration of the strategic planning landscape. Rea and Kerzner (1997) write that “despite a rich and varied history, all this strategic-planning experience has not led to a single school of strategic thought or to a set of concepts that will work well in all circumstances” (p.2).

There are a great many alternative views about what is meant by the term ‘strategic planning’ and even whether it is worthwhile. McKay and Marshall (2004, p.23) cite Magretta who writes that “the terms ‘business model’ and ‘strategy’ are among the most sloppily used in business, People use them interchangeably, to refer to everything – so they mean nothing” (Magretta, 2002, p.2). The use of the terms ‘business modelling / planning’ and ‘strategic planning’ could be clarified by use of the following quote.

While the strategic plan looks outward and surveys the environment in which the organizational unit operates, customer attributes, and competitive forces; the business plan looks inward and is concerned with what the organization will do to fulfill the requirements of the strategic plan. (Department of Defense, 1993, Ch 4 p.1).
McKay and Marshall (2004, p.57) help define what is meant by the organisation’s strategic plan with their citation of Quinn’s definition: “[a] business strategy can be thought of as a plan that integrates an organisation’s major goals, policies and action into a coherent coordinated whole” (Quinn, 1996, p.3). They continue with citing Quinn’s explanation of strategy as follows:

A well formulated strategy helps to marshal and allocate an organisation’s resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment and contingent moves by intelligent opponents (Quinn, 1996, p.3).

Roney (2004) reviews significant books on business planning, starting with Drucker’s *The Practice of Management* (1954), then Anshoff’s *Corporate Strategy* (1965), and Stiener’s *Top Management Planning* (1969). Roney follows Steiner in the use of the term *comprehensive planning*, to refer to the “systematic procedure for selecting goals and strategies that define, respectively, standards for the future success of a business or corporation and the deliberate pursuit of those standards through objective seeking work” (2004, p.33). However Roney (2004) While admitting that other terms are more generally used, such as strategic management, strategic planning, long range planning, business planning and corporate planning, Roney (2004) but comments that as none are universally accepted he prefers the term comprehensive planning as it is more descriptive.

The next section will use the term ‘organisational strategic planning’ (OSP) as a succinct expression of the concept and because this research is more concerned with the implementation aspects which are generally agreed to be of a planning nature, rather than strategy formulation which is required to determine the strategic direction of the organisation.

### 2.1.1 Organisation Strategic Planning (OSP)

This section relates to organization strategic planning and discusses:

- Firstly whether *to plan or not to plan*, and the range of discussion is from Bailey and Peak who advocate a very detailed plan to Collins & Porras who suggest there are better ways to company success that by planning strategically.
The next section is a discussion between structural planning versus flexibility planning, part of the argument is that the current rapid changes in product and market means that planning is obsolete, this is countered by the suggestion that flexibility in an organization should be planned for.

This is followed by a section designed to emphasis the variations in planning schemes used by various authors, therefore a number of different strategic planning schemes will be described with a view of determining any commonality in the strategic planning process or in the types of information used to structure the plan.

Finally a section with a discussion of terminology and what that might mean to the proponents of the concept of not planning (I.e. Mintzberg and Collins & Porras). The intent is to show that regardless of the statements against strategic planning the authors still have implicit arguments for many of the main concepts of strategic planning.

2.1.1.1 To Plan or Not to Plan

The question of ‘why plan strategically?’ is a legitimate question, particularly with the business environment of technology and the marketplace changing so rapidly today. Hill and Jones (2004) refer to various reports on strategic planning and performance, concluding that on average strategic planning does have a positive impact on company performance. In a response to the question ‘why plan strategically?’ Ball (1982) reports a study by the management consulting firm A T Kearney (2004). The study was based on 40 very successful companies, determined by their return on equity and categorised as “best managed” by key business publications. Only eight percent managed their information resources successfully “in such a way as to make other resources more productive” (Ball, 1982, p.34). This eight percent, identified as performing well, had strategic plans and outperformed the others (including those with strategic plans) on the financial ratios by 300%. One key element of the study is that these successful companies outperformed companies with no business or IS strategic plan by a factor of ten to one (ref, p. 34). This A T Kearney study is also referred to by Teo and King (1997) and Lederer and Mendelow (1986) regarding the importance of having IS plans aligned with business plans.

Bailey and Peak (2003) have researched the factors that go toward making a company successful. Their book, Management by Degrees (Bailey & Peak, 2003), is based on
their work in the 1990’s within a business improvement program at the De Montfort Quality Centre, and their approach has a significant emphasis on planning. Bailey and Peak (2003) They focus on management of an organisation with a set of improvement stages and checklists, across all the business functions of an organisation. They claim that a company can work their way methodically through a set of planning checklists and progress systematically through each stage, implementing a quality management regime to achieve success.

The work of Bailey and Peak (2003) on the planning aspects of an organisation and the degree of structure they believe is an essential part of developing an organisational plan is the area of interest for this research. The information elements in their planning framework include, the corporate aim, objectives, critical success factors (CSFs), key performance indicators (KPIs) and action plans. A section of the Bailey and Peak (2003) framework for organisational planning in Figure 3 shows these information elements.

The literature on strategic planning cannot be complete without discussing authors who do not believe in strategic planning at all, thereby covering a range of views from those who believe in strategic planning to those that declare it is a waste of time. This is also covered in section 1.1.1.2 which will discuss the structural approach to organisational planning versus the need for flexibility to deal with the rapid change in product and market conditions that is thought by some to outweigh the need for planning.

This idea of structure in the strategic planning process seems to be contrary to the ideas put forward by Mintzberg (1994) who talks about The Grand Fallacy in strategic planning: “Because analysis is not synthesis, strategic planning is not strategy formation … Ultimately the term ‘strategic planning’ has proved to be an oxymoron” (p. 321).

The impression could easily be gained, both from the title of his book The Rise and Fall of Strategic Planning (Mintzberg, 1994) and the above quote, that Mintzberg believes that strategic planning is not effective. Mintzberg (1994), however, eventually concedes that “too much planning may lead us to chaos, but so too would too little, and more directly” (p. 416). Mintzberg (1994) is in favour of planning but against it being overly prescriptive and detailed. The crux is that Mintzberg (1994) prefers to use the term
‘strategy formulation’ for identifying the key directions of an organisation, which should be developed by the managers in an intuitive and creative fashion. Mintzberg (1994) uses the term ‘strategic programming’, to indicate the structured planning process whereby there is a breakdown of the strategic goal into a hierarchy of projects, budgets and action plans (p. 416).

Authors in opposition to planning include Collins and Porras (2002) who wrote Built to Last, a bestselling book about which features have enabled several very successful companies to be continuously successful. The book has been on the Business Week bestsellers list for the last six years, and is focused on what the authors have termed ‘visionary companies’ (Collins & Porras, 2002). These visionary companies were selected by the authors from research data, discussions with CEOs and other senior managers within the companies concerned. Barrett (1997) refers to the 18 visionary companies identified by Collins & Porras, and that their research showed that all of the companies had a “strong core ideology (values plus purpose)” (Barrett, 1997, p.16). Barratt continues with the fact that all 18 companies had objectives concerning corporate well-being and only six had objectives associated with corporate survival.

Collins and Porras (2002) do not believe in strategic planning and instead put their faith in the concept they have named a ‘BHAG’ (A Big Hairy Audacious Goal) which is in effect a clear, distinct and ambitious organisational goal. This is used in conjunction with an organisation’s core ideology which refers to the enduring significant behavioural characteristics of the organisation.

Collins and Porras (2002) make the point that instead of foresight and preplanning, success was often the result of let’s just “try a lot of stuff and keep what works” (p. 140). Collins and Porras (2002) summarise this approach well, describing Darwin’s Origin of the Species as “more helpful ... than any text book on corporate strategic planning” (p. 9).

Although Built to Last (Collins & Porras, 2002) is not considered an academic publication, its public popularity is perhaps indicative of managers looking for an alternative to strategic planning. The comments and positions taken by Collins and Porras (2002) are apparently so extreme and opposite to the idea of strategic planning that it is worth spending some time examining some of their points in more detail: this
is not because the positions and statements themselves are so important but because, in spite of the author’s stance against strategic planning, the book still implies the need for strategic planning and good communication.

A BHAG, is described by the authors in the following way “a true BHAG is clear and compelling and serves as a unifying focal point of effort – often creating immense team spirit. It has a clear finish line, so the staff know when the organisation has achieved the goal; people like to shoot for finish lines” (Collins & Porras, 2002, p. 94). This quote can be paraphrased as ‘a well described goal with a definite target that fosters good communication and team spirit’ and is typical of any well formulated goal / objective in a conventional strategic plan and is an example of an effective information element within any good strategic plan. This theme is revisited in section 1.1.1.4.

2.1.1.1 Structured versus Flexible

Farjoun (2007) writes that the structural approach is all about persistence and stability and requires strategy development toward setting a long term product and market position, but argues that the rapid changes associated with product development and the globalisation of market conditions has indicated to some researchers that the days of the structural approach and the need for strategy development is at an end. However Farjoun (2007) takes the position that instead of disregarding strategy development in the face of rapid change, organisations should instead develop a strategy to manage organisational flexibility.

Nadkarni and Narayanan also write that in order to survive, organisations need to embed flexibility in their strategy. They term the rate of change within the different industries as the industry clockspeed, and write that “strategic actions of firms in fast paced industries must be different from those of firms in slow-paced industries” (2007, p.243). Their conclusion is that:

An important prescription is that to achieve higher performance firms in high-clockspeed industries firms need to develop complex schemas that promote strategic flexibility, whereas firms in slow-clockspeed industries need to develop focussed schemas that promote strategic stability” (2007, p.264).
Authors that have examined the relationship between flexibility and performance; Rudd, Greenley, Beatson and Lings (2008) have researched this relationship and found that financial performance is improved with operational and financial flexibility and non financial performance is improved through structural and technological flexibility. They concluded that there is an implication is that managers will be able to anticipate and monitor the rapid change in the environment during the course of the strategic plan. And those managers will have the necessary ability to determine alternative decisions for operations, finance, structure and technology in advance of impending rapid change.

Grunert and Hildebrandt (2004) examine the differences between IO-related research into organisational success and a resource based view which is concerned with the competencies within the organisation. Rather than taking the view that one or the other is the correct approach, Grunert and Hildebrandt (2004) suggest that “despite their antagonistic theoretical viewpoints IO-inspired strategy concepts (e.g. Porter, 1980) and the resource based view are complementary approaches (p.460).

2.1.1.1.2 Different Strategic Planning Schemes

Roney (2004) describes three stages of the comprehensive planning process as follows:

- Assemble a decision making foundation (by gathering information)
- Make essential planning decisions (evaluation and selection of alternatives)
- Deliberate orderly implementation (statements of action and responsibility).

Lynch (2003) also writes about the disagreement between researchers on the topic of strategic planning and uses the term ‘corporate strategy’ which defines “an organisation’s basic direction for the future: its purpose, its ambitions, its resources and how it interacts with the world in which it operates” (p.5). Lynch (2003) describes the three core stages for corporate strategy as:

- Strategic analysis. The organisation, its mission and objectives have to be examined and analysed, i.e. by conducting “an examination of the objectives and the organisation’s relationship with its environment”.

• Strategic development. The strategy options have to be developed and then selected., i.e. building on particular skills and special relationships with those outside.

• Strategy implementation. The selected options now have to be implemented (p. 15).

Lynch’s three core areas for corporate strategy are similar to the three stage process model for comprehensive planning advocated by Roney (2004) which are: 1) to gather evidence, 2) decision making and 3) implementation. Rea and Kerzner (1997) propose a somewhat similar model for strategic planning, with the stages of gathering information, evaluating information and strategy, selecting strategy and strategy implementation. Rea and Kerzner (1997) write that because of the many ways an organisation can set and plan strategic direction, “each organisational circumstance is unique and requires a tailored approach” (p. 2). While none of the authors (Roney, 2004; Lynch, 2003; Rea & Kerzner 1997) appear to explicitly use the term ‘organisational strategic planning’, their work can surely be considered to be about the concept of organisational strategic planning, as well as being about strategy formulation..

It is the composition and layout of the strategic plan that is of most concern for this research, and some useful references were found concerning the specific structure and organisation of the contents of strategic plans, see section 2.2.5 for elements suggested by the CSIRO research group on performance measurement systems (OPM) and section 2.8.2 for strategic planning documentation examples from EDS (Australia). While writing very little about the organisation of the strategic plan, the authors (Roney, 2004; Lynch, 2003; Rea and Kerzner 1997) do describe a number of permutations for the information elements that should be covered by the strategic planning process. The following reviews will identify those information elements which have been underlined to highlight them.

Roney’s (2004) term ‘comprehensive planning’ comprises three stages: the first stage is essentially a strength, weakness, opportunity and threat (SWOT) analysis; stage two sets the goals and the strategies to achieve them; and stage three determines the action programs and monitoring controls.
The term ‘corporate strategy’ described by Lynch (2003) defines the terms used in the three core areas of strategy, as mission, objectives (or goals), strategies, plans (or programmes), controls and reward. The underlining indicates those terms that are becoming of interest to this thesis.

Rea and Kerzner (1997) describe their fundamental strategic framework for organisational strategic planning which contains the following processes:

- SWOT analysis
- Determine organisation’s competitive advantages
- Matching products and services to their customers
- Setting objectives for the future including the strategies necessary to achieve them.
- Determining the mission statement from stakeholder’s satisfaction
- Ensuring strategy is aligned to operational performance by performance measures.

Bailey and Peak (2003) use the expression ‘business plan/strategy’ for the way an organisation arranges to get from where it is to where it wants to be and they define strategy as “the plan the organisation develops to achieve its targets, based on:

- research covering its own performance;
- present and potential capabilities;
- marketing;
- other data that impacts on the business” (p.39).

Although Bailey and Peak (2003) they do not refer to their planning framework as strategic, the researcher argues that the fact that it contains a mission statement and corporate objectives makes it strategic. The figure for the complete framework for organisational planning put forward by Bailey and Peak (2003) is shown in Appendix A.
Within each of these different descriptions of a strategic planning process (Roney, 2004; Bailey & Peak, 2003; Lynch 2003; Rea & Kerzner, 1997), there is a common requirement to describe the following planning process steps:

- a SWOT analysis i.e. an attempt to define the commercial environment that exists around the organisation, e.g. customers and suppliers,
- the establishment of the objectives and/or goals,
- defining how to achieve the goal via strategies and/or action plans,
- setting up a measurement system to monitor and/or control performance.

As can be seen, while this set of planning requirements (or information elements) is expressed in more detail by Bailey and Peak (2003) than some of the other authors mentioned above, but there is for all of these authors a similarity of information elements used to define the organisational direction. The information elements comprise objectives or goals, targets, actions or programs or strategies, and measurements. Several authors have a mission statement as part of the strategic planning process; it is, however, it is usually a very broad concept and it does not easily link directly to the objectives and the other information elements.
2.1.1.1.3 A Discussion of Terminology

Several authors (Hill & Jones, 2004; Roney, 2004; Lynch, 2003; Rea & Kerzner, 1997) discuss Mintzberg’s views on strategic planning. One Mintzberg view that is discussed is separating the concept of determining the direction of the organisation (strategy formulation) from the requirement to plan the implementation of the decisions made (strategic programming). Lynch (2003) agrees with Mintzberg on the emphasis on ‘innovative thinking’ to avoid the ‘bureaucratic planning process’ (p. 653), and uses the terms ‘strategic analysis’ and ‘strategy development’ for the strategy formulation process (p.15) and the heading ‘resource allocation strategic planning and control’ for the implementation phase (p. 628), Rea and Kerzner (1997) agree with Mintzberg’s view, however, Roney (2004) believes that the concept of a ‘comprehensive methodology’ promoted in his book Strategic Management Methodology has a much broader scope than Mintzberg’s (1994) Grand Fallacy concept, referred to earlier..

A slightly different point of view put forward by Hill and Jones (2004) is that some strategies come from within the organisation (emergent strategies) and not from top down planning (prescriptive strategies). Hill and Jones (2004) present the formal top down planning process in comparison with the emergent process whereby strategies appear from bottom up in the organisation, and make the point that planners need to be aware of and receptive to good strategies appearing from within the organisation and not to rely totally on the top planners’ bureaucratic process.

Collins and Porras (2002, do concede that BHAGS are not everything and that a company also needs to preserve its core ideology while pursuing BHAGS, such that they should not adopt just any BHAG but only those that confirm the core ideology of the company. In their descriptions of core ideology and the BHAG, Collins and Porras (2002) are also describing features that other authors (Roney, 2004; Lynch, 2003; Rea & Kerzner, 1997) describe as part of strategic planning.

Collins and Porras (2002) were taken by how often visionary companies made some of their best moves not by strategic planning but by experimentation or trial and error, commenting that what appeared to be brilliant strategy was often “purposeful accidents” (p. 141). They then describe a number of instances of accidental creative innovations from several organisations, however, all of these examples are of an innovative product.
The reader is left to speculate, as to how manufacturing, marketing and distribution, would need to be developed to deal with these new products. The reader must consider whether functional strategic planning needs to be undertaken for these other divisions of the organisation, to set action directives for the managers, in order for them to deal with the new products and markets effectively.

An excellent example of this phenomenon was observed during the later parts of this research. In one of the case study companies (referred to as EV for the purpose of this study), many senior managers had some concerns that their strategy discussions had all been about product development and competition. The interviews with the senior managers revealed that they were very concerned that the internal organisation was not being strategically planned and developed to cover issues of manufacturing and marketing in order to keep up with changes in the areas of product development and market globalization. While Collins and Porras (2002) do not address this phenomenon specifically at all, they do suggest the BHAG has to be aligned with the rest of the organisation; they do not say, however, what this entails or how it should be achieved.

Having emphasized the overriding importance of the BHAG backed by a core ideology, Collins and Porras (2002) then appear to backtrack on this emphasis, with the caveat “just because a company has a vision statement (or something like it) in no way guarantees that it will become a visionary company!” (p. 201), Having a BHAG as the vision is not enough; the visionary company, Collins and Porras (2002) argue, must translate its core ideology and its audacious goals into everything the company does. They continue: “a visionary company creates a total environment that completely immerses the employee. There needs to be complete alignment between the goals and the operations, strategies and tactics to make the goals into reality” (Collins & Porras, 2002, p. 202). A similar statement is made in reference to the Ford Motor Company turnaround in the 1980’s and the company’s development of a “Mission, Values, and Guiding Principles” (MVGP) statement:

But the MVGP statement did not bring about the turnaround at least not by itself. Had Ford not dramatically translated the MVGP into reality – had it not aligned its operations, strategies and tactics to be consistent with the MVGP – then Ford would have failed in its turnaround. (Collins & Porras, 2002, p.202)
It is difficult to imagine how a goal could be achieved without some information being passed to the staff responsible for carrying out the necessary actions. There needs to be an information linkage explaining the relationship between the objectives and the target goal required by the executive of the organisation and the operational activities and actions that are necessary from the rest of the organisation. Here again, there is the requirement to back up the big vision with the reality of planning the achievement of the objectives, laying out the schema of how to achieve the goals with an emphasis on quality improvement, employee involvement and customer satisfaction.

Collins & Porras (2002) emphasize the concept of alignment for the whole organisation between goals and operations. The question that is left unanswered by these authors is how this alignment is to be achieved without any planning at the strategic level. Perhaps a key to the apparent conflict is their use of the term ‘complex strategic planning’ in their statement against strategic planning. The emphasis on a clear goal that is compelling and simple that is well understood (Collins & Porras, 2002), imply they have a problem with strategic plans that are overly complex. A complex strategic plan would be hard to understand by the staff and for good communication throughout the organisation the strategies and the constituent actions and targets in the plan need to be well-defined and simply presented to be understood by all the staff.

A most important idea from the book is that the goals, and strategies to achieve them, must be simple, clear and well understood. This idea leads to the conclusion that there is not so much of a difference between the principles of good organisational strategic planning and the ideas of Collins and Porras (2002) as seemed at first reading.

When adopting the idea of a BHAG, Collins and Porras (2002) are conceptually very close to Mintzberg’s (1994) requirement for strategy formulation which is needed before embarking on the planning process. Although Collins and Porras (2002) do not discuss the term ‘planning’ at all, they do refer to the need for alignment of the goals and operations in order to make the goals achievable. Surely it is a lot easier to have all staff in complete alignment if they are all following a well designed planning document? Whereas Mintzberg (1994) initially takes a position against the term strategic planning, the term is eventually put into context as an essential part of the overall process as the concept of ‘strategic programming’ and is the stage following ‘strategy formulation’. Collins and Porras (2002), however, resist the term ‘strategic
planning’ throughout, and use the term ‘alignment’ instead which does not describe a process, just the end result.

As discussed earlier, there are several authors (Hill & Jones, 2004; Roney, 2004; Lynch, 2003; Rea & Kerzner, 1997) that agree with the separation of strategy formulation from other aspects of strategic planning. This thesis research is concerned with Mintzberg’s (1994) term ‘strategic programming’ with the primary objective to research the implementation phase of organisational strategic development with particular reference to the documented plan and its organisation and layout. The review of strategy formulation which determines the strategic direction for the organisation was required to understand what key information elements are needed to describe the organisational strategic direction. The main concern is how that information is presented within a clear business plan that will communicate the determined direction to all stakeholders.

2.1.2 Strategic Information Systems Planning (SISP)


Methodologies for SISP include the analysis of the business objectives, as well as forming the information systems strategy and the information technology strategy. The alignment of the IS with the business objectives and the inclusion of the information requirements of the organisation need to be incorporated into the SISP. Lederer has done a great deal of research into the way organisations deal with the planning of information systems, co-authoring a number of papers (Lederer & Sethi, 1996; Lederer & Mendelow, 1997) concerning the importance of SISP.

SISP has long been recognised for its ability to contribute substantially to organisations. This is largely because it can identify the most desirable … applications in which to invest. It can also help … to carry out its existing business strategies … and help define new business strategies …. On the other hand the failure to effectively execute SISP can cause problems. It
can cause lost opportunities, duplicated efforts, incompatible systems and wasted resources. (Lederer & Sethi, 1996, p. 35).

Authors have, over the years, used a number of different titles and definitions concerned with the planning of information systems. Chaffey and Wood (2005) write that “research into how IS strategy can support and impact organisational strategy has been referred to in a variety of ways including information systems planning (ISP), information systems strategic planning (ISSP) and more frequently strategic information systems planning (SISP)” (p. 275). Chaffey and Wood (2005) cite the following quotation from Wilson (1989):

An information systems strategy brings together the business aims of the company, an understanding of the information needed to support those aims, and the implementation of computer systems to provide that information. It is a plan for the development of systems towards some future vision of the role of information systems in the organisation. (Wilson, 1989)

The above definition for strategic information systems planning (SISP), is interesting because it specifically includes the idea of integrating information management with IT and the need for the IS to supply the information required to support the business aims.

When researching the process involved in SISP, Earl (1993), concluded that the best approach to the planning process was one he identified as the ‘organisational approach’, which he writes is “similar to Mintzberg’s 1983 view of strategy making” in that it focussed on small project-based multi-skilled teams (p.14). Earl (1993) reports that strategic information systems planning (SISP), is a concern of many organisations and that “an industry of SISP has grown as IT manufacturers and management consultants have developed methodologies and techniques” (p. 1)

Because IS/IT is the subject of the SISP process, the IS/IT industry has developed very refined methodological tools to assist with the IS/IT strategic planning process, from the first planning step of requirements determination through to automatically building a software system using automated computer aided tools. There is perhaps far more systematic methodology in IS/IT strategic planning than has been developed to deal
with business strategic planning. The research that Earl (1993) has done on the SISP process, however, found that those approaches that were most heavily focused on method were not the overall best approaches when all success factors were considered (p. 16).

Earl’s (1993) research into SISP development approaches is still considered to be relevant by Chaffey and Wood (2005) and is cited and described by them because “the range of approaches is still informative since it still reflects the reality in many organisations” (p.285). It is the requirement that SISP should incorporate the business needs of the organisation that is important and the need to investigate the way in which the SISP is aligned with the OSP and how the OSP requirements are transferred to the planners of the SISP.

2.1.3 SISP Alignment with OSP
The OSP has a primary objective of indicating the future direction of the organisation and how this is to be achieved. There are several secondary objectives that could be the concern of the organisational strategy planners that might be best achieved if these objectives are incorporated into or at least considered during the OSP. These secondary objectives are discussed in the following sections with indications of how they might improve organisational performance particularly if they are considered with regard to their impact on each other.

The consulting firm A T Kearney (2004) write about a study of business and technology and a survey done by Harris Interactive, a market research company. The market research company polled board members and senior executives from Europe and the USA. The study showed that successful companies had the following strategies, two of which (shown in bold) relate to the concept of alignment between SISP and OSP and suggest moving beyond alignment to integration:

- **Integrate business and technology**
- Manage IT as a portfolio of capabilities
- Invest in leading edge and innovative IT
- Integrate measurement into evaluations of IT investments
- **Anticipate next wave of IT innovations and define business impact.** (A T Kearney, 2004, p. 1)
Teo and King (1997) researched the alignment of business planning with information systems planning (BP-ISP integration), taking the perspective of investigating the evolving nature of the integration (i.e. organisations progressively move toward more integration in their planning) as well as the contingency perspective (which takes into account organisational factors in the planning process). Teo and King (1997) are very clear that “for ISP to be effective, it is crucial that IS plans be aligned with business plans so that IS can more effectively support business strategies” (p.185). The results of their study showed that organisations do evolve from sequential integration, where the business plan is passed to the information systems department for implementation, through reciprocal integration, where the plans are exchanged, to full integration. In full integration there is little distinction in the planning process between business and IS planning, although few in the study (6.4 percent) achieved full integration. The study did show a gradual speeding up in organisations moving through the evolutionary stages, in that there was less time spent in the latter stages, possibly due to increased learning of the necessary skills and in particular the improved benefits that were a result of better planning integration (Teo & King, 1997).

Ward and Peppard (2002) assert that there needs to be a distinction made between having an IS/IT strategy and having that strategy add value to the business performance. They cite the work by Luftman (2000) who developed a strategic alignment maturity assessment instrument which contains twelve components of alignment to assess the maturity of an organisation’s alignment, these components are summarised as follows:

- Business strategy
  - Business scope
  - Distinctive competencies
  - Business governance
- Organisational infrastructure and processes
  - Administrative structure
  - Processes
  - Skills
- IT strategy
  - Technological scope
  - Systemic competencies
IT governance
- IS infrastructure and processes
  - Architecture
  - Processes
  - Skills (Ward and Peppard, 2002)

Strategic alignment is achieved when all four headings shown above are fully integrated and interrelated. Campbell, Kay and Avison (2004) cite eight papers that they feel recognize “the importance of aligning the objectives of the information systems/technology (IS/IT) group within an organisation, and those of the organisation” and suggest that it is usually referred to as strategic alignment (p. 1).

Campbell et al.’s (2004) research investigated whether the IS/IT practitioners acknowledged the same ideas as academic authors in regard to the concept of strategic alignment. While they found the two groups did have similar perceptions of what is meant by strategic alignment, there was little correlation, however, between the academic literature and the practices of IS/IT managers. The reasons why are interesting as although study participants felt that “strategic alignment generally depends on communication, collaboration, the development of trust and shared domain knowledge, as suggested in the literature, actually achieving those prerequisites is problematic” (Campbell et al., 2004, p. 6). The study participants felt the problems were because the dependant activities “were either poorly supported or actively discouraged. This was primarily due to the prevalent culture in many organisations that, in part, promoted competition between departments” (Campbell et al., 2004, p. 6).

Many authors (Chaffey & Wood, 2005; Paolo, Daniele, Fabio, Marco & Aurelio, 2004; Teo & King, 1997) discuss the issue of the right methodology to use to obtain good alignment between the development of SISP and the business objectives. This discussion will be outlined in the section on planning methodology. Whichever methodology is followed; when discussing the requirements for SISP, many authors put as a key element, the need for alignment between the organisational strategies and the development of the SISP.

Ward and Peppard (2002) studied the distinction between having an IS/IT strategy and having a strategy that will create a competitive advantage for the business. They review
an MIT management research project in the 1990’s that was about the context of IS/IT management, and note “their interpretation is based on the premise that the inability of organisations to realize value from IS/IT investments is, in part due to a lack of alignment between business and IS/IT strategies” (Ward & Peppard, 2002, p. 44).

The subject of effective alignment and governance is of sufficient concern that vendors are advertising software that has the express aim of enabling organisations to monitor and track the effectiveness of their alignment (Telelogic, 2005; Mercury, 2005).

2.1.4 Governance of Organisations and Information Systems

A key piece of legislation being discussed in the area of governance of organisations is the Sarbanes-Oxley Act, the US law passed in 2002 to strengthen US corporate governance. Enacted to improve shareholder confidence in corporate America after the collapse of WorldCom and Enron, the legislation covers a large set of activities and establishes new or enhanced standards for the governance of US corporate entities and specifically includes enhanced accountability standards.

Corporate governance can be described as the top management process that manages and mediates value creation for, and value transference among, various corporate claimants in a context that ensures accountability to these claimants. This definition of corporate governance emphasizes the roles of both claimants and accountability. Claimants include shareholders, employees, customers, creditors, suppliers, competitors, and even society at large (Fort & Schipani, 2000, p. 1.).

Ensuring accountability to such a broad range of claimants would certainly have implications for information stored in an information system. Gelinas, Sutton and Fedorowicz (2004) write about the necessity for control of the business processes of an organisation with the need for predetermined objectives to enable effective control and state their concern that “internal control has recently become more important because of the emphasis placed by shareholders on corporate governance” (p.243). Gelinas et al. (2004) also argue that enterprise systems help provide this control because of the ability of these information systems (if properly designed) to provide the necessary integrated information sharing. This view is shared by Hill and Jones (2004) who describe a
corporate governance mechanism for use within the company; the mechanism is to provide strategic control systems. The purpose of these systems is to have targets for performance measurement, a monitoring system and to take action if necessary.

Referring to the Sarbanes-Oxley legislation, Ruzbacki (2004) discusses the governance of IT in an organisation and describes the COBIT (Control Objectives for Information and Related Technology) framework which was developed by the IT Governance Institute as a standard for good IT governance. The COBIT standard was developed in 1996 and Ruzbacki (2004) presents a management view of COBIT in respect of:

- IT control practices for benchmarking measurements.
- Getting processes under control by using critical success factors.

The reason Ruzbacki (2004) gives for adhering to the COBIT standard is because the Sarbanes–Oxley Act has “reset the responsibilities of organisational senior management …and… compliance to regulatory issues is now one of the dominant business challenges” (p. 2). Ruzbacki (2004) goes on to note that “technology is now at the core of business operation; governance rigor now applies absolutely to the CIO and the IT organisation” (p. 2).

When discussing the COBIT framework and the associated factors, Chaffey and Wood (2005), conclude that the COBIT framework emphasizes that an “IS strategy needs to support and be aligned with organisational strategy” (p. 276).

There are several other frameworks available to guide the implementation of IT governance, including the IT infrastructure library (ITIL), and AS8015-2005 (the Australian standard for corporate governance of information and communication technology).

If an organisation is to have transparency and accountability it has to declare what it is going to do in a clear, definitive and unambiguous way. It therefore makes sense that this declaration of intent should be incorporated into the strategic plan and if these items of intent are to be accountable, then the items need to be measurable (Gellinas et al, 2004; Hill & Jones, 2004). This internal strategic control of performance measurement,
in conjunction with the other governance mechanisms, may not prevent fraudulent
behaviour by senior management but may reduce the impact by enabling stakeholders
more insight and control to detect problems earlier.

2.1.5 Teamwork and Communication of Planning Strategies

“The essence of a team is shared commitment. Without it groups perform as individuals;
with it, they become a unit of collective performance” (Katzenbach & Smith, 1993, p. 1). The importance of the ‘team’ concept, rather than a group of people that happen to
be assigned to a given task, is the possibility of increased performance. Summarising
research on performance and effectiveness of teams in organisations, Guzzo and
Dickson (1996) report that “ample evidence indicates that team-based forms of
organizing often bring about higher levels of organizational effectiveness in comparison
with traditional bureaucratic forms” (p. 318).

Hackman (2004) has also done a great deal of research into team work, specifically into
the concept of well-designed teams and the resulting high effort that can be obtained
from them. In the Wageman, Hackman and Lehman (2004) paper on the development
of a team diagnostic survey, the emphasis is on the conditions that foster team
effectiveness. Among the criteria for an effectiveness measurement are the productive
output of the team, the enhancement of the ability to work together and the positive
contribution to learning. The enabling conditions for an effective team are very
interesting; with the first condition being that it has clear boundaries and the second
being that the members of the team are interdependent for some common purpose. They
must also have a compelling direction with a specification of overall purposes, the team
structure should not be over elaborate and the task should be well-aligned with the
team’s purpose (Wageman et al., 2004). The two conditions of compelling direction
with a specification of overall purposes and the task should be well-aligned with the
team’s purpose should be essential conditions of an organisational strategic plan. If the
senior executive is to function as an organisational team then the other conditions that it
has clear boundaries and the members of the team are interdependent for some common
purpose could apply.

Bryson (1979, as cited in Rea & Kerzner, 1997) lists important results that can be
expected from successful strategic planning and thinking:
A clear future direction is set for the enterprise
A clear set of priorities is established
Coherent decision making is the norm
Decisions are made across levels and functions
Significant organisational problems are addressed
Organisational performance improves
Teamwork and expertise are built.
Executives think and behave strategically, positioning the firm to respond to changes in the environment (p. 2)

The points shown in bold above can relate to teamwork. The importance of understanding the direction that is required to be achieved is put forward by Robbins and DeCenzo (2001), in their book *Fundamentals of Management*, who write “high performance work teams have both a clear understanding of the goal and a belief that the goal embodies a worthwhile or important result” and that “members are committed to the team’s goals, know what they are expected to accomplish and understand how they will work together to achieve those goals” (p. 295).

The idea of a strategic plan should be to communicate the direction and objectives the executives have decided upon to the remainder of the organisation. Varkey and Bennet (2010) write about creating a strategic plan, that “the process itself, if done well, is powerful in team building and creating the necessary buy-in and enthusiasm for future change and action. Nunn and McGuire (2010) similarly write “the strategic direction developed in that process can be communicated in the form of a business plan to lenders, potential investors and associates. The concept of transparency and good governance relies explicitly on communicating requirements and objectives throughout the organisation. When testifying on behalf of the United States General Accounting Office to the Subcommittee on Management Information and Technology, Stevens (1997) makes a number of points concerning communication, shared expectations and building commitment to enhance the usefulness of consultations. A key point Stevens (1997) makes is that “one clear lesson that emerged from those prior initiatives is that constructive communication across the branches of government is difficult but absolutely essential if management reform is to be sustained” (p. 3). Communicating organisational objectives and performance criteria across departments that have
competing interests for resources and budgets can be more difficult than the more structured communication down through the conventional management layers. It is therefore imperative to have an overarching communication medium to enable communication of organisational objectives throughout the organisation.

It is not hard to envision the substitution of the idea of branches of government with branches of an organisation. If communication is so essential, how is it to be achieved? If communication is achieved, it is most important that the communication is ‘constructive communication’. What better vehicle for constructive communication of organisational direction and goals across an organisation, than the strategic plan, providing it is well documented in a clear unambiguous manner?

Research into the use of information systems and information technology to aid the communication process was undertaken by Anderson (2005). The study suggested that “there are direct performance effects associated with the use of computerized information systems and that decentralized strategic decision making processes supported by computer-mediated communication improve organisational performance even further” (Andersen, 2005, p. 1066) The point being made here is that decentralised decision making has communication problems that are exacerbated by distance compared with centralised decision making. Computerised information systems provide wide distribution of less biased information than relying on information distributed by a purely human based communication system. If the OSP includes strategic performance measurements and the SISP is aligned to the OSP so that the resulting information systems are able to monitor some of these strategic performance measurements, then there will be more unbiased computer-mediated information available for management to use.

2.1.6 Performance Measurement of Organisations

Measuring performance just to create a measurement is not always useful. If the measurement is not a key measurement directly related to the strategic direction designated by the organisation, then it can create a lot of misdirected work and not achieve control over the strategic direction; worse still, it may create the impression that performance measurement is being done and be misleading the key stakeholders.
The literature concerning performance indicators will be reviewed to determine the distinction between performance indicators (PIs) and key performance indicators (KPIs), why KPIs are so important, what problems exist with the use of PIs and KPIs, and then review what can be done to improve the use of KPIs.

In answering the question, ‘why do performance measurement?’ there is an excellent quotation from Ferracone and Bracken (2002): “the right performance measurement system and its thoughtful introduction into the corporate culture can help turn the rhetoric of managing shareholder value into reality, and the lukewarm receptivity of measures and targets into success” (p.1). A key point here is the emphasis on the ‘right’ measurements; there are often cases where the performance measurement is of elements that can easily be measured, rather than those that should be measured (Tarr, 2001).

The scientist Karl Popper is described as a significant contributor to the hypothetico-deductive theory about scientific method and its key elements of observation and measurement. These elements are seen in the following description of step 1 of Popper’s four steps describing the essential elements of scientific method:

1. **Characterisation** (Quantification, observation and measurement)
2. **Hypothesis** (a theoretical, hypothetical explanation of the observation and measurements)
3. **Prediction** (logical deduction from the hypothesis)
4. **Experiment** (test of all of the above)” (Anon, 2010).

Strategy formulation can be considered more an art than a science; however the implementation of a strategy and an effective performance measurement system can be more scientific. The analysis phase of the planning process is a review of the organisation’s current position and could equate to the characterisation step. The determination of an objective is very much a hypothesis that the objective will lead to a better organisational performance. The target that is set for the objective is a prediction of what the organisation can achieve. The actions associated with the implementation of the objective can amount to experimentation and the monitoring of the performance can give feedback control on how effective the actions are in achieving the objective. The main point of making a reference to the work of Popper, is the importance given to the
requirement to measure in order to develop an understanding of the situation and the requisite progress to be made.

Underhill (n.d.) supports the importance of measurement, writing “[a] fundamental truth exists that says: you can only manage what you can measure.” (p. ?) Underhill (n.d) continues: “to be effective you need to measure those areas that will impact your business goals” (p. 1). He then presents the need to determine the critical success factors vital to the business and the key performance indicators that would define the success or failure of the success factor (Underhill, n.d.).

Tarr (2001) has identified some potential problems with traditional performance measurement which are summarised as follows:

- Financial measurements are the primary measurement system in many organisations and these are unsuited to guide the organisation’s direction except at the highest level.
- Managers have learnt how to work the performance measurement system to obtain bonuses rather than using the performance system to manage the organisation.
- Many organisations are not up to using the new information orientation of management rather than the old ‘good enough’ measures.
- Computer technology is churning out more data more quickly than ever before and the result is that it is difficult to separate the useful information from the mass of data (Tarr, 2001, p.2).

There have been difficulties with the use of key performance measures and in some organisations the stakeholders have lost faith in them (McKee’s discussions with the SV Group Chairperson in 2004 (part of the SV Group Interviews), confirmed several of the issues raised by Tarr (2001).

The last point is perhaps the one that is most often created by managers wanting figures from the information system; because they have omitted to determine the exact information that they require to drive the organisation effectively, they get swamped with detail.
Tarr (2001) criticizes the traditional measurement systems that have their focus in activity based costing and management, as being too concerned with analysis at the general ledger level and therefore are of little use in identifying wider business opportunities for improvement.

Kaplan and Norton (1996), in their balanced scorecard system, advocate extending the range of performance measurement beyond financial measures to indicate organisational performance. They introduce the additional perspectives of customer, internal business processes and learning and growth to be measured, which, with financial measures, become part of the balanced scorecard for organisational performance (Kaplan & Norton, 1996). The balanced scorecard is, therefore, a more useful system for performance measurement than just the financial measures.

Tarr (2001), however, criticises organisations that use the balanced scorecard when they reduce measurements to statistical indices. Although the indices enable a broad measurement of performance, the measurement indices are indirect and may be disconnected from the action that needs to be monitored. Turning measures into weighted averages removes all meaning from the measures which then become distanced from the operational activity and the related strategic objective. Managers also have the habit of managing the index or measure, rather than using the measure to manage the business. The requirement of a good measure is that it should directly measure the achievement of an action important to the organisation. The term ‘key performance indicators’ should be perhaps be reserved for strategic issues.

Kirtland (2003) writes that “each particular executive or manager will have their own statistics (called Key Performance Indicators, or KPI’s) that are important to them, but often companies will also have a standard set of measures that has been applied across the organisation” (p. 1). A common terminology used by software providers is to call this set of KPI’s an ‘executive dashboard’ (an interactive information system designed to provide answers on business performance), which is a commercialised term for a management information system (MIS) or executive information system (EIS).

Kirtland writes about the executive dashboard: “The dashboard should answer basic business questions: fundamental questions about the health of the business that can be financial, operational, or comparative in nature” (p. 1).
The limitation with executive dashboard systems is that they tend to examine current databases to extract key performance information. These databases may have been primarily set up to manage operational activity in the organisation and may not be amenable to the extraction of information related to measuring the performance of strategic initiatives. There may be a danger of managers merely examining interesting performance statistics without having considered what information is essential to achieving the strategic objectives.

Tarr (2001) advocates the creation of a performance measurement system, not just a set of individual measurements. The system should support the organisation strategy as a whole and motivate people to maximize the strategy. The measurement system should motivate behaviour at all levels. To support the higher organisational objectives the system should be integrated and the measures identified within all major functions of the organisation. Tarr (2001) lists the following characteristics of an integrated performance measurement system:

- Performance measurement must be an integral part of corporate strategy.
- Each measurement should be traceably shown to support corporate purposes.
- Measurements and methodologies must be aligned to corporate cultural values.
- The system must focus on measurements as information, not measurements as control.
- Measurement systems must leave room for management judgment (p. 8).

Chennell, Dransfield, Field, Fisher, Saunders, and Shaw (2000) and Dickinson, Saunders and Shaw (1998) advocate organisational performance measurement (OPM), a methodology designed to involve the stakeholder requirements in the development of the measurement system. This will be discussed in more depth in the section on planning methodologies but it is worth pointing out here the focus on the stakeholder: “success measures can only be determined once a business has identified its stakeholders … It involves a focus on what stakeholders want rather than what the organisation is delivering” (Dickinson et al., 1998, p. 1). This is a key difference from the executive dashboard type approach which is content to merely look at data the organisation already has. These authors go on to define the use of key performance
indicators (KPI) to provide information by monitoring performance, about how well the organisation is doing in achieving stakeholder requirements.

The literature indicates that there is a movement from a set of individual measurements to a ‘system’ of measurements linked to organisational objectives. This movement could be seen to be completed with the Kaplan and Norton (1996) proposal to use the balanced scorecard as a strategic management system. The following four process steps of a performance measurement system are based on the balanced scorecard:

- Translating the vision – a conscious effort to help managers translate the vision into operational terms.
- Communicating and linking – for managers to communicate their strategy up and down the organisation and link the strategy to departmental objectives.
- Business planning – enables the integration of diverse initiatives to move toward the strategic objective.
- Feedback and Learning – to monitor short term results from the perspectives of customers, internal processes and learning (Kaplan and Norton, 1996).

A white paper from Epicor (2003) also emphasises performance management, declaring that enterprise performance management (EPM) “is more than measurement, EPM is both passive measurement and active performance management” (p. 3). Similarly, a white paper from Cognos (2004) uses the term ‘corporate performance management’ (CPM) and makes a case for flexible and integrated corporate performance management linked to corporate strategy.

While the above white papers are from software suppliers of EPM/CPM software and their comments might be considered biased, a 1997 conference in the US concerning quality and productivity, however, also promotes integrating strategic planning and performance measurement (Hagan, 1997). There were 10 papers presented and many of them were concerned with linking performance management with strategic planning and having alignment with the budgets. One idea that is repeated is that “only a few good performance measures are needed” (Hagan, 1997, p. 3).

The concept of linking performance measurement with strategic planning is only the starting point. Just having determined the measures is not sufficient unless the measures
are going to be monitored to allow decision adjustments to be made if the measure is not tracking as expected. Tracking these measures on a regular basis can be very onerous if done manually, so the monitoring should preferably be supported by an information system. Walls, Widmeyer and Sawy argue for an “information system to help the executive to remain alertly watchful for weak signals and discontinuities in the organisational environment symptomatic of emerging threats and opportunities” (1992, p.37).

Petrini and Pozzebon (2009) suggest that the use of information system tools in the form of business intelligence (BI) software to support executives in their decision making is more important than ever, and that BI systems can maximise the use of information. Krogh (2009) refers to the work of (Alavi and Leidner, 1999) and Leidner (2000) in the importance of the knowledge construct in information systems research and Krogh (2009) emphasises the use information systems to transfer knowledge beyond the formal communication channels and to allow knowledge (held in computer storage systems) to be dispersed throughout an organisation and allow interactions between multiple levels of individuals and collectives.

To use information systems in the large scale way described in the above way means that there has to be a significant motivating element. Teubner (2007) writes about the fact that “academic discussion assumes the CIO being the initiator of organisational innovations and driver of business strategy on the board” (p. 106). However Preston, Chen and Leidner (2008) argue that “the CIO’s level of strategic decision-making authority directly influences IT’s Contribution to organisational performance. This is to say that if the CIO does not have strategic decision making authority the CIO may perceive their role is merely to be a service provider not an initiator.

In a paper called ‘Enterprise Performance Management’, the outsourcing company EDS list their 5-step approach to performance management (EDS, n.d.a). The 5 steps (shown below) provide a succinct review of the preceding discussions of key elements of performance management and the ability of a performance management system (PMS) to provide a useful monitor of progress toward the strategic objectives:

- Align strategy, objectives and required measures of success
- Identify key performance metrics that show results
- Align data with existing or new sources
- Develop a performance indicator scorecard
- Integrate performance management into your environment (EDS, n.d.a.).

These elements of a PMS could also be considered to be important inclusions in an organisation’s strategic plan. Within a strategic plan it is reasonable to expect the objectives should be listed together with the target to be achieved and descriptions of the way the target will be measured and monitored. In addition, perhaps most importantly is that this process should be integrated into the normal business environment for effective performance management to achieve competitive advantage.

### 2.1.7 Interactions between Secondary Objectives of Strategic Planning

The following suggested secondary objectives of the OSP process were discussed in preceding sections regarding their usefulness to the organisation:

- SISP Alignment with OSP
- Governance of Organisations and Information Systems
- Teamwork and Communication of Planning Strategies
- Performance Measurement of Organisations.

It should be considered whether these secondary objectives are more useful if they are developed in conjunction with each other. SISP needs to be aligned with the OSP in order that the designers of the resulting IS are aware of the detail of the business plan and can incorporate the necessary supporting information requirements. The good governance of an organisation needs the organisational objectives to be clearly stated and communicated to the rest of the organisation. This communication is also required for transparency of governance, where, in order to see that the objectives have been realized, they need to be monitored and measured. Good communication is a key prerequisite to enable effective teamwork. The measurable key performance indicators need to be identified and to be determined as an integral part of the strategic objectives they are related to, which is also a requirement for internal organisational governance. The key performance indicators related to internal functions ought to be captured as part of the information systems operation which requires the information systems to be designed and developed so as to be aligned with and to support the business objectives.
Internal indicators ought to be associated with, or triangulated against external key performance measures associated with the objectives wherever possible, in order to achieve greater reliability of the measure.

These secondary objectives of the strategic planning process could be advantageous to the organisation if committed to as part of the OSP and the SISP processes and their implementation. How well the two processes are aligned and of course how clearly the plans are described, structured and documented could determine the success of the overall strategic planning process and the effectiveness of the organisation’s management.

2.2 Planning Methodologies

The questions of ‘what is a methodology?’ and ‘why use a methodology?’ can both be answered from the aspect of building information systems. A system development methodology provides guidelines to follow for methodically completing all the activities necessary for the system development life cycle in order to build a complete and viable working information system. The methodology would also include how the documentation should look and what reports management will need (Satzinger, Jackson & Burd, 2004). A generic definition for methodology could be stated that, it provides guidelines to follow for methodically completing all necessary activities for a given objective.

The review of the literature on methodologies aims to identify methodologies that are associated with the alignment of SISP with OSP. The specific requirement is to find if one of the objectives of the methodology is to identify the information requirements of the organisation’s strategic direction and what methods are used to describe this information in the planning documentation.

There may be a concern relating to terminology; the brief definition of methodology given above is a sequence of steps required to achieve an objective. How extensive the methodology is, depends on what is defined as the objective, whether the objective is to encompass an entire SISP, OSP or merely to relate to the analysis of an organisation’s strategic context. If the objective is to develop an OSP then within that methodology there may be several techniques or methods used to analyse the organisation position
(e.g. Porter’s Five Forces model to evaluate competitive position or Porter’s Value Chain to analyse costing within the company). If the objective is to evaluate the company’s competitive position, then Porter’s Five Forces model might well be an effective methodology to do the evaluation.

When reviewing the literature on methodologies there appear to be far more references to the term ‘methodology’ from authors writing about IS and IT than those writing about OSP. Rea and Kerzner (1997) write “despite a rich and varied history, all this strategic-planning experience has not led to a single school of strategic thought” (p. 2). The IS methodologies that are concerned with aligning IS with the business organisation, however, do cover the analysis and review of strategic business objectives as part of the methodology. Some methodologies that focus on the performance measurement or performance management of organisations (e.g. OPM and Balanced Scorecard) also require the inclusion of the strategic business objectives in the development of the performance measurement system.

Roney (2004) is one author who has specifically used the term ‘Strategic Management Methodology’ as the title of a book and uses the term ‘comprehensive planning process’ to describe the methodology in three stages and six sub stages as follows:

- **Stage 1: Assemble a decision making foundation**
  - **Internal**: Diagnoses of firm competences, resources, competitive strengths and weaknesses.
  - **External**: Diagnoses of problems and opportunities in the present and foreseeable economy, industry and markets.

- **Stage 2: Make essential planning decisions**
  - **Goals**: Predefined descriptions of success: level of risk, financial results, market position and long term growth.
  - **Strategy**: Managements approach to achieving goals and rationale for selection from alternatives; contingency planning.

- **Stage 3: Deliberate orderly implementation**
  - **Programs or Projects**: Statements of intended action to implement strategy, including responsibility assignments.
  - **Controls**: Monitoring and assessment of progress toward strategic objectives and programs’ completion (p.41).
These three stages are described in various ways by other authors (Lynch, 2003; Rea & Kerzner, 1997), but appear to have in common, three steps covering analysis of current position, determining direction, and the implementation of the strategies to achieve that direction. Some authors, in particular Mintzberg (1994), wish to divide the above stage 2 into two functions: with the creative function requiring innovation to determine the goals or strategic direction, and the planning function to develop strategies to achieve the direction.

This research into the documentation of strategic planning aims to cover the range of organisations from small and medium to the very large. The requirement being investigated is the design of a strategic planning documentation format that is both informative and concise and will suit the full range of organisations. Various examples of different methodologies will be reviewed to discover if they have features that are predisposed to the improvement of the documentation or whether any specific limitations in the methodology can be circumvented by improving the documentation. The requirement is also to determine which elements of information elements are considered to be most useful when describing an organisation’s strategic direction and the way the related objectives are to be achieved.

Bakos and Treacy (1986) review what they consider to be appropriate methodologies for the application of information technology and they indicate the first generation of methodologies had only an operational view of activities in the organisation and include business systems planning (BSP) in this category. This technique was to analyse the organisation with a view to improving its operational effectiveness and was not particularly suited to a poorly structured function like the senior management role which is better suited to the CSF approach, where senior managers determine the critical factors for success of the organisation within their functional area. Although it tackles the requirements of the senior management role, the CSF approach still does not treat strategic considerations adequately. Bakos and Treacy (1986) therefore considered that neither BSP nor the CSF approaches were successful at considering the strategic requirements of the organisation. They then make a case to consider Porter’s Value Chain analysis and Five Forces model as approaches to include the business strategic direction into the information technology planning in order to create competitive advantage. Bakos and Treacy (1986) also make a strong plea for “tightly linking
strategy formulation with the development of information technology” and write that this can be accomplished “by strategy-literate information systems planners and technology-literate strategic planners” (p. 12).

Paolo et al., (2004) investigate which methodology might be best suited as an information system planning methodology for small to medium enterprises (SMEs) in an endeavour to develop a planning model that includes a methodology to assess the strategic alignment of the IS and the organisational strategic objectives. They discounted the business systems planning (BSP) and balanced scorecard (BSC) methodologies, although these are considered very complete and precise; they were considered to be too costly in time and the number of people necessary to do the analysis.

The methodologies of critical success factors (CSF) and management accounting (MA) were felt to be less costly; and CSF and KPI more adaptable. Their conclusion was that for SMEs, the CSF approach seems most suitable, where the CSFs were identified that were essential for achieving the company strategy (Paolo et al., 2004). This then is a different approach to the use of CSFs, which are used in relation to company strategy rather than limiting CSFs to relate to the role of senior management, as recommended by Bakos and Treacy (1986). Paolo et al. (2004) were particularly concerned with a methodology that would enable an assessment of the alignment of the IS with the strategic objectives and they are using the term ‘IS planning’ in a similar context to the way this thesis has used SISP.

Chaffey and Wood (2005) review what they term as “widely used techniques for IS objectives setting” including the balanced scorecard and critical success factors and write, “the use of critical success factors (CSFs) is valuable in helping align new systems with business objectives” (p.314). They also refer to the IT governance model set out in COBIT 2000 (the standard for Control Objectives for Information and Related Technologies) and discuss the three levels of objectives set out in the model and the confusion that the different levels and labels might cause. The highest level is for the general CSF for IS strategy and is associated with good IT governance. The next level is for the more specific CSFs which are designated the ‘key goal indicators’ and include the measures that tell management if the process has achieved its objective. At the lowest level are the KPIs that define how well the process is performing in order to
reach the goal (Chaffey & Wood, 2005, p. 314). Although Chaffey and Wood (2005) specifically mention the highest level CSF to describe IS strategy, in the broader context of the organisation as a whole, the highest level CSFs could surely be used to describe the organisational strategy.

Chaffey and Wood (2005) also review the balanced scorecard methodology which is widely used for corporate goal planning, and covers metrics for customer issues, internal efficiency, finances and innovation. They cite Van der Zee and de Jong (1999) who “suggest the balanced scorecard is a useful tool for alignment of organisation and IS objectives” (Chaffey & Wood, 2005, p.316). The CSIRO developers of the OPM methodology (Organisational Performance Methodology) are critical of the balanced scorecard approach as being too limited in its organisational approach and they prefer more emphasis on the analysis of stakeholder value.

Underwood (1992) criticizes the current information systems planning methodologies, stating that the information engineering approach (see section 2.2.1) is too broad, as it attempts to define the data base for the whole organisation, and of course the definition of the data base contains far too much detail to be able to see the strategies clearly. On the other hand, Underwood (1992) argues that the CSF approach with its focus on the CSFs for each executive is too narrow an approach. This comment does omit the possibility of requiring CSFs to be determined for organisational objectives rather than limiting them to just describing an executive’s position.

Lederer and Sethi (1988) reviewed the way planning methodologies were used to provide strategic information systems plans that are specifically aligned to the business organisation; in the process they refer to the fact that Vitale, Ives and Beath (1986) divided the planning methodologies into alignment approaches and impact approaches. In the alignment approach the information system merely supports the business requirements as requested, whereas the impact approach attempts to use the information system as a business driver to provide additional impetus to the business direction.

The alignment methodologies reviewed by Lederer and Sethi (1988) included business systems planning developed by IBM, strategic systems planning developed by Robert Holland and information engineering by James Martin, these were among the most
popular methodologies according to responses to their survey and all have a significant data focus and concentrate on the data architecture.

Two impact methodologies mentioned by Lederer and Sethi (1988) are; the customer resource life cycle with a focus on customers, and Porter’s Value Chain analysis with a focus on internal operations.

This thesis will review one methodology from each approach, i.e. Martin’s information engineering (IE) as an alignment methodology and Porter’s Value Chain as an impact methodology. These two methodologies are examined to see whether the different approaches have any difference in value toward providing a more effective planning document. The IE methodology is examined because it has been much cited in SISP literature. Porter (1985) refers to Value Chain analysis as a tool to systematically examine all of an organisations activities) and is often cited in strategic management literature, together with Porter’s Five Forces model for analysis of the competitive forces applying to an organisation.

2.2.1 Information Engineering (IE)

Information that is used to describe an organisation is central to this research. For this reason it is particularly relevant to examine the work of Martin (1990) and the information engineering (IE) methodology that has at the core of the methodology a focus on the critical role of information. More recently there has been a shift to examining the business processes of an organisation (Harmon, 2004). However the research for this thesis is concerned with the development of information that describes the future direction of the organisation and must therefore precede the development of processes to achieve that direction.

Martin (1990) is one of the earliest authors to write about formal methods for analysis and design of information systems and the need for an “overall corporate information architecture” (p. 17) He describes information engineering as a way to organize and document the activities of the information systems organisation in order to reduce the costs of building information systems by providing a library or repository of “common data elements, common rules relating to data, reusable design and reusable code” (Martin, 1990, p.1). Martin (1990) describes a very systematic and formal way to
analyse a system and document its requirements, in order to build a computerised information system replacement. He describes the purpose of IE as a methodology for building an IS that aligns with the organisational objectives in the following way.

Information engineering helps to integrate the separate data processing and decision support systems built by different teams at different times in different places. It does this by employing a common repository of planning information, data models, process models and design information. It seeks to maximize the value of systems built in an enterprise, focusing them on top-management goals and critical success factors (Martin, 1990, p.1).

Martin (1990) writes about the need for an overall architecture and states that strategic planning “requires an architectural framework into which separate systems fit” (p.17). He notes that it is desirable for the separate systems to fit together and that it will not happen without designing the overall corporate information architecture, and uses the diagram below (illustrated in Figure 4) to demonstrate the relationship between the elements (Martin, 1990).
Martin (1990) appears to be using the term ‘corporate information architecture’ to mean the whole planning environment represented in the pyramid, from the top level of analysis of organisational goals down to building the data model using entity relationship diagrams. Martin (1990) refers to the diagram, which represents the information systems plan, and states that the top levels create the framework necessary to develop the corporate information architecture. The lower levels that comprise the business functions and data models are used to develop the detail to create the architectural framework into which the separate systems will fit.

There is no clear diagrammatic example of the way the top levels of information architecture are defined except as part of an entity relationship (ER) model. In this diagram of an overall information systems plan, Martin (1990) places the primary business context components of business objectives and CSFs outside the architectural framework. Martin (1990) defines the architecture starting at the lower level with the function model and data model. In Figure 4, Martin (1990) uses the term ‘architectural framework’ to describe the information systems architecture which includes the function models and the data models that are sometimes described as the information architecture. Martin (1990) does suggest taking high level goals and breaking them down to lower level departmental goals and representing this with an ER model.
Figure 5. Martin diagram showing relationship of goal to organisational unit

Given the importance to an organisation of the definition of the strategic business direction, the various elements of information comprising the strategic direction (e.g. organisational goals and CSFs) should also be defined within an architectural model. The description of the business strategic direction is the information architecture proposed by this thesis. The entity relationship modelling referred to in Figure 4 is the data architecture. The Zachman (1996) framework for enterprise architecture does include all the levels of the enterprise including the enterprise objectives and strategies. An architecture is not a methodology, however: “the Zachman framework is neutral with respect to methodology, process and technology” (O’Rourke, Fishman & Selkow, 2003). The subject of architecture and the various architectural levels is reviewed in section 2.6.

2.2.2 Porter’s Five Forces Model and Value Chain Analysis

Porter’s Value Chain analysis is categorised as an impact approach to SISP by Lederer and Sethi (1988) and is quite different to the data-based, alignment approaches, in that the analysis can be used to set up the information system as a mechanism to improve competitive advantage beyond just improving internal processes. Lederer and Sethi (1988) write that SISP “can help organisations use information systems in innovative ways to build barriers against new entrants … As, such SISP promotes innovation and creativity, and might employ idea-generating techniques such as … value chain analysis” (p. 446). Bailey and Peak (2003) use Porter’s Five Forces model as a means to identify the external influences on the organisation, which may be much more of an idea-generating technique than the value chain analysis: “By questioning these forces a company can analyse ways in which it can prosper and grow its environment” (p.60). The Five Forces model is from Porter’s paper “How Competitive Forces Shape Strategy” (1979) and is one part of Porter’s strategy for business improvement; another element is Porter’s Value Chain analysis which is more internally based but could be extended by using his ‘value system’ to examine the costing associated with suppliers and buyers in the value stream (Porter, 1985). Porter (1979) also suggests that after assessing the five forces, an organisation is in a good position to identify company
strengths and weaknesses and to develop a plan of action. Value web analysis is about analyzing the organizations network relationships and establishing their value to the organisation (Shawn, Cartwright and Oliver, 2000).

The Five Forces model looks at the interaction and collective strength of the competitive forces of: bargaining power of suppliers, and buyers, the potential new entrants to the market, existing market competition and the threat of substitute products or services. By analysing where an organisation is on each of these forces in relation to the industry, and then doing a SWOT (strength, weakness, opportunity and threat) analysis, the organisation can determine what business strategies it should be pursuing to gain competitive advantage. In contrast to these external analyses, the Value Chain analysis requires an internal examination of the costing associated with the discrete value-adding activities an organisation performs in relation to its product (e.g. outbound logistics, marketing and sales etc), and how those activities interact. An organisation can gain competitive advantage by performing the critical activities more effectively than its competitors (Porter, 1985).

2.2.3 Limitations of these Planning Methodologies

The alignment methodologies, because of their data focus, have a strong definitional and structural model associated with the methodology; which is not true of the impact methodologies. However the alignment methodologies have a distinct disadvantage in the volume of data associated with the data models within their definition, there is no allowance or emphasis on extracting the key information elements as the top layer of the model; this refers again to the Lynch (1993) case study and the lack of success of the project due in part to the voluminous planning document.

The Five Forces model as expressed by Porter (1979) offers very little systematic process except in regard to the competitive analysis; it is a useful approach when examining the organisation’s position within its marketing environment and within the industry. The Value Chain analysis has a more methodical approach but is still not formulated as an overall planning methodology. It does however have the advantage of dealing with cost analysis and could be regarded as a costing analysis methodology. It is very performance oriented with good definition of targets; it is internal looking and does
not consider any external environments unless extended with Porter’s Value System to customers and suppliers (Porter & Millar, 1985).

With the impact methodologies, the information elements such as business objectives, critical success factors and key performance indicators will often be requested from the head of a business unit and therefore may be expressed in subjective terms specific to that unit. Martin (1990) advocates that each manager should be asked for their CSFs, and suggests this should be done “after the CSFs for the organisation as a whole are determined” (p. 80). Branchaud and Wetherbe (1986) refer to problems with the use of CSFs and the bias that the manager may express in interviews and also that the interview can be biased by recent events and not sufficiently objective. If the corporate CSFs are not done first and perhaps even if they are, the individual managers may tend to reinforce the silo management approach and determine the CSFs most important to them. The CSFs so derived could lack applicability across the organisation and lack relevance to the overall business goals. Peffers, Gengler and Tuunanen (2003) write “No matter how conscientious executives are about scanning the business environment, they are likely, as a group to be blind to some perspectives” (p. 79). These management focussed CSFs can therefore be subject to different interpretations by others in the organisation and may be left unchallenged because the factors may be disconnected from corporate objectives or not related to another’s area of concern. If there is no trail of understanding describing the links between the factors and organisational strategic objectives, this can lead to critical information being missed and important CSFs being left undefined.

Ewusi-Mensah (2003) identifies one of the significant causes of systems development project failure as being the “ill-conceived and/or ill-defined project goals and objectives” (p. 240). This reinforces the importance of reviewing the objectives and the CSFs, using an appropriate methodology that will elicit a shared understanding. Although this quote refers specifically to a system development project, the project goals referred to for that system could well have come from an SISP. If organisational objectives are ill defined then the IS development projects required to support those organisational objectives will lack well defined goals.

The silo management approach that was mentioned above, together with the effect of requesting unit managers for their CSFs, can lead to a view focused internally within
each separate business unit and may lack a consistency of understanding across the organisation. It is important to ensure the correct breadth of the organisation (all necessary stakeholders) is involved in developing CSFs and that the CSFs are represented in the correct top down hierarchy of relationship starting with the corporate CSFs at the top. It is also important that all the involved stakeholders have a shared understanding of the defined CSFs.

However it is not enough to just identify CSFs throughout the organisation; the staff will need to work toward and achieve the CSF, it must therefore be clearly defined and measurable. Ewusi-Mensah (2003) identifies one management and control problem as a “lack of a measurement system to measure progress and identify potential risks in time to mitigate them” (p.52).

Problems related to specific planning methodologies are outlined by Branchseau and Wetherbe (1986). The business systems planning (BSP) methodology tends to lack a strategic perspective unless it is given particular attention by the planning staff. A CSF analysis may be biased by the executives involved. The ends/means analysis which is about measuring an organisation’s performance in relation to its outputs is focussed on efficiency measures only. The suggested answer is to use a combination methodology based on developing a long-range information architecture and combining elements of BSP with a series of group interviews and using the ends/means analysis to frame some of the interview questions (Branchseau & Wetherbe, 1986).

Lederer and Sethi (1996) write about the planner’s paradox that on the one hand they must complete the planning quickly to allow implementation as soon as possible to maximise any competitive advantage and reduction of costs, but on the other hand can not afford to omit crucial aspects of the analysis and planning that will jeopardise the effectiveness of the implementation. They also write that the planner must be sure to include a migration plan that spells out the sequence of actions toward the full implementation. Their research showed that this requirement is most closely correlated with meeting the SISP objectives, but “the research suggests that the implementation of the strategic information plan remains problematic” (Lederer & Sethi, 1996, p. 39).
It could be argued that the core aspects of many of these SISP problems are strategy related and not technology based so they will also translate to similar problems with the organisational strategic planning process and its implementation.

2.2.4 Possible Enhancements to a Planning Methodology

It is possible that a combination of the above methodologies could provide a significantly improved approach; one combination is to use the Five Forces model and the Value System analysis to provide the organisational analysis prior to developing the strategic objectives which could then be subjected to checking by developing the relevant CSFs. The CSF and Value Chain analysis approaches are called planning methodologies by Lederer and Sethi (1988), but could be improved by Bailey and Peak’s (2003) formalized set of planning stages. However the result may still not be optimal, because the methodologies are not developed to the point of discussing the structure of the strategic plan nor the attributes that should be used to describe the key information elements. Many failures of strategic planning are due to poor implementation of the plan which may be due to an ambiguous and badly structured planning document.

A 2004 workshop was held in the School of Economics and Information Systems, at the University of Wollongong, to discuss strategic planning and related methodologies and techniques. There was general discussion on methodologies and techniques to enhance the process of strategic planning. These are summarised in the following sections for consideration of their ability to improve the strategic planning process.

2.2.4.1 A Cross Section of Stakeholders (the OPM methodology)

Many authors (Peffers et al., 2003; Bailey & Peak, 2003; Porter, 1985; Earl, 1993) argue that strategic planning should not be exclusively done by one or two people in the organisation but that the process should be as inclusive as possible. The organisation performance measurement (OPM) methodology outlined below is proposed as a guide to ensuring that the views of a cross section of the stakeholders of an organisation are represented appropriately and that a performance measurement system is embedded within the organisations normal operating procedures.
The authors of the OPM methodology (Dickinson et al., 1998; Chennell et al., 2000) promote the OPM as a performance measurement methodology that will determine the value that can be added to the stakeholders and to integrate performance measurement of the value adding processes into the organisation. Although the methodology is very thorough and systematic in reviewing the operations of an organisation, the authors do not promote OPM as a strategic planning methodology; here it is proposed as a possible supplement to other strategic planning methodologies used by the organisation.

An early paper in the development of the OPM methodology details the stakeholder view of the business and the emphasis on meeting the requirements of the stakeholders in order for the organisation to be considered successful (Dickinson et al., 1998). The OPM methodology was designed as a total quality management (TQM) approach to defining performance measurement and, in addition to being a well-organized procedure for identifying key stakeholder requirements, it is also rigorous in developing performance measurement that incorporates CSFs and KPIs.

The OPM methodology was developed by CSIRO Australia from its work with large Australian enterprises to improve their performance measurement capabilities. This work was extended by a federal grant in 1995 to include SMEs. One of the results of the research was an identification of common shortcomings in SME business planning including:

- Lack of alignment between strategies and what is measured and reported.
- Limited information available mainly focused on only financial data.
- Measurement information is not supported across the different levels of management.
- The information was more operational than strategic.
- Lack of data or information to evaluate performance above the operational level.
- Lack of consistency due to lack of definition of the measures.
- General lack of understanding in the use of measurements to improve performance.
The underlying principles of the OPM methodology are designed to overcome any limitations related to lack of: alignment, process thinking and practicability.

Alignment is the selection of performance measures such that they encourage the staff and stakeholders of the organisation to align their efforts according to the strategic direction, so that the enterprise is managed in such a way as to produce the required outputs.

Process thinking is focused on the system of management so that the design and operation of the day-to-day organisational processes are organised to implement the strategies and add value for the stakeholders. A key element of process thinking is that the measurement system should be linked into the normal business operation together with process monitoring, system control and process improvement. There is also a requirement to remember that all work across the organisation occurs as a set of interconnected processes.

Practicability means the operational staff are made aware of the relationship between their actions and the required measurements such that there is a “consistent process for identifying the sorts of measurements that need to be collected and for assuring the data quality and fitness for purpose” (Chennell et al., 2000. p. 4).

The OPM methodology incorporates two key management constructs; one is the zone of management that describes the distinct levels of management and suggests that the system of measurement should be aligned with the system of management to facilitate the assignment of accountabilities. The other is the open systems theory that advocates the ‘enterprise system’ is located within the larger system of the environment and that there is a dynamic relationship between them.

Finally the OPM methodology suggests there are 5 stakeholder areas of an organisation that add value to its success:

- The business area, which includes owners and shareholders.
- The customer area, which may be segmented into different customer categories if there are conflicting customer interests.
- The employees.
Strategic partners, that includes suppliers and other collaborating interests.

- The community that includes professional, industry and local groups.

In summary the OPM methodology comprises the procedures to develop the necessary internal measures in a way that ensures they are based on the drivers that create value to the stakeholder groups. The success measures are strategic in nature and indicate if the organisation is delivering the required value to the stakeholders. The success measures are supported by the key performance indicators that allow the organisation to know whether the indicated values and objective outcomes are going to be achieved. At the lowest level the operational measures are predictive of the key performance indicators (Chennell et al., 2000).

To develop these measures, the OPM methodology follows 14 steps grouped into the five key process phases below:

- Identify stakeholders, and draft value trees, CSFs and then KPIs.
- Validate value trees and CSFs
- Finalise value trees, and CSFs
- Develop strategies for deployment
- Refine Key Performance Indicators

The steps within each phase are meant to operate in an iterative way, to constantly cross check, validate then finalise each phase. This enables the planners to determine if what has previously been defined still holds true as more detail is developed. A case study entitled Lou’s Place (Dransfield-Associates, 2000) detailing the implementation of this methodology for one organisation is summarized in section 2.2.5.

This sequence of steps and the principles covered by the OPM methodology should be compared with the balanced scorecard methodology which can be used for corporate goal planning, and covers metrics for customer issues, internal efficiency, finances and innovation. A comparison of the performance measurement features between the OPM and the balanced scorecard methodologies, suggests that the balanced scorecard methodology does not provide some of the features of a performance measurement system as well as OPM. Kehoe, Burns and Bititci, (1999) describe what they consider
as essential features of a performance measurement system and those features that OPM appears to perform better are:

- Reflect stake holder’s requirements – OPM has a more specific process to include all stakeholders with respect to their obtaining value.
- Deploy strategic objectives through a logical path to business processes – balanced scorecard, as its name implies, merely does a stocktake of status.
- Facilitate Performance Planning - OPM includes process steps for developing the performance measures.
- Use measures at correct levels – OPM specifically focuses on the different management levels.
- Promotes understanding of relationships between various measures.

The overall impression is that, whereas the balanced scorecard may be effective in providing information to an organisation about the status of their measurement system and the effectiveness of their management, OPM provides a much broader evaluation of the organisation. This is because OPM includes the development of a comprehensive performance measurement system which has direct links from corporate objectives through to the essential operational activities. The OPM methodology was developed for performance management but on closer examination it has a very systematic set of processes that could be adapted for developing a strategic plan after the strategic objectives have been formulated.

### 2.2.4.2 Communication and Shared Understanding (Q-method)

Peffers et al. (2003) and Brancheau and Wetherbe (1986) refer to the possibility that the development of CSFs can be subject to bias; this is reviewed in section 2.2.3. The same problems may bias other key information elements. In a discussion on selective perception and bias Robbins and DeCenzo (2001) write about the barriers that exist to effective communication; one of the points is selective perception where a person sees and hears what is meaningful to their own needs and experience, so that the same words can mean different things to different people. To overcome this problem and create a situation of shared understanding among all stakeholders the Q-method is examined (Mckeown & Thomas, 1988). This methodology provides a procedure whereby the
members of a focus group are asked to develop descriptive statements about the topic (say business objectives or CSFs).

The statements are all put into one list, the group is then asked to individually rank all statements within a fixed structure, such that each statement is ranked by them, from strongly don’t agree, to strongly agree. The structure allows one statement each for the strong opinion, two statements each for the agree opinion and three statements for the ambivalent centre opinion.

The rankings are subjected to factor analysis, and the resulting factors indicate groupings of agreement on the descriptive statements about the topic being evaluated. The results of this rank ordering and factor analysis process, determines which of the statements belong to a common category. The results can be fed back to the focus group to further expand and develop their understanding about a common argument in favour of a particular descriptive statement for a shared understanding and meaning of the original topic statements.

Can Q-method be used to provide a better definition of the business objectives, because of a greater degree of shared understanding of the key information elements? Peffers et al. (2003) also argue for the need to develop this shared understanding and use a similar procedure. However their research studied a single strategic information systems planning process and focussed on collecting from stakeholders their ideas about the relationship between system attributes and business features and consequences: the “participants expressed his or her ideas using unique statements. Consequently we needed to analyse the concepts used … and interpret them into consistent constructs across participants” (Peffers et al., 2003, p. 60). The Q-method would appear to meet the need described by Pfeffers et al. (2003)

2.2.4.3 Measurable Performance Indicators (SMART)

There is no point in having an objective that merely indicates that the organisation is to become number one in its field. That kind of objective gives no indication to the staff of the organisation what they have to do to achieve the objective; they do not know, for example, what target or rate of improvement is to be aimed for. Once the target and rate
of improvement is known, the staff needs to know what performance indicators will measure progress. For indicators to be effective in monitoring progress toward a target, the indicators have to be understood by the staff and the staff has to know how the indicators relate to their area of concern and they need to be able to use the indicators correctly as performance measures.

Koontz (2000) writes that “it may be nice to state as an objective that your company will be the leading automotive parts vendor in the United States in two years, but that’s more of a wish than a realistic goal” (p.24). He gives an example of a better worded performance measure which would be “twenty-five percent of all customer orders will be processed through the companies online automotive catalogue by 12/31/00” (Koontz, 2000, p. 24).

The performance indicator needs to be specific, and measurable; therefore it is suggested that the SMART (Koontz, 2000; DeMaio, 2002; Bailey & Peak, 2003) set of guidelines be used to define a performance measure. These authors all subscribe to the SMART concept; however some have slightly different interpretations but they all have in common a requirement that performance measures are more tightly defined. DeMaio (2002) writes that “the SMART’ Performance Measurement Criteria state that in order for a performance measure to be effective, it must be:” (p.6)

- **Specific**, - indicate exactly what result is expected so that performance can be judged accurately.

- **Measurable**, - the intended result must be measured and reported in quantitative and/or clear qualitative terms.

- **Accountable**, - the measure should be owned by a specific person or group such that they are accountable; this is to ensure the result is produced.

- **Results oriented**, - aligned to track an important value or benefit needed to advance a strategy.

- **Time-bound**, - to give a specific time frame for a result to be produced and allow the reporting in a timely manner to allow for corrective action if necessary.

These criteria are summarised from DeMaio (2002).
The SMART criteria for performance measures should apply to all KPIs, because if you cannot define a KPI completely, then it cannot be measured and managed effectively. The SMART criteria may be the difference between vague ill-defined indicators that might have been clear to the individual describing them at the instant they were set down but may not be understood and used effectively by other individuals in the organisation.

2.2.5 Lou’s Place – An Implementation of the OPM Methodology

The OPM methodology was described earlier as a specific methodology for developing a performance measurement system. The Lou’s Place case study is summarised here because it contains some organisational background as well as the process steps that were used to obtain the detailed examples shown.

The Lou’s Place case study concerns a charitable organisation that provides a day crisis centre for women. The centre is operated by a core group of professional staff who are supported by trained volunteers. In 2000 the CSIRO group used their OPM project team to review the organisation in order to help them develop a performance measurement system. A summary of the main points from each major OPM step in the case study follows. As the case study gets more involved, only the first element will be listed, sufficient to show the chain of development. The full case study is written up by Dransfields Associates Pty Ltd (2000).

Step 1) The project started by identifying the following characteristics and requirements of the current business model:

- Lou’s Place is to deliver essential charitable services to the local community.

- It does this through grass roots partnership between the community, Mission Australia and business enterprises.

- Focus is on an “individuals” approach to avoid mismatch between corporate objectives and the objectives of Lou’s Place.

- Keep in mind the “mission statement”
• All services and facilities to reflect the shared values

• The objectives of Lou’s Place are:
  o To provide essential services to women and children at their point of need.
  o To provide opportunities for clients to meet their potential.
  o To establish for 2001-2004 a sustainable operational and financial structure.
  o To establish Lou’s Place as a “best practice” facility.

• The management advisory board (MAB) for Lou’s Place listed the following inputs to the planning process:
  o Services to be provided at three levels, the basic level is a drop in centre for clients to rest, bathe, do laundry etc. The next level is associated with life skills, with fun and educational facilities. The third level was a longer term requirement to prepare clients for job entry.
  o To view the volunteers as integral to the centre’s operation, and listing the strengths and weakness associated with the reliance on volunteers.
  o The issues associated with income sustainability.
  o Financial management to be transparent.
  o The awareness that marketing and communications are essential to quality service and effective human resource and financial management.

Step 2) Scan the external environment for a set of Political, Economic, Social, Technological, Industry and Environmental factors as recommended in a PESTIE framework. The output from this step would, for instance, cover the issues of the charity industry as the industry factors.

Step 3) Identify the stakeholders within each of the stakeholder value added areas listed by the OPM methodology as: customers, owners, people, partners and communities. The output of this step is a list of the stakeholders identified within each area. Taking just the customer area the stakeholders are:

• Women/ women and children

• Drop-ins
• Appointments

• Long term clients

Step 4) Draft management’s opinion of stakeholder needs and the current performance rating for each of the identified stakeholders

Step 5) Identify draft critical success factors as the key areas that must be performed well, in order to succeed. The senior management team was required to reach a consensus on the critical performance related issues for the organisation, and then finally draft a set of CSFs.

Step 6) The team was then required to identify potential key performance indicators against each CSF, with no attempt at consensus at this stage and outputting a draft list of KPIs.

Step 7) Validate the outputs of step 4 by interviews with the stakeholders; the result is a list of stakeholder needs and a performance rating for each.

Step 8) Finalise the stakeholder needs and performance ratings with a consensus between the management view and stakeholders interviews. The following output from that process only shows the client stakeholder for the category of provision of basic service and lists the needs and performance rating:

• Assistance with accommodation – worse

• Provision of immediate sustenance—better

• Access to personal hygiene facilities—better

• Transport assistance/ subsidized transport—worse

• 7 day access—worse

Step 9) Refine the critical success factors with the team considering the learning from the previous steps and listing the following CSFs:

• Consolidate Lou’s Place by sustaining existing model and further developing services consistent with model.

• Secure long term funding by changing donor profile to a broader base.

• Attract and retain motivated team.

• Demonstrate prudent financial management.
• Develop mutually beneficial relationships with stakeholders.

Step 10) Establish the strategies necessary to achieve each CSF. Each member of the team is encouraged to assemble a broad based group to develop these strategies together with the identification of the KPIs of step 11. The output of this step for just the first CSF is as follows:

• Deliver and enhance core services (as defined by the MAB).
• Create developmental pathways for clients.
• Maintain attractive home-like, inspirational environment.

Step 11) The list of KPIs output at this step for just the first strategy are:

• % core services provided as scheduled
  • % professional services provided as scheduled
  • % programmed/activities provided vs. scheduled
  • No of total visits
    ▪ Women
    ▪ Children
    ▪ Number of known turn-aways
    ▪ Number of new people
  • Outcomes index (to be developed)
  • Client satisfaction index (to be developed)

Step 12) Produce an operational procedure for each KPI. This includes how it will be measured, the information source, frequency of collection, frequency & method of reporting and who is responsible for the KPI.

Step 13) Align each strategy with the management control process so that the process linkage is defined for each strategy listed for each CSF.

Step 14) Finally the processes are linked to the stakeholder needs and performance rating.

The set of process steps appears to be well designed and linked together with clear iteration included where necessary to validate each major stage. This validation is a very
important aspect for ensuring that stakeholders are really included in the process and that both managers and stakeholders have had the opportunity to test the nature of the strategies included and ensure they meet the objectives for the organisation.

The systematic steps included in this process range from describing the objectives of the organisation through to defining the measurements required to monitor progress of the actions required to achieve the objectives. Because the case study is for a charity organisation there is no attempt to develop business-like strategic objectives. However once an organisation has formulated its strategic objectives, this set of systematic steps could be a useful planning methodology that finalises the strategic plan for any organisation.

2.3 Major Factors Affecting Success of Strategic Planning

This section deals with factors relating to success of the strategic planning process whether at the organisational level for OSP or for an individual department level, as in SISP. The intention is to identify factors from the methodologies and processes reviewed so far so that those related to the content and usefulness of the strategic plan can be extracted.

The usability of a strategic plan could be measured in two different ways, one would be the degree to which the plan enables the organisation to achieve the desired profitability, and secondly the degree that the plan enables the organisation to deal successfully with rapid change. The global financial crisis between 2007 and 2009 meant a great deal of change to many organisations. Wilson and Eilertson (2010) surveyed 190 US managers involved in strategic planning to assess what role strategic planning played during that crisis. One result of the survey showed that the organisations with strong strategic planning culture that used the strategic plan to drive the organisation were most likely to have desirable outcomes.

A very informal strategic plan would be a verbal presentation of the manager of the organisation describing the intended future direction of the organisation. A formal strategic planning process would culminate in a documented plan distributed to the senior managers. A very formal process could be said to be where the organisational
culture embraced the documented plan and worked toward implementing it. Wilson and Eilertson (2010) in their survey of managers involved in strategic planning found that the greater the degree that the organisation embraced their strategic plan and relied on it to guide them through the global financial crisis the greater the desirable outcomes for the organisation.

Roney (2004) writes that success rates for implementing strategic plans are very low “the most optimistic estimate of success rates in implementing strategic plans seems to be 50 percent” (p. 233).

To ensure success in the implementation of the strategic plan, Fogg (1999) proposes ‘18 keys to implementation’ which are summarised and grouped into the five categories below:

1. Establish accountability
   - E.g. an accountability system that links the action plans to the strategic objectives and tracks the success through departmental planning.

2. Enabling and aligning action
   - E.g. align the organisational culture and work plan, to the strategic objectives and allocate resources appropriately.

3. Fixing the organisation
   - E.g. Change the organisational structure, leadership and staff to set the strategic direction and use teams appropriately.

4. Providing an environment in which people can excel
   - E.g. Select, train and develop staff in line with the strategy and continually communicate to everyone.

5. Judging and rewarding
   - E.g. Review performance toward objectives for the overall organisation, the departments, teams and individuals, and reward strategic results. (p.8)

A general theme for these keys to success is a focus on ‘driving’ the implementation of the plan throughout the organisation by embedding the implementation into the normal management of the organisation. The keys that reflect most directly on the requirement
to document the information elements (e.g. objectives, targets and measures) of the strategic plan are shown in bold in the list. They include the need for accountability, alignment, performance management, teams and communication to be incorporated into the implementation requirements. The other keys are to do with changing the organisational structure and human resource issues to align the organisation with the strategic plan and may not be reflected in the strategic plan unless they have been formulated as information elements (e.g. strategic objectives).

Earl (1993) examined a number of organisations and interviewed IS managers, general managers and line managers about the process of strategic information systems planning (SISP). The factors examined included the formality of the method used, the planning process followed and the implementation of the plan. Earl (1993) reviewed the different approaches that an organisation takes when involved in the SISP process and determined that the investigations fell into “five different SISP approaches: Business-Led, Method-Driven, Administrative, Technological and Organisational. Each approach has different characteristics and has therefore a different likelihood of success” (p.1). The features of SISP that are most likely to be unsuccessful according to Earl’s research were:

- resource constraints,
- plan not fully implemented,
- lack of top management acceptance,
- length of time involved, and
- poor user-IS relations.

The SISP approach became the object of the analysis, and each approach was considered to be a mix of: method used, process followed and implementation. The five SISP approaches were determined to be:

- Business led – the business needs should drive the IS plan
- Method driven – use of a formal SISP method – select best method
- Administrative – SISP follows management planning
- Technological – SISP is an exercise in business and information modelling
- Organisational – SISP is a continuous team activity shared by IS and business – emphasis is on organisational learning about business problems and the IT contribution.

Each of the five SISP approaches was ranked according to their success score with the technological approach leading and the organisational coming second. The approaches were then ranked according to SISP concerns, with the organisational approach scoring least concerns and the administrative approach second lowest. The third ranking was based on the approach’s propensity for competitive advantage and the organisational scored highest and business led came second. When the three rankings were combined, the organisational approach was most successful overall. This approach is characterised by its continuous integration between the IS function and the organisation, using methods only where necessary to suit a particular purpose, e.g. using Value Chain analysis when required.

However the main feature of the organisational approach is the emphasis on organisational learning and the use of teams which lead to management understanding and involvement. Earl (1993) refers to Mintzberg’s 1983 view of strategy making, in its emphasis on small project-based multi skilled teams, in support of the identified organisational approach toward SISP.

There are three aspects to the importance of organisational learning in the organisational approach. One was that IS development was focused on only one or two themes at a time that were developed further as benefits became apparent, secondly the concept of multidisciplinary teams to tackle a particular “business problem from which a major IS initiative would later emerge” and finally a focus on implementation by breaking themes into identifiable and frequent deliverables that could be seen and measured (Earl, 1993, p.10).

There is, within the organisational approach, a definite focus on teams. Earl (1993) refers to multidisciplinary executive project teams within the organisational approach, the identifiable and frequent deliverables suggest performance management and both suggest the need for communication.
Rea and Kerzner (1997) listed the following benefits that can result from successful strategic planning:

1. A **clear future direction is set** for the enterprise
2. A **clear set of priorities** is established
3. Coherent decision making is the norm
4. Decisions are made across levels and functions
5. Significant organisational problems are addressed
6. Organisational performance improves
7. Teamwork and expertise are built
8. Executives think and behave strategically, positioning the firm to respond to changes in the environment.

The first two points (in bold) could also be viewed as characteristics to achieve a successful strategic plan, the other points suggest the need for a strategic plan that is clearly documented in order for the benefits to occur.

The following factors affecting the success of strategic planning are drawn from various aspects of strategic planning whether OSP or SISP; see the review of alternative strategic planning terminologies at the start of the review of strategic planning literature section 2.1.

- The planning process and makeup of the planning team and involvement of all stakeholders (Earl, 1993; Dransfield Associates, 2000; Chennell et al., 2000).
- The analysis of the situation and determination of requirements; such that there is alignment between the business plan and the information systems plan (Teo & King, 1997; Paolo et al., 2004; Ward & Peppard, 2002).
- The structure and content of the plan; such that it leads to the implementation of the plan (Mintzberg, 1994; Frigo, 2003).
- The plan is brief and easily read such that it is a good communications tool (Kestelyn, 2002; Robbins & DeCenzo, 2001).
- The inclusion of effective performance measurement and management as part of the planning process (Tarr, 2001; Kaplan & Norton, 1996; Dickinson et al., 1998).
2.4 Summary of Identified Problems with Strategic Planning

The first issue is the definition of strategic planning, to explain what is meant by strategic planning, and then discuss whether organisational strategic planning is effective in enabling the organisation to move in the strategic direction that has been nominated (Mintzberg, 1994; Bailey & Peak, 2003).

The planning process may be considered to be less than satisfactory if the outcomes are not adequate. Martin (1990) states that information systems inundate executives with reports but the executives are still asking why they can not find the information they need to manage the business well, and Davenport and Prusak (1997) refer to a survey estimating that managers spend 17% of their time searching for information. Weintraub, Logan, Landers, and Calvert (2001) report a Gartner estimate that “time wasted by the average knowledge worker on document-related, non-value-added tasks will increase to between 30 percent and 40 percent by 2003” (p.1).

These reports could indicate that the information needs of the executive and managers of the organisation have not been adequately defined and catered for within information system planning. While the above references do not indicate if the fault is with the manager or the SISP or the OSP, it is true that if the strategic information requirements (e.g. CSFs and KPIs) are not defined clearly within the OSP, then it is even more difficult for them to be defined within the SISP and progressively more difficult to be defined during the information system analysis. If executives can not define good KPIs in the OSP, are they likely to provide them at the IS development stage?

Frigo (2003) suggests that planning has recently got a bad name but argues “without a sound business strategy, a company finds itself executing a bad plan because it has not taken the time to develop and refine an executable strategy for gaining and creating competitive advantage” (p. 1).

Lynch (1993) reported on the failure of one exercise in using the information engineering methodology to develop a total information analysis of an organisation. The failure was not in the design and development of the analysis and the resulting report, but rather the results of the analysis were ignored, being too detailed and too complex.
The entity relation models for all of an organisation’s data were added to the definition of the business objectives creating an unwieldy document for the general organisational staff to use (Lynch, 1993). Davenport and Prusak (1997) confirmed the problem of specifying too much detail, especially in the business system planning (BSP) and IE methodologies: “the complexity and detail of BSP and information engineering approaches also mean they’re frequently never completed and when they are finished, managers often decide not to implement them” (p.23).

Peffers et al. (2003) list the IS planning pitfalls to be avoided including a limited executive perspective, in that the executive can be unaware of other aspects important to the firm outside their interest area, ‘reaffirming the silo mentality’. Managers may have a bias toward large, big spending projects and overlook important tactical and operational projects. There can be a failure to consider a range of alternative solutions and there is always a tendency to give undue emphasis to the first job in or the one being heavily touted; rather than another job that would make better use of the organisation’s resources. Peffers et al. (2003) suggest their CSC methodology be followed to ensure a broad perspective is reviewed when considering priorities, and although they were considering IS planning it is likely the same criticisms will apply to business strategic planning as well and certainly it is necessary to take these problems into consideration when choosing a methodology for strategic planning.

Brown and Thompson (2004) cite the research done by the Standish Group for year 2001 on project failures in the IT industry with 31.1% being cancelled before completion and 52.7% of projects costing 189% of their original estimate. These figures are very significant and Brown and Thompson (2004) believe the real cost is much higher. If these failure rates are extended to the general business world (and there is no reason to think the IT industry is particularly inept) then the figures could be astronomical.

The Standish Group’s (1994) Chaos Report goes into more detail, with reasons given for a project to be challenged (those with cost and time overruns); 24% of responses related to requirements specifications being incomplete or being changed, lack of user input at 12.8% and unrealistic expectations or unclear objectives at 9%. (p.2)
Very similar percentages apply to impaired projects (which were ultimately cancelled). Several categories could easily be grouped together with a total of 44.1% of responses as to why projects were cancelled being related to lacking a generally accepted set of clear definitions of accurate user requirements (The Standish Group, 1994, p.3). To achieve this would require good user input and minimise problems with changing requirements and unrealistic expectations.

A summary of some of the major planning problems drawn from various aspects of planning referred to in the literature review are:

- Confusion between the development of strategic initiatives and the planning for the implementation of determined strategic objectives see section 2.7. (Beinhocker & Kaplan, 2002; Mintzberg, 1994).
- The “lack of general agreement on a well-articulated set of project goals and objectives” (Ewusi-Mensah, 2003, p.51), general lack of clarity in objectives (Robbins & DeCenzo, 2001; Koontz, 2004).
- The “lack of a measurement system to measure progress and identify potential risks in time to mitigate them” (Ewusi-Mensah, 2003, p.52).
- The lack of top management involvement and poor user-IS relations (Earl, 1993).
- Management can not find necessary information from the IS (Weintraub et. al., 2001; Davenport & Prusak, 1997; Martin, 1990).
- The plan is too informal and unstructured, “populated by platitudes” (Kenny, 2005, p. 191).
- The plan is too detailed and too complex (Lynch, 1993; Davenport & Prusak, 1997).
- A tendency for planners to be one dimensional in respect to the core problems of an organisation and think only in terms of Finance and/or perhaps Product – part of the silo mentality (Chennell et al., 2000).
- Insufficient stakeholder involvement or limited executive perspective (Peffers et al., 2003; Dickinson et al., 1998).

There is no reason to think that implementing a strategic plan is any easier that implementing a large project and it is reasonable to expect that some of the problems associated with implementing a large project will also relate to implementing an
organisational strategic plan. This is certainly true for the implementers to have clear definition of the planner’s requirements.

2.5 Discussion of Strategic Planning Literature

The literature review on strategic planning first looked at definitions for strategic planning and related terms and examined the commonality of areas of activity described by several of those definitions and terms. The arguments were reviewed about the need of doing organisation strategic planning or for not doing organisation strategic planning (OSP). The conclusion to exploring this planning spectrum was identifying the need to separate the formulation of strategy initiatives from the development of the strategy implementation plan. Once top management have determined the strategic direction for the organisation and the goals to be aimed for, it is necessary to formulate a strategic plan for the way those goals are to be achieved. The review of strategic planning then moved to the departmental strategic plan for strategic information systems planning (SISP) which has a more systematic and formal set of procedures for the planning process.

A number of interrelated secondary objectives which the planning process might achieve were extracted from the factors relating to success of the planning process and might become part of the planning process:

- Need to closely align the SISP with the OSP.
- Need for greater transparency of governance/management
- The need to allow for greater communication and teamwork throughout the organisation.
- Need for better performance measurement and management.

Some items can be extracted from the list of implementation planning problems that relate specifically to the contents of the plan and are therefore the items that most concern this thesis namely:
• “lack of general agreement on a well-articulated set of project goals and objectives” (Ewusi-Mensah, 2003, p. 51), general lack of clarity in objectives (Robbins & DeCenzo, 2001; Koontz, 2004).
• “lack of a measurement system to measure progress and identify potential risks in time to mitigate them” (Ewusi-Mensah, 2003, p.52)
• The plan is too informal and unstructured “populated by platitudes” (Kenny, 2005, p. 191).
• Plan is too detailed and too complex (Lynch, 1993; Davenport & Prusak, 1997).

Various methodologies were reviewed to see how they dealt with the problems in the planning process with a look at some of the limitations that still exist even with the best combination of methodologies.

Within the ‘alignment’ set of methodologies the focus is on data, with a consequence that the process to define the data model is very time and resource consuming and the result is very detailed and may not satisfactorily show an organisation’s overall strategic direction. This methodology is really best suited to information systems design. The impact methodologies more easily translate to being used for organisation strategic planning but do not have any process steps dealing with how the results should be presented, the result being that the document may lack organisation and may contain ill-defined goals and lack measurement indicators.

Some enhancements were reviewed with a view to overcoming these limitations. The OSP methodology was reviewed with an emphasis on all types of stakeholder being considered and included in the planning process with a requirement of defining the stakeholder outcomes. The Q-method was examined that might assist in improving the shared understanding for all participants of the key information in the strategic plan and the concept of the SMART set of criteria was reviewed that could improve the definition of measurement indicators.

There is, however, at the end of the literature review still a lack of a clear format for the way strategic information should be described and presented, that is, a presentation that is without ambiguity and is clear and concise. If the strategic plan is not clear, concise and unambiguous, then the key elements of the plan may be open to misinterpretation.
and be difficult to validate by the other participants in the planning process. The resulting plan will therefore also be open to misunderstanding by those responsible for implementation and the final results may be questionable.

From the sample of methodologies that were reviewed, it becomes clear that there are a number of common terms for the information elements that are consistently used in describing planning such as goals, objectives, strategies, actions, programs and measurements, but there is no single common set of these terms.

The next section of the literature review will explore literature about architecture in general and information architecture (IA) in particular; to explore whether IA can offer any advantages that will assist in the clear presentation of the information required within a strategic plan.

2.6 Relationship between Strategic Planning and Architecture

The concept of architecture is explored to see if it offers any assistance in meeting the requirements of improving the presentation of the key information elements of an OSP and addressing any of the problems that were reviewed in the previous section on strategic planning.

The concept and organisational principles of architecture are well understood in the area of town planning and building design and are particularly useful in dealing with complex structures and the development of documentation that allow all concerned to build what is required. Perkins (2008) compares a building architecture to an enterprise architecture and the use of an enterprise architecture to describe the strategic information about an organisation:

A building is constructed using architectural diagrams (blueprints) that clearly depict the building's infrastructure (structural elements, walls, electrical wiring, plumbing etc.). Enterprise architectures include architectural models of enterprise infrastructure (policies, goals, measures, critical success factors, data elements, etc.) (p. 4.)
The Open Group (2006) offer two definitions of architecture for use in IS/IT systems which they say are dependent upon context:

- That architecture is “a formal description of a system or a detailed plan of a system at component level to guide its implementation”.
- That architecture is “the structure of components, their interrelationships, and the principles and guidelines governing their design and evolution over time” (Introduction p.3).

The architectural principles that could be extracted from these two definitions are as follows:

1. A detailed plan to guide implementation
2. The plan should contain the components and their structure
3. The plan should define the interrelationships between components.

A general definition of IS architecture is also given by Bass, Clements and Kazman (1998) who make a clear distinction between architecture and design. They write that architecture begins the task of envisioning the central function of a system looking for those influences that persist beyond the lifetime of the system, whereas design is just about ensuring the system will function as expected, that is, architecture is concerned with a longer-range view than design.

The important architectural principle in the previous paragraph is to:

4. Identify those influences that are concerned with the longer-range view.

Perkins (2008) gives an example of the benefit of incorporating these influences into the architecture, which is to minimise the cost of changes by being able to refer to the architectural model and to ascertain the full effect of the change before embarking on the change.
Bass, Clements and Kazman (1998) also write that architecture is a description of system structures that can be specified to determine how well the quality attributes are being achieved. But more importantly when trying to determine what the specifics are that make up architecture, they write that, it is also a description of relationships among components and connectors. The points in this paragraph confirm the principles 2 and 3 identified in the Open Group definitions given above.

Can relating these architectural principles to the development of the organisational strategic plan improve the dissemination of strategic information to all levels of an organisation? The requirement for the use of architectural principles is that they will help provide clearer documentation to assist the development and implementation of the strategic plan.

There are many descriptions of architecture as applied to IS/IT; from the overarching enterprise architecture and its sub architecture levels that define the entire IS/IT system down to the level of the network architecture describing the computer network topology and protocols. The different architectural levels that might comprise an enterprise architecture are reviewed in section 2.5.1, however it is useful here to briefly identify information architecture as one of the enterprise architecture levels by reference to Brancheau and Wetherbe (1986).

Brancheau and Wetherbe (1986) write “an information architecture is a high-level map of the information requirements of an organisation” (p. 453). They go on to write “an information architecture is a blueprint or plan for modelling the global information requirements of an enterprise” (Brancheau & Wetherbe, 1986, p. 454). Section 2.5.3 has a more detailed review of information architecture, but this section continues with a review of IS/IT architecture and enterprise architecture, why they are considered important and the various descriptions that are given for these terms.

Zachman (1996) writes “Architecture is the corner stone for containing enterprise frustration and leveraging technology innovations to fulfil the expectations of a viable and dynamic Information Age Enterprise” (p.1).
The Open Group (2006) has published *The Business Executive’s Guide to IT Architecture*, subtitled ‘Why IT Architecture is crucial to the Success of Your Business’. Two quotes from this publication help explain the use of IT Architecture, and why a business needs an IT architecture.

Specifically, IT architecture defines the components or *building blocks* that make up the overall information system. It provides a plan from which products can be procured, and systems developed that will work together to implement the overall system.

An effective IT architecture is critical to business survival and success, and is the indispensable means to achieving competitive advantage through IT. Today’s CEOs know that the effective management and exploitation of information through IT is the key to business success. (The Open Group, 2006, p.1).

It is necessary to identify the needs of the organisation at the beginning of the development of any information system and it is essential when engineering an enterprise architecture. “It is imperative that an enterprise information architecture reflects both strategic information requirements and day-to-day operational requirements. The architecture must be closely linked to the enterprise strategic plan and corporate performance measures” (Perkins, 2008, p. 4).

Stevenson (1995), Zachman (1996), and Earl (1989), all discuss the need for an architecture to manage the complexity of information systems. The same degree of complexity is evident in the strategic planning of organisations. This can be seen in a review of the points listed by authors Rea and Kerzner (1997) for the benefits of successful strategic planning and the 18 keys to action to ensure success in the implementation of the strategic plan listed by Fogg (1999). The number and complexity of the points and their interaction, described by these authors, indicate similar scale problems to the ones envisaged by authors advocating the use of architecture to solve the problem of long term management of information systems.
One of the earlier authors on IT architecture, Earl (1989) wrote about the confusion resulting from the proliferation of information and communications technologies and the management of the changing data processing infrastructure. Earl (1989) suggested that there was a need for architecture for “planning and developing computing, communication, data and systems in a coherent manner” (p31). The main concern would be to avoid backtracking systems development because the development of a new function clashes with existing effective system interworking with other functions.

Information technology and information systems have become increasingly important to the operation of organisations, from controlling costs to providing competitive advantage. This has resulted in an increase in complexity as organisations increasingly integrate their processes and information systems. Earl (1989) suggests as integration increases then “architecture provides a framework for and a mechanism to, consider and design necessary interfaces, compatibility and integration” (p.97). These same arguments could be applied to the strategic development of an organisation.

The term architecture may be well understood when discussing building architecture but not so generally well understood when looking at architecture as applied to information systems. Newspaper advertisements for jobs in the IT industry are increasingly using the term architecture and there are a number of authors (Koontz, 2000; Earl, 1989; Davenport & Prusak, 1997) writing papers referring to IS and IT architecture. There is however a lack of agreement on the definition of the different architecture levels in IS and IT. This is summed by the comment “in spite of all the attention there doesn’t seem too much agreement on what is meant by an enterprise architecture” (Harmon, 2004).

It is worth examining various definitions of enterprise architecture (The Open Group, 2006; Zachman, 1996; Stevenson, 1995). The overarching enterprise architecture is very clearly described by Stevenson (1995) with the following explanation:

Enterprise Architecture is a complete model of the enterprise: a master plan which acts as an integrating force between aspects of business planning such as goals, visions, strategies and governance principles; aspects of business operations such as business terms, organisational structures, processes and data; aspects of automation such as application systems and databases; and
the enabling technological infrastructure of the business such as computers, operating systems and networks” (p.1).

Benson and Standing (2002) use the term ‘Information Architecture’ to describe the data, processes, information, organisational network, and stakeholders, while the IT architecture is defined as covering the technology, hardware and network infrastructure, within the information architecture. These two architectures together form a description rather similar to definitions of the enterprise architecture. A different perspective from Davenport and Prusak (1997) suggests that “information architecture in the broadest sense is simply a set of aids that match information needs with information resources” (p.156).

The “enterprise architecture needs should be expressed in terms of business rules, measures, and critical success factors. An enterprise’s business plans typically provide the basis for defining preliminary enterprise needs” (Perkins, 2008, p.3). The importance Perkins (2008) attributes to the process of defining these needs for the development of an enterprise architecture “is the synergy achieved through the process of defining and then communicating its critical success factors and measures. Everyone becomes aware of precisely what defines success and how it is measured” (p. 3).

Perkins (2008) describes an enterprise information architecture as the “organisation of information pertaining the following corporate-level enterprise-wide elements:

- Strategic goals, objectives and strategies
- Business rules and measures
- Information requirements
- Application systems
- Relationships between applications and data elements
- Technology infrastructure” (p.2)

Perkins (2008) uses the terms ‘enterprise architecture’ and ‘enterprise information architecture’ interchangeably and does not describe any sub level architectures, but does suggest the enterprise architectures should include architectural models for information
leading to the data model and an activity model leading to the process model. What is meant by the different levels of architecture (including information architecture) that are considered part of enterprise architecture will be reviewed from different author’s points of view in section 2.5.1.

There are new architectures being defined for IS/IT, like the SOA (service oriented architecture), which was developed to give service providers of application software services the modularity to allow users to link their own application to the service. There are also frameworks to assist organisations to link their information resources i.e. ITIL (IT Infrastructure Library) for service management and COBIT (Control Objectives for Information and Related Technology). The ITIL and COBIT frameworks or methodologies are primarily for the simple development and management of an IS, they deal with business processes, as components and are aiming for component reusability within the development of information systems (Ruzbacki, 2004). These frameworks are not about defining the requirements of the business but about the development and management of the IS.

There are web sites set up to discuss the nature of architecture for the IS/IT industry with www.ewita.com for people who are working in the Enterprise Architecture space. It is useful to Information or Data Architects, Application or Software Architects, Technology or Infrastructure Architects (Bredemeyer, 2001).

There is also www.opengroup.org which is “committed to delivering greater business efficiency by bringing together buyers and suppliers of information systems to lower costs and risks associated with integrating new technology across the enterprise” (The Open Group, 2006). This group was responsible for developing ‘The Open Group Architectural Framework’ (TOGAF) as an industry standard architecture framework for use by organisations to develop IT architectures for use within the organisation. It was developed from TAFIM (Technical Architecture Framework for Information Management) by permission of the US Department of Defence. Greenslade (2001) gives the following explanation of TOGAF “an architectural framework gives guidance for the evolution of an organisation’s IT architecture. It does not provide a specific architecture” (p. 3).
Zachman (1996) and the Zachman Institute have made famous the Zachman framework, which is independent of any methodology, the framework was designed to assist organisations to define an enterprise architecture.

All these definitions of architecture are primarily aimed at the building of information systems to support the organisation, although the Zachman framework does have at the top level of abstraction the term ‘scope’ that covers the business organisation itself. Architectures are not specifically mentioned until lower down the framework at the system model level (Zachman, 1996). Similarly Harmon (2004) describes the concept of enterprise architecture in reference to business process architecture with the top level of their architecture pyramid reserved for the strategy level of defining organisation plans and goals. However their definition of business process architecture does not start until lower in the pyramid at the next level down, with the definition of specific business processes and their interaction (Harmon, 2004).

Figure 6. The BPTrends Enterprises Architecture Pyramid (Harmon, 2004)
Harmon (2004) has concerns over the lack of agreement over what is meant by the term enterprise architecture and details two approaches: one being the IT-centric focus and the other being the process-centric focus. The IT-centric approach has a primary function of viewing how all the IT models and resources collaborate and is only peripherally concerned with the rest of the organisation; whereas the process-centric approach sits higher up the enterprise architecture pyramid with a focus on the way the business processes interact, and does require that all implementation aspects below the definition of the business processes are also specified.

However neither of the above enterprise architectures, the Zachman framework nor the process-centric enterprise architecture gives any detail for the organisation and presentation of the information required in the strategic plan at the highest level of the enterprise architecture pyramid. This top level of the information description is required to detail the complexity of the organisational goals, objectives, actions and controls and their interaction; this information description is what this thesis refers to as the information architecture of the strategic plan and is reviewed in more detail in section 2.5.3.

2.6.1 Levels of Architecture from Enterprise to Infrastructure

There are varying descriptions of the different levels of IT architectures. The Open Group (2006) suggest that there are four types of architecture accepted as subsets of enterprise architecture which describe the scope of ‘the open group architectural framework’ (TOGAF). A summary explanation of these architectural levels start with the enterprise architecture as the overarching architecture, the subsets are:

- Business (business process) architecture – this defines the business strategy, governance, organisation and key business processes.
- Data architecture – this describes the structure of an organisation’s logical and physical data assets and data management resources.
- Applications architecture – this kind of architecture provides a blueprint for the individual application systems to be deployed, their interactions, and their relationship to the core business processes of the organisation.
Technology architecture – this describes the logical software and hardware capabilities that are required to support the deployment of business, data and application services.

In ‘The Open Group’ terms the data and application architectures can be combined to form the information systems architecture as shown in the TOGAF diagram in Figure 7 below.

![Figure 7. The TOGAF 8.1 diagram of the Architectural Vision](image)

Koontz (2000) in discussing the requirements for an e-commerce architecture has several extra levels which are shown in Figure 8. The process starts with the business goals and vision similar to TOGAF, but the next level down refines this to determine the information architecture by restating each business goal and listing the information needed to fulfil it. From the information architecture can be determined the data architecture describing what is needed from the customer/supplier or by the customer/supplier. The information architecture can be also used to determine the processes needed and thereby the application architecture. This is followed by the
software and hardware infrastructure (technical architecture) that supports the applications architecture, see Figure 8 (Koontz, 2000).

When describing an enterprise architecture and the related sub levels of architecture it is important that the various levels of architecture dovetail into each other where appropriate, and comprise an unfolding level of detail as the levels progress downward to the technical architecture.

2.6.2 Advantages gained by using an architecture

2.6.2.1 Architecture has a guiding role
Zachman (1996) believes very strongly that “[t]he credibility of IS is in a steep decline.” and that “[t]he issues of quality, timeliness and change are the conditions that are forcing us to face up to the issues of Enterprise Architecture” (p.1). These comments are very pertinent to the issues of an effective enterprise (Zachman, 1996).

James is the Asia-Pacific Architecture Research Director for Gartner (a company of industry analysts), and in an article for the *Australian* writes about the need for business to respond ever faster to the changing environment, and this diversity must be managed to get business results.

Enterprise architecture is important largely because there are more applications today than ever before. And those applications are managing more data on a diverse range of platforms, written in many languages and running in a variety of environments. This diversity can be chaotic to manage (James, 2001).

James (2001) is adamant that the first step to success is a clear understanding of enterprise architecture: “Within the control of the enterprise are the technologies that are employed (IT architecture), the business processes, functions and information (information architecture) that embody the organisation and the integration infrastructure (the city plan)” (James, 2001).

Fournier (1999) also writes about the need for enterprise architecture to enable the system flexibility (i.e. the system can be modified easily without undue costly testing) which is needed to keep on delivering competitive advantage:

The importance of enterprise architecture in helping a company leapfrog the competition and achieve business success is too important to be ignored. It will separate the winners and losers.

According to industry experts, driving toward flexible enterprise architectures produces several IT benefits, including faster delivery of new applications and increased return on investment from legacy applications. Likewise highly adaptable architectures ease the integration of diverse
applications, provide better data interoperability, and offer more flexibility during acquisitions or mergers (p.127).

Architecture is useful at all levels of the business and the IS/IT hierarchy, which was reviewed in section 2.5.1. For information systems, well designed software architecture is said to promote longevity which refers to how long it is economical for the original application to be used by modification and updating before needing to replace it. The attributes of architecture that most directly impact on this requirement are the non-observable quality attributes. The observable attributes are those relating to producing the required results in a timely and accurate fashion. The non-observable attributes are those of modifiability, portability, reusability, ability for integration, and testability (Bass et al., 1998).

Modifiability is the attribute that most closely follows directly from the architecture. If the system is well structured and organized in a very modular way, then many changes can be made to a small area of the system, and the effect of the change is well understood and therefore of minimum risk.

Portability refers to the ability to run under different computing environments. Reusability is usually taken to mean the system is made up of components, some of which can be reused again in other applications, speeding up the development process and increasing the reliability of new applications. Integrateability is the ease of integrating separately developed units, and testability is the assurance for simple complete testing.

The longevity attributes mean that the system is relatively easy to modify at minimum risk, and can therefore be kept up to date and relevant to current requirements for longer.

These comments have been written in reference to the development of information systems but can surely be applied to the more generic concept of system and therefore be applied to the organisation as a system, therefore the idea of an information architecture guiding the organisation seems a viable proposition.
2.6.2.2 Architecture for Communication and Team Support

Management textbooks discuss the issue ‘why should managers formally plan?’ and Robbins and DeCenzo (2001) write that:

Planning establishes coordinated effort. It gives direction to managers and non managers alike. When all organisational members *understand* where the organisation is going and what they must contribute to reach the objectives, they can begin to *coordinate their activities* and *cooperation and team work* are fostered (my emphasis) (p.81).

Davenport and Prusak (1997) are concerned that “Our fascination with technology has made us forget the key purpose of information: to inform people. All the computers in the world won’t help, if users are not interested in the information generated” (p.1).

Minztberg (1994) suggests the first role of plans is to be the communications media; “plans clearly serve in two capacities, or roles. They are media for communication and devices for control” (p.351). He writes that the concept of coordination is “to ensure that everyone in the organisation pulls in the same direction, which may be facilitated by specifying that direction as precisely as possible” (Minzberg, 1994, p. 351-352). He goes on to cite Hogarth and Makridakis (1981) who wrote that communication and coordination are not “just side effects of planning, but the essential reasons to engage in it” (Minzberg, 1994, p.352). Mintzberg (1994) cites a paper by Hafsi and Thomas (1985) who wrote that the plan “forced employees to recognize the situation of the firm relative to its competitors” (p. 353).

Note also the importance of teamwork in the successful organisational approach to SISP that Earl (1993) refers to when he writes “[t]eamwork was the principal influence in IS strategy making” (p.10). However it should be clear that IS strategy is in this case only the development of long term action plans to deal with the business strategy that has been formulated previously (Earl, 1993).

Navarro (1994) advocates a team information architecture that supports self-managed team development by providing a structured system that will create high performance conditions for teams including monitoring effectiveness, diagnosing potential problem
areas and developing self leadership. This sort of team communication is the result required from the information architecture of the business context, with the organisation acting as the team and the strategic planning document as the information architecture.

### 2.6.3 Information Architecture

A survey of Information Systems Managers in 1994 – 1995 (Brancheau, Janz and Wetherbe, 1995) showed that information architecture (IA) was ranked as the number 4 top issue. The term information architecture though, has varied definitions, with recent articles all describing information architecture as an aspect of web site design (Toms, 2002). Previously, Brancheau et al. (1989) describe the building of information architecture centred on the business organisation. The information architecture (IA) had inputs from the business functions, organisational structure and existing applications but was significantly focused on the data. The IA comprised the business function model, the global data model and entity descriptions. The business function model does include plans, budgets and forecasts but the focus appears to be more on the data classes and entity descriptions. This emphasis on data and functions was possibly because the primary requirement for the IA was as a prelude to building the information system. This is a significant step forward for the information systems people to have this kind of information input into their planning process but it does leave out the concept of performance measurement and management and is more focussed on where the organisation is, rather than on where it wants to be.

The confusion over the definition of IA can be seen in an early paper by Brancheau and Wetherbe (1986) where they write “an information architecture [IA] is a high-level map of the information requirements of an organisation” (p. 453), which is the view taken in this thesis. Brancheau and Wetherbe (1986) go on to write “an information architecture [IA] is a blueprint or plan for modelling the global information requirements of an enterprise” (p. 454) and then write “the process starts from a high-level conceptual view, then is successfully refined until at the lowest level a physical data base can be implemented” and the diagram they use (p. 456) see Figure 9, clearly shows the IA at the level of defining the global corporate needs, with the physical data base at the level of data administration. This clarification of the abstraction levels of IA is omitted in the later paper (Brancheau et al, 1989).
Two of the aims for this research are to discover the information elements useful in defining the strategic direction of an organisation and to determine if an IA would present this information in a clearer way. In order to provide validation for the use of an IA it is necessary to first develop an information architecture reference model (IARM) for use as a discussion tool. The IARM would indicate the way the information elements and their relationships could be mapped into a model that would enable a concise and unambiguous description of the essential business strategic direction. This would give form to the presentation of the key information elements that would be a significant component of the strategic planning documentation. An organisation would choose the information elements that best represent their strategic direction and, guided by the IARM, develop an IA based strategic planning model (SPM) of their strategic planning information. The organisation would be able to work with the SPM and use it as an index or guide for their more detailed planning narrative; they would also be able to review it on a regular basis and change it as necessary to meet the changing world.

Porter and Millar (1985) discuss the relevance of information to creating competitive advantage and when looking at Value Chain analysis, write “the information revolution affects all nine categories of value activity” (p.5) and on the Five Forces model write “Information technology can alter each of the five competitive forces and hence
industry attractiveness as well. The technology is unfreezing the structure of many industries, creating the need and opportunities for change” (p.8).

One difficulty to be overcome is that many people use the terms ‘data’ and ‘information’ interchangeably and talk about information overload rather than data overload. Porter and Millar (1985) write about the impact of information technology creating a problem for executives by providing too much information. Is the real problem that insufficient attention has been given to determine the essential information and instead supplying everything that is available? The definition of information being used in this thesis is that information is something that can be used immediately to make a decision or take action (Alter, 2002). However it must also be recognized that even using this definition, information that enables a supervisor to make a decision or take action, could well be only data to a senior manager. Similarly information to an executive may not be useful to a middle manager. It is therefore necessary when building an IA to show the relationships directly linking higher order information down through the organisation to middle management and to the operational level information and finally, as an audit trail, to the originating data required for performance measurement.

Information architecture would allow an organisation to know what factors are critical to success, and how to measure those factors from the operational data. Davenport and Prusak (1997) suggest that “making explicit the high level ‘information intent’ of a firm actually makes a lot of sense in an information pervasive world” (p.35). Davenport and Prusak’s (1997) concept of ‘high level information intent’, which they declare is only the approximate destination for the business strategy, is precisely what is intended to be presented by an IA according to this thesis.

The Meta Group which is an IT industry analysis organisation has a service specialising in enterprise planning and architecture. A paper written by this group expresses the opinion that by “2006, the need to derive business value from information assets will force Global 2000 organisations to mature their information architecture methods.” They will need to find a way to start the ‘enterprise information architecture’ (EIA) and to develop a practical methodology (Buchanan et al., 2002, p.1). They believe that current methods are often confusing, being abstract philosophical approaches. The
italics were added by this author to clarify the object being discussed. The Meta Group also complains that at the other end of the scale “architecture methods focus on the data analysis level” which although valuable can “lead architects astray, as fundamental business requirements are obscured”. They conclude with “the dictum, ‘just enough architecture, just in time’” and so the EIA “must start with strategic business needs and a definition of the business environment” (Buchanan et al., 2002, p.1).

A cautionary note is given by Brancheau et al. (1989) indicating two problems with developing an IA; one being the broad scope required which adds to the complexity of the undertaking, the other problem being a lack of structure of the information requirements determination project. It is suggested that both of these problems can be minimised by keeping the focus at the highest level of the business environment, on those factors critical to the strategic success of the organisation and by using the principles of an architecture to present the information.

2.6.3.1 What Information Architecture (IA) Describes

At a conference of the American Society for Information Science it was noted that “information architecture [IA] is more broadly defined than just in terms of its relationship to the Web” (Peek, 2000, p.15). However because of the growth in number and complexity of web sites there is a need for web creators to better define their jobs and they have begun adopting the job title of information architect (Peek, 2000).

Farnum (2002) made the comment that information architecture is a relatively new field, which was born in the high-tech boom (web sites) of the 1990’s; this totally ignores the fact that Brancheau, Schuster and March (1989) wrote a paper entitled “Building and implementing an information architecture”.

The theme of IA providing access to data is repeated by the author Toms (2002) in writing about the quest for information and the experiences of a user interacting with an information system: “This integrated process is information interaction. Information architecture on the other hand is a map of the underlying information structures.” (p.855) This definition seems quite a reasonable attempt at a definition of IA but the term is then limited by reference to Rosenfeld and Morville and their use of the concept
to denote a “blueprint for information organisation and access for Web sites” (as cited in Toms, 2002, p. 855).

There is again and again a demand for a better definition of the term information architecture but it is continually being limited in recent articles and books to defining the content and structure of an information repository. What this thesis aims to do is to use the term information architecture to describe the presentation structure for the pieces of information that define the organisation’s directional context, where the organisation is going, how it is going to achieve the stated direction, and how it is going to know that it is on the right track toward achieving its aims.

Koontz (2000) expresses this quite well when defining an IA and writes “the purpose at this point is not to begin listing all of the data bases and files … instead begin identifying your information assets and liabilities … restating each business goal and then listing the information required to fulfil it” (p.24). He emphasises the importance of this point and of IA by stating “If you ignore all other steps in this article it is wise to follow this one” (Koontz, 2000, p.24).

It is clear that IA is about describing the underlying structures of information to suit a specific purpose and that the information that is the basis of the architecture can represent different sorts of activities. The information contained in a library needs to organised so that users can find the material they require. The data base designer needs to know the underlying data organisation that will allow data to be retrieved efficiently using the data base. The web site designer needs to know the information that is to be referenced by the users and the likely way they will need it to be organised for easy retrieval. So, too, the managers of an organisation need the strategic planning information organised so that they can do their own local planning that will effectively line up with the strategic direction of the organisation.

For IA to effectively organise and describe strategic planning information, it is necessary to determine what will be the components of the architecture, i.e. the information elements (IEs), and what will be the relationships between these components. To determine the IEs it is necessary to review what items of information
the various authors on strategic planning have discussed in their description of the strategic planning process.

2.6.3.2 Information elements of strategic planning

The strategic plan may be defined as the plan the organisation develops to achieve its targets (Bailey & Peak, 2003). The use of the term ‘architecture’ requires the determination of the components of the structure that are the focus of the architectural design. For the purpose of this research, the components of the proposed information architecture reference model (IARM) will be drawn from the range of strategic planning information elements (IEs) discussed in the strategic planning literature and from Martin (1990) and the Information Engineering approach to IS design.

The literature review of strategic planning issues showed different authors using various terminology and different pieces of information to be considered as components of the strategic planning landscape. A sample of the IEs used to determine strategic planning from several authors is as follows:

- (Lynch, 2003)
  - Mission
  - Objectives (or goals)
  - Strategies (to achieve the goal)
  - Plans (or programmes)
  - Controls and rewards
- (Roney, 2004)
  - Goals
  - Strategies to achieve goals
  - Action programs
  - Monitoring controls
- (Rea & Kerzner, 1997)
  - Objectives
  - Mission statement
  - Performance measures
- (Martin, 1990)
Many authors writing about strategic planning have very little to say about the structure of the documentation and almost nothing about the expected contents of the documented strategic plan. Roney (2004) does however describe the contents of a strategic plan as being:

1. A business conditions assessment.
2. The planning decisions which contain the goals and the strategies to achieve them.
3. The implementation requirements of programs and projects, performance review/ and evaluation and replanning methods and procedures.

In contrast Martin (1990), in writing about the information engineering approach to planning the strategic development of information systems, is more specific about the strategic plan contents. In his diagram of business strategic planning in Figure 4 (see section 2.2.1), the business goals and problems (business objectives) are first, next Martin places the development of the critical success factors (CSFs).

Martin (1990) echoes the plea from executives overwhelmed by volumes of reports, asking why they cannot find the information they need to manage the business effectively and writes “that computers can have the negative effect of causing an overload of not-very-useful information” (p.87). He then writes that “in practice there are a small number of pieces of information that are particularly critical to an executive’s job and a relatively small number of decisions that are especially important” (Martin, 1990, p. 87). Martin (1990) goes on with the point that the same can probably be said for the organisation as a whole. It is these critical pieces of information (information elements) about the organisation that become the essential components of the IA. These components together with the relationships between them become the IA that will define the business strategic direction for an organisation which should result from the strategic planning process.

The above review of different authors’ views on what constitutes the critical pieces of information needed to define the business strategic direction could perhaps be summarised into the following four categories:

- The IEs that define the chosen organisational direction e.g. objectives and goals,
- IEs that describe the critical aspects of achieving the chosen direction such as CSFs,
- IEs that describe how to achieve the goal such as the action plans, programs or strategies and
- IEs that measure performance of the directional IEs e.g. KPIs.

Many IEs and alternative terms for the IEs have been reviewed and there is no definitive correct set of IEs. The determination of those to be used by an organisation will depend
on the requirements of the organisation, its planning team and the strategic direction that is to be specified. Using the above categories, those IEs that have been selected for the IARM to be defined by this thesis are as follows:

- Objectives
- Critical success factors
- Action plans
- Key performance indicators

These IEs are reviewed in the next sections, however because of the nature of the inter-relationships between the elements the discussion about one element is often incorporated in the description of another. Section 2.5.3.3 will describe the suggested relationships between associated IEs that should add clarification and perspective to the IEs themselves.

2.6.3.2.1 Business Objectives and Critical Success Factors (CSFs)

CSFs are described here in conjunction with business objectives because the CSFs are the critical analysis of the objective, that is, they determine what must be done to achieve the objective.

There is some confusion with the term strategy being used to mean direction or alternatively the method to achieve an objective. The terms goal and objective are sometimes used interchangeably. The definitions that Martin (1990) uses to distinguish between objectives, goals and critical success factors are:

- **Objectives.** Objectives are general statements about the direction in which the firm intends to go, without stating specific targets to be reached at particular points in time.
- **Goals.** Goals are specific targets that are intended to be reached at a given point in time. A goal is thus an operational transformation of one or more objectives.
- **Critical Success Factors (CSF).** CSFs are the limited number of areas in which satisfactory results will ensure competitive performance for the
individual, department or organisation; CSFs are the few key areas where “things must go right” for the business to flourish and the managers goals to be attained (Martin, 1990, p.89).

Kenny (2005) uses the term ‘strategic factors’ in place of CSFs which are defined by Kenny as being purely internal factors, whereas strategic factors are defined by him for both internal and external factors; however this does not exclude an organisation deciding an external factor is critical to an objective and calling it a CSF.

Martin (1990) believes the CSF is the critical element of the planning process because it identifies the areas most critical to success in running the enterprise. He goes on to write that “it identifies the critical decisions and critical information, and ought to lead to building of information systems that help in these areas” (Martin, 1990, p.19). The term critical success factor (CSF) is a central idea in Martin (1990) and he writes the term was suggested by Rockart in 1979, Martin defines CSF as “the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department or organisation” (Martin, 1990, p.89).

A look at the planning framework proposed by Bailey and Peak (2003) also shows the use of objectives and CSFs; and also uses key performance indicators (KPIs). Although Bailey and Peak (2003) use CSFs in their planning structure, unfortunately they do not include a description of the meaning they have for CSFs, but do describe the place CSFs have in their planning hierarchy.

Bailey and Peak (2003) describe how the corporate objectives are established by first conducting research and evaluation which encompasses financial and non financial aspects. The financial aspects essentially cover the profit and loss account with a focus on profitability as the KPI. The non-financial information is drawn from customer research, staff and supplier surveys using a STEEP analysis and Porter’s Five Forces analysis. The research and analysis is developed into a set of findings and conclusions, these facts are formed into a set of CSFs which are reviewed with the conclusions to create the corporate objectives. The conclusions are first evaluated using a conclusion assessment matrix to prioritise the conclusions using a form of risk assessment. The conclusions that pass the test are then used to establish the objectives. In this description
of CSFs they are used to determine the objectives, whereas Sacks, Rich and Erasmus (2000) take a different view.

Sacks et al (2000) recommend examining the strategic goals of the organisation to find the set of CSFs that must be achieved to add value to the organisation, thereby implying a top down approach. For executives when reviewing the marketplace it may be easier to determine the strategic objectives for the organisation and leave the CSF analysis of the objectives to the senior managers. The senior managers may have a better understanding of the internal processes of the organisation to enable a more accurate CSF analysis of the proposed objectives. For the development of the IARM a CSF analysis will be used to examine the strategic objective and determine those things that must go right to achieve the goal of the objective.

2.6.3.2.2 Action Plans or Programs

In order for an objective to be achieved, there must be operational activity or action taken at some point; some authors call this action, a program and some call it a strategy. Roney (2004) describes the stage 3 of a comprehensive planning process, as being a deliberate orderly implementation, which has as the first point, the need for declaring the programs or projects to be accomplished (which is another way of saying an action plan). These are defined as the statements of intended action including responsibility assignments needed to implement strategy, or achieve an objective or CSF. Fogg (1999) has a similar comment for key 2 of the 18 keys to successful strategic plan implementation which is to “turn strategic priority issues into assigned, measurable action plans” (p. 8).

Kenny (2005) writes that many strategic plans are only wish lists and that vague mission, vision and values cannot be implemented unless they are developed into specific plans and actions. Kenny (2005) continues by stating that it is not lack of motivation that prevents implementation of the strategic plan but “it’s the plan’s design. What it means for individual action simply isn’t clear” (p. 191).

Lynch (2003) in describing the implementation process for corporate strategy has:

1. Identification of general strategic objectives.
2. Formulation of specific plans – which means taking the general objectives and turning them into action plans complete with deadlines and responsibilities.

3. Resource allocation to the plans in point 2.

4. Monitoring and control which will require the identification of performance indicators.

Point 2 is again a call for developing action plans in order to achieve the objective. An action plan is a set of actions or program designed to achieve a particular end result. There is the important implication in each of the above calls to declare the necessary programs or action plans, that there is a direct linkage between the objective (which defines the strategic direction) and the action needed to accomplish it. This will be discussed in section 2.6.3.3 on relationships between IEs.

2.6.3.2.3 Measurements and Key Performance Indicators (KPIs)

In the section on performance measurement of organisations authors often used the term ‘key performance indicator’ (KPI) as the name of the indicators used to measure and manage organisations. Martin (1990) however appears to dismiss the term ‘key indicators’ for the measurement of strategic level activities (appearing to use the term as an industry standard indicator) and uses the term ‘measurement’ for the way the CSF should be monitored, tailored specifically to the particular situation of an organisation.

A general definition of KPI is given by Goodman (n.d.):

A KPI is a business calculation that allows macro-level insights into the business process to manage profitability. While there are any number of performance measures that can be derived at both the macro and micro level, we should assume that if it is a key to the business it is a macro-level measure (p. 1).

Goodman’s (n.d.) explanation of the information supply chain to deliver these macro-level KPIs, is to describe a bottom up process deriving KPIs from the data warehouse and transaction systems via production reports and management reports to finally arrive at the top level KPIs (p. 3). It is perhaps unfortunate that Goodman’s derivation of macro-level KPIs is not from the strategic plan down, which would seem to be a better starting point for a macro-level KPI.
Several authors (Goodman, n.d.; Kirtland, 2003; Sacks et al., 2000) all write about the importance of using KPIs to add value to an organisation however Goodman and Kirtland recommend the development of KPIs from the data that is available to an organisation and to determine what might be useful to the management of the organisation. This is essentially a bottom up approach, rather than ask management what KPIs are required to run the organisation effectively, then to determine how and where to obtain the necessary KPIs. This is not an uncommon approach in organisations developing an MIS or EIS from their existing data bases and Smith and Fingar (2003), in their book advocating the methodology based on business process management (BPMS), reflect that business measurement is too often based on the analysis of data obtained after the event of past business activity.

The papers by Kirtland (2003) and Outlooksoft (2003) look at the concept of the executive dashboard (a software vendor term in place of MIS and EIS), which is a framework of KPIs that have been defined to be appropriate for executives to help them manage the organisation. Goodman (n.d.) stresses the importance of being able to follow through from the KPI to the underlying transactional data and states that “ideally each KPI should be automated to ensure its completeness and accuracy through an information supply chain that ends with an easy-to-use system” (p.2). This is of course much easier to do if the KPI is being derived from the operational data, and it is obvious that if the KPIs are to be automated in this way it can only be done by an information system that is closely aligned to the business objectives and their performance measurement.

CSFs and KPIs are not exclusive to the area of defining corporate objectives and can be used for defining departmental and individual manager’s objectives; however for the proposed IARM, the CSFs and KPIs are at the corporate level to assist in the definition of corporate objectives.

Bailey and Peak (2003) feel that there needs to be a cyclic continuity to the planning process to enable continuous improvement and that this is made possible by the use of performance indicators. This is a reference to the use of performance indicators and KPIs to monitor the organisational performance on a continuous basis adjusting the plan and actions as necessary. “KPI key performance indicator usually used at the
high/corporate level; PI performance indicator, used at the departmental level … a leader will use these indicators to monitor the progress of parts of the organisation … providing the necessary facts on which to base business decisions” (Bailey & Peak, 2003, p.16).

Bailey and Peak (2003) have not used the KPI to measure the CSF, but have used it to measure the corporate objective see Figure 3 in section 2.1.1. The approach to defining KPIs taken by Bailey and Peak (2003) is that the corporate objectives are first determined, and then the KPIs are established:

To successfully use the KPIs the organisation must be able to monitor them on a regular basis. … Preparing KPIs can be quite a difficult process for some staff since the figures are expected to be produced on a regular basis. … Only when the organisation has sufficient figures to produce trends can it effectively benefit from using KPIs. (p. 63).

The difficulty for staff in producing the KPIs is one reason for the production of KPIs to be related to operational data wherever possible. This would enable the KPIs to be produced by the information systems as a natural by product of operational day to day activity. However many of the KPIs needed to report progress on CSFs may not be available from within the organisation as hard data and may have to be obtained from soft sources like market surveys or estimates of competitors’ activities.

Ferracone and Bracken (2002) give a set of definitions to describe the critical attributes of a performance measurement system as follows:

- Goals: The level of performance to which the company aspires.
- Linkage: The organisational unit – department … to which performance measures apply.
- Time Horizon: The time period over which performance is measured.
- Corporate Processes: The process by which performance is measured (p. 3).
The measure is the KPI, and the goal is the target for a strategic objective; the linkage, time horizon and corporate process are the criteria that define the KPI in order for it to be used effectively to monitor performance.

The term KPI can be used as a measure of anything important; however it is used by Underhill (n.d.) in conjunction with the CSF to argue that an organisation should, “determine the key performance indicators (KPI) that is, those items that would determine the success or failure of your critical success factor” (p.1).

A paper from the software supplier SAS (2003) takes the top down view with the comment that “KPIs should be defined from a top-down, strategic perspective” (p.2). The paper also has the comment that KPIs are indicators used to report progress toward delivery on factors identified as critical to the success of an organisation’s goals and objectives (SAS, 2003, p.2).

For the purpose of the research associated with this thesis, the critical measurements associated with the CSF are determined to be the KPIs, in the same way Underhill (n.d.) uses KPIs. That is that the KPI relates to the measurement that establishes the achievement of the CSF. If the CSF happens to be a non-measurable factor e.g. obtain planning permission; then the organisation should strive for KPIs associated with the objective. Bailey and Peak (2003) write “[t]he measures that are used are called KPIs (Key Performance Indicators) since they are the ones that control our [strategic] plan and are key to the monitoring process” (p.66).

2.6.3.3 Relationships between Information Elements (IEs)

An important part of the definition of architecture is the need to describe all the interrelationships between the components of the architecture. The relationships would include which components are directly linked to each other and the reason or rationale for the dependency of one component on another. In the IA the architectural component is the information element (IE). Because several subsidiary IEs may link to the higher order IE, it would be sensible to include the degree of the relationship that is to say if 40% of one action and 60 % of another would supply the necessary progress to achieving a CSF or objective.
This relationship information would assist in clarifying and setting boundaries on what is meant by each IE and how it contributes to achieving the required direction of the organisation. The degree of the relationship would allow a form of cost benefit analysis to determine how much effort or resources should go into each sub IE compared with its return in achieving the required result.

Martin (1990) when defining a model for CSFs, suggests adding where necessary any critical information, assumptions and decisions to the model. These three items of information could perhaps be incorporated within a single attribute (rationale) of the CSF, to explain why the CSF is required in order to achieve the related objective. If the strategic objectives and CSFs are described in terms of why they have been selected, this would be useful information to help understand the strategic plan. By describing the rationale for both the objectives and the CSFs, it becomes much easier to determine if the conditions that led to their selection have changed sufficiently for them to be reviewed and re-determined.

Martin (1990) places the emphasis on measurements for the CSFs, writing that a CSF may have diverse measures some of which are soft subjective measures. He also warns that “a substantial proportion of the data needed cannot be provided as a by product of conventional data processing and that it must be specifically collected from other sources” (Martin, 1990, p. 95). Martin (1990) writes about the necessity of measuring CSFs so that progress in achieving them can be tracked, but it seems strange that he does not use the term KPI for this measure. This is an important point in the relationship between the measure (KPI) and the CSF which is needed in order to track progress.

The process of determining the measure required for a CSF may be further complicated by the CSF actually requiring several different measurements; the critical nature of a CSF may demand a triangulation of measurements to ensure that the correct critical value is being measured.

Lynch (2003), in describing the implementation process for corporate strategy, has as point 2 the formulation of specific plans, which is described as taking the general objectives and turning them into action plans complete with deadlines and responsibilities. There is therefore an implied direct linkage between the objective and the requisite action plan.
Kenny (2005) in writing about the need for performance management of strategic planning describes the need to have direct linkages between elements of the strategic plan and writes “for most organisations the task of tracking strategy is almost impossible. Sure they know by undertaking a group of strategies, some results will follow, but they have never, until now, been able to link individual strategies to specific objectives” (p.169). The term ‘strategies’ is being used here in to mean actions or action plan, and the concern is, that because there is no direct link from an objective to a proposed range of actions, there is no way to measure progress toward achieving the objective.

2.6.3.4 An Information Architecture (IA) for the Strategic Plan (SP)

A summary of the information elements and relationships identified in the above sections and chosen to be part of the information architecture reference model (IARM) for this thesis are listed below.

The IEs are:

- Objectives are the statements of organisational direction and the goal is the target to be reached for that objective.
- CSFs are the limited number of things to do or have in place, critical for success of the objective and to achieve the goal.
- Action plans are operational things to be done to achieve the CSF or the goal of the objective.
- KPIs are used to measure of performance for the CSF or objective. Note: it is possible the operational unit would require performance indicators (PIs) for the action plans, these are not KPIs.

The KPI should be defined by the SMART criteria where possible.

Note: Bailey and Peak (2003) suggest using SMART criteria to define objectives and Shahin and Mahbod (2006) suggest using SMART criteria to help prioritise KPIs. If an IE is determined in such a way that it becomes itself a performance indicator, then it should be defined with the SMART criteria.
The Essential Relationships are:

- **Direct Linkage**
  - The CSF is the critical success factor to achieve a specific objective’s goal.
  - The KPI is the measurement indicator for a specific CSF or Objective.
  - The KPI should be linked to the unit responsible, and to the process that is measured by the KPI.

- **Rationale**
  - Why an objective and its goal are important to the future of the organisation.
  - Why an IE is related to the one above in the hierarchy.

- **Degree of relation**
  - If more than one IE contributes to the one above then the percentage of relationship each IE contributes should be specified

These elements and their relationships make up the components of the information architecture (IA) for the IARM that is to be described in chapter 3. The information to be considered as part of the IA of the strategic plan is information relevant to the senior executives and the strategic direction of the organisation. The definition of information here is from Alter (2002): “information is data whose form and content are appropriate for a particular use” (p.70). Another way to put this is that information can be used immediately to take action or make a decision. As discussed before, the point is, that what is information at the tactical level may be merely data at the executive level and it is important at the strategic level to have only information relevant to that level. Too often there is confusion between data, that needs further manipulation to be useful, and information, that is ready to be used. One could argue that there is no case of information overload, only data overload; because the appropriate information that is required, has not been sufficiently identified and defined and extracted from the data.

The proposed definition of information architecture (IA) can help do this, by mapping each strategic objective and its goal to its related CSFs, mapping each CSF to its related action plan and KPIs, which in turn, should be mapped where possible to existing
operational data, or where the requisite data would be acquired from sources internal or
e external to the organisation (by survey or other form of acquisition). The correct
mapping to operational data ensures that CSFs and KPIs actually relate to the day-to-
day activities of the organisation. It can be very effective if the internal operational data
is triangulated with external survey data to provide appropriate information concerning
the real business performance.

The correct use of the IA described above has the potential to significantly increase the
effectiveness of strategic planning by ensuring that the results of strategic change can be
accurately measured. Developing and using a well defined IA can help to ensure that
CSFs and KPIs are well structured and verifiable, which increases the transparency of
organisational governance. If the strategic planning document is clear and brief it can
be reviewed on a more regular and frequent basis for optimal business performance and,
if necessary, updated to meet changing circumstances.

The aim of an IA is to address the problems associated with poor definition of planning
objectives, by having organisations use the IA to develop their strategic planning model
that will show the relationships and linkages between each IE and other related IEs. The
KPIs would be linked to available operational data where possible and external market
research and other sources where necessary. If the organisation’s information systems
are built according to the requirements and directions indicated by the strategic planning
model, and include the ability to monitor any internally derived performance measures,
then they would be better matched to business needs. The information systems would
therefore be more sustainable i.e. requiring fewer ad hoc modifications, and would
satisfy the need to provide managers with appropriate information on performance
objectives in a clear, unambiguous manner directly related to the business directions
that were determined by the strategic planners.

2.6.3.5 Modelling the Planning Information Elements (IEs)

This section deals with modelling the IA, and the concept of using an IA when
developing a strategic planning model (SPM) to represent the key IEs. This thesis is
proposing that organisations develop an SPM for the strategic plan; and to assist this
process and act as a guide, an information architecture reference model (IARM) is
presented in chapter 3. This thesis argues that the SPM should be developed from the
top down starting with the strategic objectives and working down through the CSFs to the KPIs. Brancheau and Wetherbe (1986) suggest the development of the IA and the long range planning should occur as part of the organisational information analysis after the strategic planning is complete but before resource allocation and project planning, as shown in Figure 10. The IA in the Brancheau Wetherbe (1986) model is primarily to support the development of the IS applications in support of the organisational objectives and strategies.

The SPM ought to show the links from CSFs to each related objective and include a rationale and the degree of relationship. The same diagram would also be used to link KPIs to each CSF that it measures, and then from the KPI to operational and other collected data. This would provide a trail of linked IEs from the high-level business objective, down through the organisation to the related operational actions. The linked trail of IEs, showing the rationale for their inclusion would, of itself, create better understanding of the goal and the way to achieve it.

Peffers et al. (2003) suggest a structure based on CSFs and related to the Kelly personal construct theory; the result they call a Critical Success Chain (CSC) and it links IS attributes to CSF and then to the firms objectives, see Figure 11.
Figure 12 below gives an example which clearly indicates the linkage between a specific goal and the related CSF and the attributes of the IS that relate to successful performance of that CSF: “CSF analysis ‘discovers latent structure’ in the needs of the organisation by linking ‘business goals and related causal success factors’” (Peffers et al., 2003, p.57).

<table>
<thead>
<tr>
<th>SYSTEM ATTRIBUTES</th>
<th>CRITICAL SUCCESS FACTOR</th>
<th>ORGANISATIONAL GOALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective communication for marketing to students</td>
<td>Attract large numbers of high quality students</td>
<td>Earn more program resource and reputation for value from graduates</td>
</tr>
</tbody>
</table>

Figure 12. Example of the CSC for student recruitment and quality (Peffers et al., 2003, p.62)

Martin (1990) writes that CSFs may vary with the situation, new CSFs may emerge from time to time and, that in order to better understand the CSF, there should be associated critical information, assumptions and decisions declared with the CSF. The most critical piece of information concerned with a CSF is probably a clearly stated rationale of the CSF, (i.e. why is it a critical factor, and how it relates to the business objective). Part of the rationale should include if there are associated critical assumptions being made. The CSF itself could be considered to be the most critical decision associated with the objective.

Martin (1990) is very strong on including this strategic information in the modelling for the analysis and design of information systems and writes “a tool for strategic planning should store the critical success factors. The data model of the tool should store CSFs along with goals and problems” (p.96) Figure 13 “shows the data model for this tool” (Martin, 1990, p.96); here again is the confusion with the terms data and information with the data model as a tool to represent the strategic information.
The CSF is further defined by Martin (1990) with the critical information, assumptions and decisions as shown in Figure 13. The models are shown in the form of entity relation models, only showing the entity types e.g. Goal, CSF, and critical information, but of course not the data values for the entity. Note that in Figure 13 the CSF entity relates to the manager entity and the problem entity not directly to the strategic objective or goal entities.

The usual form of an entity relationship diagram is to show the entities types that need to be described and show, where appropriate, the essential relations between them. A data model would show for each entity, the associated data attributes that describe the
entity, perhaps the related keys and the cardinality or quantitative relationship (i.e. 1 to 1, 1 to many). Figures 13 and 14 only show the basic entity model with minimum relationships specified. The data values that make up the records within an entity are not shown in Martin’s (1990) diagrams.

Figure 15 shows a hierarchy diagram of the inputs from top level of the business strategy down through the goals to the CSFs and to the critical information required to be able to build the strategic data model. So although there is an entity type for goal and an entity type CSF, there is no attempt to describe the concept of naming a specific goal and relating it to a named set of associated CSFs.

![Diagram]

**Figure 15.** The critical assumption set, critical decision set and critical information set provide inputs to the strategic data model. This is used to build the executive information systems and decision support systems (Martin, 1990, fig 5.8)

A data base would allow the IS to extract and summarise whatever data values are required to manage the organisation. Martin (1990) does say that the strategic information should be held in a repository. Is it expected to hold the goals and CSFs etc in a data base and extract them as required? This does not seem a practicable way to provide managers the ongoing information necessary to strategically manage a business effectively.
Martin (1990) emphasizes the need to develop a strategic data model (see Figure 15) from the information shown in Figures 13 and 14. This information is needed of course to build the information system database but there is no attempt by Martin to discuss the transformation of these models into a strategic planning model within the strategic plan, the necessary management document to strategically manage the organisation. So the models described by Martin (1990), although having many of the essential IEs as entities, do not have the structure that can be used to give a clear description of each of the IEs of the strategic plan and the description of the interrelationships between the IEs required to assist management.

As observed earlier, in order to enable ongoing discussions between managers about the performance of the strategic plan and its IEs, the organisation strategic planning model should show each specific business objective and the rationale that explains why the objective is good for the organisation. The model should also show the associated CSFs for that objective and the level of impact each CSF has on the objective and why the CSF has that impact.

The ‘why or rationale’ is necessary because of the changing environment that the organisation operates in, and at any time an objective or CSF may change its priority or relationship because of the environment. Knowing why the objective or CSF is there, helps to identify whether the situation has changed sufficiently for the objective or CSF to be considered obsolete or to need modification. Martin (1990) agrees with the need to consider the changing scene in the business environment and writes “underlying the goals and CSFs of an enterprise are certain assumptions. The validity of these assumptions often changes with time; it is desirable to record the assumptions so their validity can be discussed” (p.97). This thesis prefers the concept of describing the rationale rather than listing assumptions, however it is expected that sometimes assumptions will be part of that rationale.

To be noted also is Martin’s (1990) use of the term ‘goal’ here in place of objective. In section 2.6.3.2.1 Martin’s (1990) definition of objective is given as the statement of direction, and the ‘goal’ is defined as the target to be reached for that objective, Martin (1990) calls the goal the operational transformation of the objective. This thesis will use the term ‘objective’ as the statement of strategic direction, and the term ‘goal’ as the attribute defining the target for the objective.
The planning model should then show for each CSF the related measures as KPIs, and for each KPI how it will measure the success of the associated CSF. An example of a planning model in the form of the IARM proposed by this thesis is described in chapter 3.

2.7 Factors Regarding the Strategic Planning Process

Beinhocker and Kaplan (2002) agree with Mintzberg (1994) that the formal strategic planning process is a waste of time and their primary criticism is that strategy formulation, i.e. new directions for the organisation, cannot be developed in a planned process, the strategies need to be innovative and developed in a creative way.

The answer perhaps is that the concept of strategic planning should be broken into three separate phases, as suggested by authors Lynch (2003) and Roney (2004), these phases might be described as follows:

- Developing strategic initiatives – (creative brainstorming, or developing audacious, entrepreneurial goals). The term ‘initiatives’ is used to convey the concept of creating new ideas.
- Validating initiatives against organisational and environmental information
- Developing an implementation plan – *Drawing from section 2.6.3.4 on an information architecture for a strategic plan*. The plan should use an information architecture to show for each strategic initiative the major planning information elements:
  - The objectives and their respective goals
  - The CSFs and KPIs
  - The action plans and PIs.

For all key information elements the rationale should be included; i.e. why the IE is required and how the IEs interrelate.

Additional methodologies could be used to supplement the strategic planning process to ensure all necessary stakeholder views are taken into account, that all planning participants agree on the meaning of each of the information elements, that they understand the nature of the direction formulated: why it is necessary, how it is to be
achieved, and are using clearly defined target indicators. The final step would be to develop an unambiguous planning model representing the key information elements of the plan for the organisation that will become the working documentation for the implementation team.

Ken Harris, the CIO of Gap Inc., expressed a desire for the conciseness of the strategic planning document as follows: “articulated in simple business terms of where we were and where we wanted to go, expressed as a one-page palette serving as a blueprint for everyone to see and understand” (Kestelyn, 2002, p.4). It could be considered too ambitious, to reduce a SP to one page, no matter how well constructed. However if the SP is organised in layers of abstraction from the information required by senior executives down to the information for departmental managers, then maybe it is possible for the most important points to be presented on the first page and succeeding layers of detail presented on subsequent pages.

Kenny (2005) writes about visiting organisations where the strategic plan gathers dust from disuse, and blames the plan itself for not having appropriate content: “As a document, a strategic plan has to have certain components if it is to be capable of implementation” (p.191). It is of no use for the plan to have vague requirements in terms of mission and vision and values to be implemented, without showing how they are to be translated into actions. The problem is the plan’s design: “What it means for individual action simply isn’t clear” (Kenny, 2005, p. 191)

The primary aim of this thesis is to improve the documentation of the strategic plan and allow simple unambiguous communication of the strategic information via a well structured, concise presentation.

In summary, the primary aim of this thesis provided in the introduction is: to improve the documentation of a strategic plan and in the process will need to achieve the following objectives:

a. Identify the strategic information (information elements) such as objectives, action statements, target measurements, which would be most useful in a strategic plan.
b. Show how the principles of information architecture would present this
information (by way of a reference model) in a clearer and more succinct
way than narrative alone.

c. Explain how the resulting documentation combining points a. and b.
would allow for better communication of organisational intentions, which
could improve management generally and also allow better alignment
between SISP and OSP.

d. Note that the literature review is expected to raise a number of issues that
will need up-to-date clarification that the issues are still current. This will
be done by a variety of methods including a survey of organisations.

A number of points listed in the factors affecting success of strategic planning and in
identified problems with strategic planning (see sections 2.3 and 2.4) do point to
concerns with the strategic plan documentation and this aspect will be addressed by
developing a set of reference models in chapter 3 so that objective b above, becomes:

b. To develop a Strategic Planning Reference Model (SPRM) comprising a
Process Reference Model (PRM) and an Information Architecture Reference
Model (IARM) to show how information architecture would present the IEs
in a clearer and more succinct way than narrative alone.

As anticipated in the introduction and noted in objective d above, the literature review
points to a number of other concerns and difficulties that also need to be clarified in
case they lead to an entirely different view of the strategic planning situation and the
perceived need for improvement in the planning documentation. These points form a set
of issues needing clarification with an up-to-date view of the strategic planning process
and which will also clarify some of the aspects of the IARM.

1. Issues for clarification with an up-to-date view of strategic planning:
   a. Whether organisations believe in doing strategic planning or not.
   b. What information elements (Objectives, CSFs and KPIs) are considered in
      the planning process?
   c. What degree of planning formality do organisations currently follow?
d. Does a formal strategic plan lead to perceived improvements in management?

e. Is there any relationship between the OSP and the IS?

f. What performance measurement processes do organisations participate in?

g. How usable does the staff of the organisation believe the SP is?

The research has therefore been split into two phases:

1. The development of an information architecture reference model addressing the issue of improving the documentation and using a normative approach to validate the model.

2. The issues for clarification will be explored with the more conventional investigative research method of surveys and analysis.

2.8 Need for an Information Architecture Reference Model (IARM)

A number of the points identified in the list of problems with planning and points from the list of factors affecting the success of planning are to do with the format and content of the strategic plan. To address these issues from the literature review, the major factors contributing to planning success and failure (see section 2.3 and 2.4) are brought together in a proposed reference model using an architectural format for the presentation of the strategic planning information elements.

A model can help to record information in a structured way and to communicate the information to other people: “A model is a representation of an important aspect of the real world. Sometimes the term abstraction is used because we abstract (separate out) an aspect of particular importance to us” (Satzinger et al., 2004, p. 45). This separating out of aspects of particular importance is the primary aim behind modelling the information architecture: to identify and highlight the key information elements of the business strategic direction. The purpose behind modelling is to help in the design of something, in this case, the design of the strategic plan to achieve the required business objectives. The process of creating the model helps the planner clarify and refine the design by raising questions and having to answer them in order to finalise the model. Refining the model is usually done in conjunction with other members of the planning team; the model acting as a communication tool and assisting the dialogue (Satzinger et
al., 2004). This would not be feasible if, instead of a model, there was a large volume of complex and detailed documentation acting as the communication tool that was being discussed and developed with frequent reviews and revisions. A model can reduce the complexity of what is being reviewed and serves “a critical role in supporting communication among project team members and with system users” (Satzinger et al., 2004, p. 155).

This thesis proposes that the information architecture (IA) be split clearly from the data architecture. There should also be separate focus issues for the IA. One focus would be based on information access and the building of the organisation’s corporate data base. Another focus would be on the business context and the organisation’s strategic direction, which should be the strategic objectives and goals of the organisation and how they are to be achieved. If the information concerning the strategic direction is well-structured and precisely defined in the strategic plan, the development of an information system to support this plan has a much greater chance of success for both the information system and its impact on the organisation.

Carter (1999) citing King (1995) puts the case very clearly:

Successful organisations are those that have a clear and agreed strategic vision – and relatively clear and agreed means of progressing toward this vision. The information systems and the underlying information architecture of the organisation should be based on – indeed supporters of – this strategic vision (p.183).

Davenport and Prusak (1997) are very concerned that organisations really understand the importance of information, in particular information that is about the highest levels of the organisation. They write that IA is a map of the overall information needs of the firm based on the business strategy (Davenport & Prusak, 1997).

This definition is heading in the right direction but map is not a strong enough term to convey the real power of architectural documentation; a map implies a simple picture. A more powerful definition for architecture is the idea that architecture lists all the relevant and related components, describes carefully each of the components and, very importantly, defines the interaction of each component with any other component. The key aspect is the interlocking nature of the definition – how the components fit together
and interact with each other, this aspect in particular should make the strategic initiatives to be undertaken and their impact on the organisation easier for all staff to interpret correctly and implement.

To provide the necessary information to enable architectural documentation to be drawn up, a more definitive approach to developing the business objectives needs to be undertaken. The relations that exist between the objectives and the relation between each objective and the CSFs, must all be carefully and explicitly defined. The relation should be as descriptive as possible including the rationale of why this objective is needed and the degree to which each objective accomplishes the vision. The associated CSFs for each objective should be dealt with in the same way and linked very specifically to the related KPIs that will determine the success of the related factor. The KPIs should be defined and measurable, they need to abide by the mnemonic SMART criteria and also need a definition of how these can be drawn from operational data where possible and how they should be researched from external sources where this is needed.

In order for all these IEs and their relationships to be clearly stated and presented in an unambiguous manner it will be useful to develop a diagram to show the IARM that will represent the IE types and their relationships correctly.

In the following two sections a number of comments and documents from EDS (An IT/IS outsourcing and consulting group) are examined for ideas and concepts used in a working strategic planning environment that would be useful to include in the proposed IARM.

2.8.1 Towards an Information Architecture Reference Model (IARM)

Interviews were held with several consultants from EDS who are practitioners in strategic planning and architecture development within large organisations. These interviews were in order to keep in touch with current commercial practices and methodologies used in strategic planning. Some of the forms used by EDS to assist organisations in their development of strategic planning were also examined for ideas on the way the information is structured.
An initial interview was conducted in September 2002 with Dan Young, a senior enterprise architect from EDS (New Zealand). Young was employed in the Production Engineering – Global Processes and Methods unit. During that interview, Young described several public documents about the ‘RightStep®’ procedure used by EDS to develop a change analysis for new customers. ‘RightStep®’ is a SISP procedure. In subsequent discussions Young agreed to provide documentation concerning a strategic planning analysis for a generic bank customer. The material was examined and a framework diagram reviewed that showed the strategic planning elements involved. Young granted permission to use the following diagram for the McKee (2003) paper.

![Creating a Vision: Business Improvement Framework](image)

**Figure 16. The EDS Business Improvement Framework**

Figure 16 above has a number of the IEs and linkages that have been suggested for the IA proposed in section 2.6.3.4. However the proposed IA described in section 2.6.3.4
has more direct linkages and relationship information between the individual IEs at each level than are shown in Figure 16.

One point raised by Young was the question of how do you deal with the fact that “a lot of companies will say they have most of the business context but when you, you find there is a lot of information missing or disconnected” (Young, 2003). At a subsequent meeting with Young and Kananghinis (another EDS architect), Young raised the following two questions:

- Are you doing research at a time when the Business-IT paradigm is shifting from a data centric to process centric enterprise perspective?
- How will you research just an organisation when it is but one part of a value chain in today’s global village, (partners/vendors etc.)?

At this 2004 meeting, discussion focussed on the concept of business process modelling (BPM) which was the current high profile methodology for systems development practitioners. It was agreed that even before the use of BPM there had to be an agreed definition for the structure of the business context – setting the information in a formal architecture, and it was agreed that the research would be about defining the IA that represents the business context and the measures of business success. The final discussion point was about how cultural and political problems get represented in the IA of the business context; it was suggested that if they were sufficiently significant that they get defined as CSFs.

Following this, another interview was conducted this time with Dave Cochlin, an EDS strategist, in Sydney. At the meeting Cochlin was particularly keen on the book by Collins and Porras (2002) and the concept of the BHAG as a driver of strategic initiatives. Cochlin provided a set of power point slides containing instructions and templates for an education course within EDS, designed for the management of the strategic planning process. The critical point derived from these sources is the very specific linkage indicated between each objective and the necessary actions to achieve that objective. The information represented also included the responsible party for the action and the target measurement required.
2.8.2 Examples of Strategic Planning Documentation Templates

The templates supplied by David Cochlin show how essential information has been extracted to provide a summary of the documentation that can be used to effectively document a strategic plan. The templates (see figures 17-20) show how the strategic information elements can be presented in a clear summarised format with the IEs linked to show the direct relationship from the high level objective to the necessary action statements. Figures 17 to 20 are some of the templates used by EDS to communicate to their clients the EDS ideas for formulating strategic planning documentation (EDS, n.d.b). A commentary has been added between each template by this author for clarification. Completing the templates results in documentation called a strategy map and the templates are shown here because they form part of the argument for strategic plan conciseness and IE linkage which are part of the concept of the IARM. The description about the use of the templates to develop the strategy map starts with the following preamble:

**Strategy Map Instructions (Using an EDS Focus)**

*Purpose:* The Strategy map serves to summarise the developed strategies & tactics to show clearly (on one page) how the planning unit's objectives link to their strategies, initiatives and key deliverables. It can be used to guide senior management workshops/thinking to determine your high level business plan.

We recommend that you consider completing a draft strategy map BEFORE you get into detailed strategy & tactic development. It will serve to show you how well you are addressing/balancing each of the key focus areas of your business; it will also help individuals to think more clearly about your plan.

*(Production note: We suggest that once these sheets are filled-in, they are expanded to fit on a piece of A3 paper, this will make them easier to read).*
Note that the focus areas are designed to cover the primary interests of the organisation that may have an impact on the future directions that the organisation wishes to take, and that this particular example is based on focus areas that an EDS business unit would be interested in. Also note that the initiatives are named to identify with the focus area they are linked to. Within the deliverable column is the measurable target, the associated date for the action to be delivered and the name of the person or unit responsible for the deliverable.
<table>
<thead>
<tr>
<th>Focus Strategies</th>
<th>Goals</th>
<th>Initiatives</th>
<th>Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>&quot;To achieve our vision, how should we appear to our customers?&quot;</td>
<td>&quot;xx&quot;</td>
<td>&quot;xx&quot;</td>
</tr>
<tr>
<td>Financial</td>
<td>&quot;To succeed financially, how should we appear to our stakeholders?&quot;</td>
<td>&quot;xx&quot;</td>
<td>&quot;xx&quot;</td>
</tr>
<tr>
<td>Business Processes</td>
<td>&quot;To satisfy our customers &amp; stakeholders, what business processes must we excel at?&quot;</td>
<td>&quot;xx&quot;</td>
<td>&quot;xx&quot;</td>
</tr>
<tr>
<td>Learning &amp; Growth</td>
<td>&quot;To achieve our vision, how will we sustain our ability to change &amp; improve?&quot;</td>
<td>&quot;xx&quot;</td>
<td>&quot;xx&quot;</td>
</tr>
</tbody>
</table>

Figure 18. EDS templates: A Strategy Map based on focus areas from Balanced Scorecard

Note that the strategy map in Figure 18 is the same layout as Figure 17 but with focus areas set to follow the Balanced Scorecard approach. Another alternative would be the focus areas for Porter’s Five Forces which would be: New entrants, Buyers, Suppliers, Possible substitutes and Industry competition. Porter’s Value Chain analysis would provide yet a further set of focus areas, it would be up to the organisation to review alternative focus areas and derive a set that suited their particular organisation which could well be a compromise set derived from all the aforementioned.
<table>
<thead>
<tr>
<th>Focus</th>
<th>Goals</th>
<th>Strategies</th>
<th>Improvement Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One Specific Focus Area:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| *What are your Goals to achieve in this focus area?* | *What are your strategies to realise these goals?* | **What ideas do you have to implement & support the strategies?**
- Improvement Idea Name *(Concept……).*
- Improvement Idea Name *(Concept……).* |

Figure 19. EDS templates: A strategy Map based on a single focus area

Note that Figure 19 is an example of the way to brainstorm the development of goals and strategies etc., with a concentration on one focus area at a time. Note also that the terms strategies and improvement ideas are used as the actions required to achieve a goal, and the terms objective and CSF do not appear in this form. The terms objective and CSF however do appear in Figure 20 along with action items and measurement for success when defining the detail terms of reference for the initiative.
Initiative Terms of Reference

**Project Name:**

**Objective:**
- State the objective, (begin with an action verb)…….

**So That:**
- Define the expected results…….

<table>
<thead>
<tr>
<th>Key Actions</th>
<th>Deliverables</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Explicitly list the actions that must be performed.....</td>
<td>• Clearly state what will be produced (by the action)......</td>
<td>John Doe</td>
<td>by 6/6/00</td>
</tr>
<tr>
<td>• • • • • • •</td>
<td>• • • • •</td>
<td>• • • • •</td>
<td>• • • • •</td>
</tr>
</tbody>
</table>

**Controls**

**CSFs:**
- What things (outside of the initiative’s control) must go right for it to succeed?…….

**Measures of Success:**
- How will you know when you succeed?…….

**Sponsor/Owner:**
- Who is the sponsor and who is the owner?…….

**Key Notes:**
- Anything else that is key to this initiative?…….

To edit this form; double click on the table.

Figure 20. EDS templates: The criteria definition for a specific objective

Note that the form shown in Figure 20 is used to document the nominated courses of action for one objective. It details exactly what action is going to take place, the deliverable that is to be achieved, who is responsible and in what time frame. The document prompts the user to explain how success will be measured. It emphasises exactly how an objective is to be achieved by nominating the related CSF and how to measure the success of the objective. It also requires the key actions (action plan) to be nominated that will achieve the objective.

The various templates shown in Figures 17 through 20 demonstrate the linkage of information down the IE hierarchy from nominating the focus areas for the organisation through to the action items and to identify which unit is responsible for delivering the action plan. Figure 20 contains examples of explanation e.g. ‘define the expected results’ [from achieving the objective] and ‘how will you know when you succeed’ as a [measure of success], and the ‘key notes’ at the end of the form.

### 2.9 Conclusion of the Literature Review
The literature review looked at OSP and SISP and some of the methodologies associated with strategic planning and found the more formal methodologies were associated with SISP. There was not much discussion in the methodologies on the merits or otherwise of documenting the strategic plan, but there were a number of papers discussing problems associated with lack of communication and other problems that could be attributed to poor documentation. To highlight some of the important why, what and how of strategic planning and in particular to focus on those issues related to the documentation of the strategic plan, it is useful to reference the following quotations and discussions which give support to the development of the reference models.

“Strategy is again the major focus in the quest for higher revenues and profits (Byrne, 1997, p. 2). Cuff (n.d.a) writes “[d]efining a strategy is a way of telling your people what things are important so they can make better day to day decisions. … A correctly designed and implemented strategic plan is the only way to succeed or win the battle” (p.1).

TCI Management Consultants (n.d.) review a book by Mintzerg, Ahistrand and Lampel (1998). The book covers many aspects of strategic management including attempts to define strategy. The author of the review writes that the book starts with the “‘5 P’s of strategy’ which are really five different ways of thinking about the characteristics of strategic planning” (TCI Management Consultants, n.d., p.1). This is an interesting comment because in a previous discussion in this thesis about Mintzberg (1994), it was clear Mintzberg did not approve of the term strategic planning, preferring the terms strategy formulation and program planning.

The 5 P’s of strategy do not have planning as one of the P’s, however they do include “strategy as a plan, a guide for a course of action, a path from a current state to a desired future end state” (TCI Management Consultants, n.d., p.1), which is the approach this thesis is taking. The review includes a pertinent warning proviso: “So it is apparent that the authors do not necessarily regard strategic planning as a good thing in all cases, they clearly indicate that there are dangers that an overly rational or overly rigorous approach can pose” (TCI Management Consultants, n.d., p.2). In this context it is worth repeating the problems set out in the Lynch (1993) case study of the information engineering methodology project. The project was not a success because it resulted in a detailed planning document that was too voluminous to be useful. If the strategic planning documentation is overly detailed and voluminous then it becomes too hard to review...
and too hard to change. However if the main features of the strategic plan are contained in a rigorous but simple planning model, then the model is much easier to use as a discussion tool and is much easier to modify to meet changing circumstances.

*The Chaos Report* from The Standish Group (1994) listed the problems associated with IT projects with 44% of the reasons given for cancelled projects related in different ways to poor specification of user requirements. The clarity of unambiguous specifications is an imperative for a ‘team’ to be able to implement plans that are required. A follow up report entitled *Unfinished Voyages* (The Standish Group, 2007) puts forward a solution to the project failures, which is to develop more written communication in the form of plans and specifications. It also however includes the proviso that written communication has the problem of the participants misunderstanding the documentation and should therefore be written without technical terms (The Standish Group, 2007). This embargo on technical terms should include any specialised terminology that might have limited understanding throughout the organisation and this can equally apply to business terminology. The more words that are used in any specification document, the greater the chance of ambiguity. Furthermore the most important issues may be obscured by the sheer volume of words. The answer is to reduce the amount of wording in strategic plans and use a more diagrammatic approach as will be shown later, using the IARM.

Babich (1995) lists five reasons why strategic planning might fail associated with planning being too vague and the lack of good documentation that allows review and updating:

- The daily management of urgent operational tasks is not separated from the need to spend time on important strategic issues.
- Having vague Mission/values without indicating the linked action items needed
- Having vague Vision/strategic intent without indicating the linked action items.
- Lack of data analysis during plan creation and the use of opinions rather than the real organisational data.
- Lack of periodic review and process improvement that uses hard specific data to measure progress toward achievements. It should be possible to identify original objectives that cannot be achieved and other changes needed and document the changes without requiring a redraft of the entire annual plan (p.3).
There are many problems associated with strategic planning and most of them are related to the quality of the planning document and the need for the document to be clear and concise. It also needs for the relationships to be explicitly described, that show the direct linkage between the goals to be achieved and the actions needed to achieve them. The document needs to be used as a working document, to review and measure progress and document changes to the actions needed to achieve the objectives.

The second part of the literature review looked at the concept of architecture and specifically at information architecture to see if the principles associated with architecture offered any useful ideas to create a better strategic planning document. This thesis has recommended using the principles of information architecture (IA) to develop an IARM; a brief summary of the reasons for this proposition follows:

Information architects design information spaces by considering the ways they will be used and then create blueprints and detailed plans for that use. They take care to ensure that people can find their way through these structures to accomplish what they want without getting lost (Farnum, 2002, p. 2).

To resolve the problems associated with the use of cumbersome strategic plans the last sentence in this quotation is particularly relevant. The question of what is IA was discussed in section 2.6.3, and is summarised nicely by Brancheau et al. (1989) who write that an IA is a “way to map information needs, relate them to specific business functions and document their interrelationships” (p.9). This thesis in particular picks up on the concept of documenting the interrelationships. A quotation from The Open Group (2006) on a definition of architecture emphasises this with “[t]he structure of components, their interrelationships, and the principles and guidelines governing their design and evolution over time” (p.1). An excellent reason for an organisation to develop an IA comes from Perkins (2008):

One of the best justifications for undertaking an architecture project is the synergy achieved through the process of defining and then communicating its critical success factors and measures. Everyone becomes aware of precisely what defines success and how it is measured. In addition the
measures undergo a reality check by people who were not involved in their development but who may be measured by them and who will be involved in creating the raw data from which the measures will be derived. Their feedback is used to refine the measures (p.3).

The last part of the literature review was examining the need for reference models to assist the planning process and to identify the IEs and their interrelationships that would become part of the IARM.

One activity in this research was to examine planning documents for their organisational structure and relate the content and presentation to the concept of an IA. However the document cannot be separated from the process to create it, as the two should be complementary. The strategic planning documentation should be developed iteratively throughout the process to enable ideas and information to be clarified and validated progressively; otherwise it will lose much of its impact as a communications document for the whole organisation to use. The key to enabling this iterative function is to have the guidance of a reference model and to either develop their own organisation specific reference model or to use the IARM. The reference model then assists an organisation to develop their strategic planning model (SPM) that allows information to be easily and progressively added to the SPM. The next chapter will develop the proposal for the reference models.
List of references in the Literature Review

A review of the need to include a list of references by concept at the end of the literature review led to consideration of what other authors had done, McKay and Marshall (2004) have a list of references at the end of each chapter. This is a similar to using section headings of the literature review, and the section headings give a comprehensive list of concepts.

**Strategic Planning**

**Organisation Strategic Planning (OSP)**
To Plan or Not to Plan
Structural Planning versus Flexibility

**Different Planning Schemes**

**Discussion on Terminology**

**Strategic Information Systems Planning (SISP)**

**SISP Alignment with OSP**

**Governance of Organisations and Information Systems**

**Teamwork and Communication of Planning Strategies**

**Performance Measurement of Organisations**

**Interactions between Secondary Objectives of Strategic Planning**

**Planning Methodologies**

Information Engineering (IE) .................................................................

Porter’s Five Forces Model and Value Chain Analysis ................................

Limitations of these Planning Methodologies ........................................

Possible Enhancements to a Planning Methodology ..............................

A Cross Section of Stakeholders (the OPM methodology)

Communication and Shared Understanding (Q-method)

Measurable Performance Indicators (SMART)

Lou’s Place – An Implementation of the OPM Methodology

Major Factors Affecting Success of Strategic Planning

Summary of Identified Problems with Strategic Planning

Discussion of Strategic Planning Literature

Relationship between Strategic Planning and Architecture

Levels of Architecture from Enterprise to Infrastructure ......................

Advantages gained by using an architecture ....................................

Information Architecture ...............................................................


Factors Regarding the Strategic Planning Process

Need for an Information Architecture Reference Model (IARM)

Towards an Information Architecture Reference Model (IARM)

Examples of Strategic Planning Documentation Templates ..............................................
EDS (n.d.b).

Conclusion of the Literature Review
3 A Strategic Planning Reference Model

It appears from the literature that there is a need for some reference models to assist planners in developing a strategic plan. A reference model is one that is used to guide a development or planning process and is not a model necessarily meant for implementation.

A reference architecture model describes a system in terms of the interconnection of basic functional elements and the interfaces between them. It clarifies where protocols must be defined and identifies groupings of functionality. It does not imply a physical implementation. (McAfee, 2001).

This proposal for a strategic planning reference model (SPRM) is to develop an abstract representation of the concepts and components that can make up the strategic planning process. The SPRM can act as a reference for those people involved in strategic planning and it can assist the development of the strategic plan and aid the design of the strategic information model that should lead to an effective implementation plan. The SPRM will comprise both a process reference model (PRM) for the strategic planning process and an information architecture reference model (IARM) to present the IEs of the strategic plan.

Problems also exist with strategic planning generally:

Logically, rationally, most strategic plans make sense. And yet most of them fail to achieve their desired objectives … more often than not, strategic planning is a process you go through to produce a document that sits on a shelf and gathers dust. (Tangri, 2004, p. 1).

Tangri (2004) goes on to discuss the two main reasons for failure of strategic planning; one is a focus on financial and strategic criteria without accounting for the people that must make it work and the other is to cast the plan in stone as the only way to achieve the objectives. The answer he gives is to engage all key stakeholders and the whole organisation in critical points in the process, to focus on the goal and to take into
account changing circumstances and their effect on what actions are needed to achieve the goal (Tangri, 2004).

Other authors also support the involvement of more people than just the select planning team. Byrne (1997) states that “[t]oday’s gurus of strategy urge companies to democratize the process … handing strategic planning over to teams of line and staff managers” and also “it should also include interaction with key customers and suppliers” (p.2). The concept of using a planning model along the lines put forward in the IARM is to have a tool that allows the development of the planning strategy in stages, and of the interim developments being of a useful form to pass among those people that should be involved in the development. Cuff (n.d.b.) puts a forward a similar sentiment to that of Byrne (1997) when he comments

> but having a plan is still less than half the battle. Building your team up to a point where successful attainment of the first and subsequent goals is a basic requirement … the single biggest barrier to implementation … is non-participation. … You structure the planning into phases, starting with top management then rolling it down through the different layers. (p.1).

In the development of the proposed reference models to be used in the strategic planning process, there is a discussion first on the methodologies that could be used to gather information and then a description of a process reference model (PRM) to guide the planning process and finally an information architecture reference model (IARM) that can be used to guide the development of the strategic planning model (SPM) used to present the information elements of the strategic plan. The concept of the IARM is the key to enable the planning process to be an iterative process, and for the SPM built in accordance with ideas from the IARM to be dynamically reviewed and updated. This is due to the layers of abstraction inherent in the IARM and the concise and unambiguous presentation of information that lends itself to review, discussion and updating.

### 3.1 Strategic Analysis Methodologies

The development of planning strategies needs to be done after there has been a scan of the environment using an appropriate methodology whether Porter’s Five Forces model,
the balanced scorecard, the OPM approach, some combination of these or an in-house methodology. This environment scan should determine the primary directions of the organisation necessary for strategic development and ensure all relevant aspects have been considered. The scan of the environment should then perhaps be balanced by, say, Porters Value System analysis or some other cost analysis to determine where the high expenditures are within the internal processes of the organisation. At this point the planners are perhaps in a position to determine what strategic objectives are practical and the goal (target) to be achieved for each objective.

This thesis has previously used the term ‘direction’ or ‘strategic direction’ to be a general expression of the future intentions of the organisation before the determination from the literature review, of the more specific information elements. The EDS term ‘focus area’ appears to be somewhat similar in intent but perhaps conveys something more specific. The focus areas are those areas of the organisation that are considered by the organisation’s planning committee to be the areas of concern for strategic development. The term focus area will be used as the starting point to define the IARM.

Once the main directions (focus areas) and organisational objectives and goals have been determined for the organisation, then the planning can commence for the most effective way to achieve the goals. The information elements can be determined and structured to make up the IA of the organisational context and to provide the basis for the strategic planning documentation. The planning process could then again review any implications from an internal cost analysis to determine the critical internal functional areas needed to assist achievement of the strategic objectives.

The Information Engineering approach provides a disciplined way to develop the first level model for the IARM, providing that attention is only paid to developing the high level components at this stage and avoid delving into the detail required later for the information systems planning. Martin (1990 writes

[w]e have stressed that the objective at the top level of the pyramid is to create a high level overview and to do this quickly so as to not lose the interest of the senior management. Dropping into too much detail slows down the overview modelling. (p.181)
The advantage of using these disciplined approaches to the organisational strategic planning process is that they could later provide the basis for adding the additional detail leading to the development of the information systems where they are needed to support the strategies.

Martin (1990) and Peffers et al. (2003) both advocate the use of CSFs to extend the information about the objectives of an organisation and there have been a number of references from the literature about the importance of KPIs and the need to apply the SMART mnemonic to make the KPI meaningful and useful as a performance tracking mechanism.

Key factors from the OPM procedure for developing a system for the performance measurement of an organisation include the need to develop measures that are based on the drivers for stakeholder value that will indicate if success is being achieved. The methodology requires that all stakeholders are identified and used to assist in the validation of the CSFs and the KPIs. An important feature of OPM included in the PRM and shown in the IARM, is the need to identify KPIs for each CSF and not, as seen in a number of case studies, merely listing all KPIs against the overall strategic plan. It is also noted that validation of the CSFs and key KPIs is an iterative process using both management and stakeholders to get a cross-checking validation.

The analysis of the organisational environment and the collection of information relating to the focus areas/directions of the organisation, together with the objectives, CSFs, action plans and KPIs can be developed and validated by using the following procedure for the process reference model (PRM).

3.2 A Process Reference Model for Strategic Planning

In this section a PRM, and in the following section an IARM, are proposed based on the common ideas for strategic planning processes and strategic planning information elements and their relationships found in the literature review.

The PRM for strategic planning could be described by the set of steps previously suggested in section 2.7, with in the overall strategic planning process broken into three
separate fundamental phases similar to those proposed by Lynch (2003) and Roney (2004).

- Developing strategic initiatives – (creative brainstorming, or developing entrepreneurial audacious goals by owners or top executives – matches Mintzberg’s strategy formulation). The term ‘initiative’ is used here in line with the idea of the creativity of this planning phase; however initiative may not be specific enough to necessarily call it an objective. The EDS template shown in figure 20 in section 2.8.1 also refers to ‘initiative’ which is refined into an objective. The initiatives may be developed by examining each focus area in turn or by examining the organisation as a whole.

- Validating proposed initiatives against organisational and environmental information – This can be a critical phase used to involve the necessary stakeholders and lower level managers by requiring them to flesh out the suggested initiatives with objectives, action plans or projects and costing needed to achieve the objectives. This detail should be derived where possible from hard data within the organisational data bases (Bailey and Peak, 2003). At this point the strategic initiatives should be refined into objectives and the goal determined for each objective.

- Developing the strategic implementation plan documentation - The starting point for the organisation is to determine whether to follow the IARM described in the next section or to develop an organisation specific reference model (OSRM) based on the IA principles of the IARM, but containing IEs determined by the organisation. The following procedure is based on using the IARM to guide the development of the strategic planning model (SPM), and requires determining for each focus area, the IEs identified in section 2.6.3.4 as follows:

  - The objectives required to implement the agreed strategic initiatives and the target (goal) to be achieved for each objective.
  - For each objective determine the CSFs and the target values.
  - For each CSF determine the KPIs that will demonstrate progress.
  - For each information element (objective, CSF – describe the rationale - why the information element is required and what it is to achieve)
▪ Where there is more than one CSF contributing to an objective then the planner should define the expected degree of contribution of each CSF to the objective.

▪ Action plans are operational things to be done to achieve the CSF or the goal of the objective.

▪ For each KPI the data sources should be nominated - whether internal operational data or external survey data and the formula for calculating the KPI, and the KPI should be defined according to the SMART criteria.

▪ Similarly if there is more than one KPI that is associated with a CSF then the degree of association should be indicated.

The documentation for the strategic implementation plan would be best developed iteratively using the IARM as a guiding template with the information used to develop the actual strategic planning model (SPM) as it becomes available. Note that it is to be expected that the SPM is itself only a guide to the complete strategic planning document (SPD) and is not expected to replace all the explanatory narrative which may be added on completion of the SPM. The completed SPD would comprise the SPM and the associated narrative.

The process should preferably work down through the management hierarchy that will be responsible for implementing the actions. There should also be cross checks to the stakeholder community that is involved at appropriate points using the strategic planning model as the discussion document. This will result in periodic reality checks on the strategic objectives and other information elements as more detailed information is added. The iteration will assist the development of the planning documentation in an evolutionary way, with the new information that is added, being validated against existing information. This iterative process will also assist in developing a shared understanding with all the participants in the process.

It is also recommended that when as much information as possible (e.g. objectives, the proposed goal for each objective, known CSFs etc.) has been developed at the senior executive level, the planning model is passed down to the next level of management to add further detail until the action plans have been defined. The process then iterates back to the previous level to ensure that there is a shared understanding throughout the
organisation of what is to be achieved, how it is to be done and how it will be measured. The QMethod (McKeown and Thomas, 1998) might well be utilized at any required juncture to improve the shared understanding of key information elements of the information architecture.

When developing the strategic implementation plan there is a great deal of decision making required at all levels of the planning and decision making is an integral part of the whole planning process. This requires an understanding of the decision making process and its fundamental construct of problem solving. The decision making process contains the essential steps of gathering related information, creating alternative actions to choose from, choosing a preferred alternative by reconciling conflicts, managing group decision making and, finally, of implementing the chosen alternative.

When choosing between alternative decisions, the decision maker/s need to first decide whether to try for the optimal decision (rationality) or whether they need only be concerned with a satisfactory decision (satisficing), (Alter, 2002). The importance of the decision may have an effect on which decision making process to choose, the more important and financially critical the decision, the more the decision maker might lean toward making an optimal decision (rationality).

Alter (2002) in writing about decision making, discusses these concepts but then draws attention to the common flaws that are made in decision making due largely to misperceptions people have about information they are using. Alter (2002) lists eight common flaws and advocates the use of more objective data, preferably provided by information systems to achieve as much objectivity of data over time as possible to try and overcome some of these problems. Some examples of these flaws that might be particularly relevant to a planning team are summarised as follows:

- Poor framing which essentially occurs where people make assumptions from a word used when a problem is presented, that strikes an inappropriate associative cue.
- Recency effect where people use only the most recent data from memory and ignore contrary older data.
- Escalation phenomena where decision makers have difficulty abandoning a course of action once effort has been expended on it.
• Association bias where a decision that led to good results in the past is adopted even if not appropriate to the current situation (Alter, 2002, p.156).

Strategic planning is of course about incorporating a number of IEs (objectives, CSFs, KPIs and action plans), of strategic focus across a broad range of activities. To determine each of these IEs and associated relations, decisions have to be made. It is important that the people involved in the planning process are aware of the above factors to be considered when making these decisions. The resultant choices from which decisions were made and why, should be documented in the plan. Complicating the process is the rapid change over time of economic, technical and marketing environments. This complication can be minimised by reducing the planning time interval and having a resultant document brief enough to allow regular reviews and updates to meet changing circumstances. Having the rationale of why decisions were made incorporated in the plan, can also help in determining if IEs and their relationships need to be changed to meet the changing environment.

The long planning time interval and the large complex plan have led people to consider whether strategic planning is viable. If the plan development takes longer than the time span of changes, then too much planning will be just a waste of time. A possible answer is to plan only the critical events with a commentary on the situation that pertains to why the objective will achieve the organisation’s strategic goals. There is also a need to incorporate mechanisms that minimise the decision making flaws. For instance association bias and poor framing can be minimised by including reasons for the decision which clarifies the organisation’s focus, and avoids inappropriate interpretations. The recency effect can be reduced by using hard data either from the information system or external surveys. The escalation phenomena can be countered by having threshold cost limits set for particular objectives at the beginning when the targets are first set, which will mean the objective should be re-evaluated if the threshold value is passed. This escalation would be first noted by the effect on the KPI, and therefore the KPIs and possibly the CSFs are also subject to escalation.

Alter (2002) advocates providing access to information and information processing tools and the enforcing of rules and procedures on the decision makers to minimize the effect of the decision making flaws. The proposed PRM above, in conjunction with the IARM below, provides a useful set of procedures and a tool to guide the strategic
planning process in the development of the requisite IEs and their relations into an SPM, and the supporting narrative into the overall documentation. It is also suggested that where possible the information data bases in the organisation should be used to provide hard data to support the decision making wherever possible Alter (2002) and Bailey and Peak (2003).

3.3 An Information Architecture Reference Model (IARM)

To enable the strategic planning documentation to be more easily read and followed, it is useful to first create a SPM of the key IEs. The IARM is developed here as a guide to the development of the SPM. The first items for the IARM should be the key directions or focus areas to be analysed, as suggested in the previous section, by whichever approach the organisation’s planning team believes will give the most appropriate strategic position of the organisation.

It would be useful if the organisation indicated the level of improvement expected for the organisation over the strategic planning period. The focus areas for strategic activity could perhaps be indicated in order of importance relevant to the expected degree of benefit for that focus area. This would give an immediate visual cue of the most important items. As previously proposed, for each focus area, the rationale of why it is important to the organisation should be stated and that might include the level of benefit expected, and then the objectives that are required need to be identified. The analysis for the CSFs that are necessary to achieve the objective will then need to be undertaken to clarify if there are any problems that need to be cleared or things that must be done to achieve the objective. As these CSFs are determined they can be used to build up the SPM.

The PRM has identified a number of IEs and the following description of the IARM will show how they should be represented. The first symbol shows the how those information elements which include the target value and rationale should be shown.

<table>
<thead>
<tr>
<th>Description of Information Element</th>
<th>Target Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale for this Information Element</td>
<td></td>
</tr>
</tbody>
</table>
The next symbol shows how the direct linkages and the degree of contribution or association would be represented.

If there is only one sub item linked to an information element then the degree of association is obviously assumed to be 100%.

Figures 21, 22 and 23 show an example of the IARM with IEs and relationships and the way they could be represented. Figure 21 shows the first level which is the highest level of abstraction for the reference model and is primarily concerned with setting the scene for the planning without the detail of target values or the degree of relation between IEs.

![Diagram of IARM with focus areas and objectives](image)

**Figure 21. First level of the IARM for focus areas and objectives**

The main purpose of Figure 21 is to list the important focus areas for the organisation with the main objectives to be achieved in support of the focus area and indicate the
CSFs. Note the focus areas may be permanent aspects of the organisation and may not be changeable IEs determined differently for each strategic planning episode.

The next level down in the reference model hierarchy describes in detail the CSFs required to achieve each objective; this is shown in Figure 22.

![Figure 22. Second Level Abstraction Showing Objective to CSF relationship](image)

At this level of the model each CSF that is required to achieve the particular objective is identified; also shown is the proportion of contribution each CSF plays in the overall success of the objective and the way in which the CSF is critical to the objective. It is also necessary to indicate the action plan(s) that will enable the CSF to be achieved, the date the action must be completed by and the name of the responsible unit.

It is possible to see that the model could be partly filled in at one level of management and then passed down to the next level to fill in actions and dates. This process will then include validation that the objective can be achieved and how it is to be achieved and, in the process, allows for clarification of the requirement if that is felt necessary.

If the CSF in the second level of the IARM is still a high level function that does not correspond to an action, then it is necessary to repeat the process treating the CSF as an objective and determining what action is necessary to achieve it, until the CSF is defined with an action item, either as a current operational function or as a new action.

Each CSF also needs to be evaluated to determine firstly the target value that will indicate success, and the KPIs and their value, where the KPIs can be used to monitor the progress toward achieving the CSF and thereby the objective. It may be possible to
have a KPI directly related to the objective, if so this should be shown. The diagram representing KPIs to CSF is shown in figure 23. The diagrams for figures 21, 22 and 23 may be developed iteratively as the detail is worked out and included.

![Diagram of KPIs to CSF](image)

**Figure 23. The definition of key performance indicators to monitor achievement of the CSF**

If there is more than one KPI for a CSF then the degree of association related to that KPI should be indicated. Also recorded should be the date by which the requisite value is to be achieved and the name of the responsible unit.

### 3.4 The IARM Can Point to Planning Problems

The development of the SPRM for the strategic planning process first covers the methodologies that could be used to gather information, then a description of a PRM to guide the strategic planning process and finally an IARM was developed to present the key information elements of the strategic plan.

The IARM is the key to the strategic planning process enabling the PRM to be used iteratively because of the layers of abstraction inherent in the IARM and therefore the concise and unambiguous presentation of information in the resulting SPM that lends itself to review, discussion and updating on a continuous basis.

The division of the overall planning process into separate distinct phases and having a systematic process of moving down from the highest level of abstraction allows for each level of the SPM to be clarified and validated before commencing the next level.
Separating the stages of environmental and organisational analysis and strategy formulation (setting the objectives) from the detail of the actions needed to achieve the objectives and structuring the information for performance management, allows the opportunity for free ranging exploration of ideas.

Using the IARM as a template to guide the planning process through the creation of the actual SPM down through the levels of abstraction to the final detail level of action plans ensures all aspects are covered. The SPM allows all the staff involved to know which actions are tied to achieving a particular objective and for the executive of the organisation to verify how each objective is to be achieved.

If the staff are unable to fill in a piece of information; for instance if staff are unable to conceive the actions that will allow an objective to be achieved, then discussions can take place between the management levels to clarify what is intended. Target figures for objectives and CSFs, and performance measurement values set for KPIs can be checked and confirmed as viable.

If a focus area has no commentary or if an objective has no CSF, or a KPI does not have a measurable indicator; it is readily obvious to all those concerned and discussion can take place to explain the difficulty and if still to be omitted, the reasons should be incorporated into the SPM.

When using the IARM as a guide to the development of the SPM, any missing IEs and omitted relationships between IEs, should lead to discussions and clarifications and would make the resultant documentation easier to follow and understand. There should no longer be a problem of unrealistic expectations or unclear user specifications because the iteration of the process and the SPM, and the inclusion of all necessary stakeholders will ensure a good validation process that will pick up misconceptions and omissions.

All necessary stakeholder and staff representations can be included in the process because of the ease of circulating and updating the concise and unambiguous SPM that is being developed and backed by the associated planning narrative.
4 Research

4.1 Research Aims and Methodology

As explained in previous chapters this research covers two very distinct disciplines: Information Systems (IS) and Organisational Management, and as such it draws on a variety of research approaches and research methods. Support for the research approach using mixed methodologies comes from a number of authors. Tashkhari and Teddle (2003) discuss the qualitatively and quantitatively oriented researchers and the mixed methodologists that work with other paradigms and who are interested in both types of data. Galliers (2003) argues that “the appropriate locus of IS study is more broadly based than organizations or individuals. Societal, policy and ethical issues might reasonably be included within the ambit of the IS field”. Tashkhari and Teddle (2003) refer to the fact that some authors suggest that qualitative research questions are exploratory whereas quantitative research questions are confirmatory and say that they disagree with this dichotomy for research questions. Tashkhari and Teddle (2003) write that though these positions are often true, it does not always have to be the case and using both methods together can be of benefit such that “A major advantage of MMR is that it enables the researcher to simultaneously answer confirmatory and exploratory questions, and therefore verify and generate theory in the same study” (p.15), with the specific advantages that:

1. findings can converge indicating validity
2. generate new comprehension of phenomenon
3. produce unexplainable divergence leading to falsification of previous theoretical assumptions (p. 17).

Another advantage and one even more pertinent to this thesis is given by (Galliers, 2003, p. 345) with the comment “Innovative solutions are more likely to emerge from taking a variety of perspectives”.

As described in chapters one and two, the primary aim of this thesis is: to improve the documentation of a strategic plan and in the process will need to achieve the following objectives:

a) The literature review raised a number of issues that will need clarification as part of the research by getting an up-to-date view of strategic planning.
b) Identify the strategic information (information elements) such as objectives, action statements, target measurements, which would be most useful in a strategic plan.

c) To develop a Strategic Planning Reference Model (SPRM) comprising a Process Reference Model (PRM) and an Information Architecture Reference Model (IARM) to show how information architecture would present the IEs in a clearer and more succinct way than narrative alone.

d) Explain how the resulting documentation combining point’s a. and b. would allow for better communication of organisational intentions, which could improve management generally and also allow better alignment between SISP and OSP.

To meet the above objectives, several quite different research methods are needed and as written above, Tashkhari and Teddle (2003) certainly support the concept of multi-methodological research. Multi-methodological research is used in Information Systems Research (ISR) and Livari (2007), concerned that IS research had moved away from design science mentions that Nunamaker (1990) is part of a current interest in design science but is concerned that the model used by (Nunamaker, Chen and Purdin, 1991) see Figure 24, lacks research activity within the system development phase. Livari (2007) recommends that to improve the rigor of design sciences the source of ideas for design science research should come from:

1. Practical problems and opportunities.
2. Existing artifacts
3. Analogies and metaphors

Point 1 is addressed from the literature review by the two sections 2.3 ‘factors affecting success’ and 2.4 ‘summary of problems’. Point 2 is also covered within section 2.8.2.
In this study, objective i) will be met using a variety of empirical approaches, such as interviews, questionnaires and document examination, which Nunamaker et al. (1991) shows as ‘observation’. Objective ii) will be met by analysing the literature on OSP and the data gathered to meet objective i). Objective iii) requires the development of reference models which Nunamaker et al. (1991) shows as ‘theory building’. Finally objective iv) involves the testing of the reference models by means of a normative evaluation which would use a culmination of material gathered as a result of objectives 1, 2 and 3 (normative research is discussed in more detail in sections 4.1.4 and 4.1.5). Although not formally an experimental method, normative evaluation clearly serves the same purpose as the methods described by Nunamaker et al. (1991) as ‘experimentation’.

Figure 24. A multi-methodological approach to IS research (Nunamaker et al., 1991)
Each of the four objectives corresponds approximately to one of the four phases of the research.

Phase 1 aimed to get an up-to-date view of the OSP using empirical methods such as surveys. This phase was intended to clarify a number of issues (see section 4.1.2) which were developed because the literature review gave rise to a number of concerns about strategic planning. These questions were designed to a) confirm the current view of organisations regarding their strategic planning processes and issues and b) identify any IE and planning process steps which should be included in the SPRM. Because a number of these questions also reflect on the composition of the strategic plan and therefore may have a bearing on the IARM, it is necessary to provide clarification of these issues before presenting the final phase of the primary research. An empirical research method is used for the clarification of the issues, which are discussed in section 4.1.2. The scope of these questions would be broadened to be somewhat exploratory, to provide some level of safeguard against overlooking any nuances not previously identified.

Phase 2 aimed to identify the IE and planning process steps that would be most useful in an OSP. This was done by a detailed analysis of both the OSP literature and the data gathered in Phase 1.

Phase 3 required a strategic planning reference model (SPRM) to be developed from information gathered from the literature review and confirmed by data gathered in phase 1. The SPRM comprises a process reference model (PRM) which is a proposal to help organisations develop their own SP process, and an information architecture reference model (IARM) which is a proposal to help organisations develop their own strategic planning model, which would guide organisations in the presentation of the information elements of their strategic plan.

Phase 4, which is to validate the IARM, has special difficulties due to the time span of testing strategic issues and the company confidentiality of strategic information. These difficulties are discussed in section 4.1.3 and led to the adoption of the normative research method (see section 4.1.4 and 4.1.5). The IARM would be validated in two ways; one way would be by comparing a conventional published strategic plan with the OSP requirements derived from the literature review and listed in section 2.6.3.4 to see
if there are any omissions or ambiguities. The second way would be by developing an example of a section of a strategic planning model from the published strategic plan using the IARM as a guide. This would enable an evaluation as to whether any improvements are evident (see chapter 5).

While the empirical methods used in Phase 1 and 2 are well understood, the selection of research methods for the other two phases was more difficult. As this research is a search for an improvement in the documentation for strategic planning consideration was given to using grounded theory because of the emergent nature of the research. However because the intention was the formulation of a better product, grounded theory seemed inappropriate, so arteology being the study of artifacts was investigated. Two arteology research processes concerned with artifact improvement were reviewed: action research and normative research. Action research is described by Routio (2004) as being an intrinsic process where the improvement is to primarily come from research activities within the group concerned with the activity, as this was not applicable, consideration was given to normative theory see section 4.1.4.

Many of the researchers who have studied architectures and SP models have become successful consultants and their research and models have become proprietary products which command significant prices. Consequently, the research methods used in this field are often not published in the literature. This, coupled with the inherent problems of research in the strategy discipline, led to the adoption of the normative research methodology for the main evaluation of the IARM, to be backed where applicable by supporting evidence from the empirical methods. A brief overview of the research is shown below in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Overview of the research objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Aim:</strong> To improve the documentation of the organisation strategic plan</td>
</tr>
<tr>
<td><strong>Phase</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>
4.1.1 Discussion of the Empirical Research

The literature about strategic planning has presented a range of opinions in the discussion about strategic planning, including the need in the strategic planning process for top management involvement. The lack of their support and guidance can lead to communication problems encountered by the middle and lower management. There can be problems for the rest of the organisation in knowing what the objectives and strategies of the organisation are. Anecdotal evidence from discussions with managers (e.g. SV group) has suggested the existence of a communication gap which is represented in the Blue Skies diagram shown in Figure 25.

![Blue Skies Diagram]

**Figure 25.** The blue skies diagram showing communication gap between Executives and Management

In the diagram, the cloud-like element represents the ill-defined objectives (either not documented or in a poorly documented SP) developed by the senior management which can result in a lack of communication of intentions to the rest of the organisation. This
leaves what can be described as a communications gap (the segment in black), with middle management being left to try to determine what their actions and key performance indicators should be. They do not know how their actions (shown as a dotted arrow, indicating their best guess) will specifically lead to success for the organisational objective they are aiming for.

Difficulties were envisioned with the research needed to investigate strategic plans and the strategic planning process. Part of this difficulty is shown in the diagram in figure 25 that shows that a difference might occur between senior management’s view of strategic planning and the middle manager’s view at the implementation level of the organisation. A conventional survey of strategic planning issues mailed out to organisations may have a problem with the respondents’ understanding or using terminology in different ways to each other. They also may not have the same understanding as intended by the formation of the questionnaire, particularly the very specific terminology related to information systems, information architecture and the strategic planning process. These difficulties of understanding may make any potential respondent reluctant to answer the questions and return the questionnaire.

To obtain a current view of the strategic planning process, it was required to get a broad input from a large range of organisations. To determine if there is any empirical evidence for the communication gap, a different approach was required, which was to look within a single organisation to get the perceptions of a range of people likely to be concerned with the strategic planning process. Therefore the surveys to answer the Issues needing clarification (see section 4.1.2) were developed using two separate survey methods. The first was designed to be a broad survey to gather a good selection of information across a range of different organisations. The other was to look within an organisation across the different levels of management, to investigate how the usability of the planning document was perceived and if there were any communication difficulties with the objectives set in the strategic plan.

As further confirmation of the information being gathered by the above survey methods, there would also be in-depth interviews of senior managers within a single organisation. This was intended to follow the strategic planning process questionnaire but would be freer ranging and allow commentary and discussion on strategic planning issues that might not have been covered in this strategic planning process questionnaire.
If, during the first survey, a comprehensive and well-publicised strategic plan was discovered, it would be passed to the normative phase of the research and analysed to see how well it conformed to the principles of good strategic planning documentation and whether the use of an information architecture would improve the documentation.

The research has applied several different methods to the investigations to enable cross checking to be done at the different organisational levels; from surveys to detailed interviews and to the analysis of planning documentation. To summarise, the research methodology uses an investigative method for the surveys and the interviews and a normative method for the analysis of planning documentation and the IARM validation.

This multi-methodological approach should give more balanced research data and interpretation; between the surveys and their quantitative analysis; and the interviews and document evaluation for a qualitative review. The next section will discuss the two questionnaire survey methods in more detail.

4.1.2 To Evaluate some of the Concerns in Strategic Planning

The first step was to gather information from a number of organisations; to get a current view of issues concerning the strategic planning process. The resulting issues were listed at the end of the literature review chapter and are repeated below.

The first issue can be seen in the book by Collins and Porras (2002), who debate whether strategic planning is a legitimate management activity. Collins and Porras (2002) instead emphasise the idea of a Big Hairy Audacious Goal (BHAG) as more efficacious than strategic planning. However many authors, such as Kenny (2005), Bailey and Peak (2003) and Martin (1990), give emphasis to the need for strategic planning in most organisations. This difference in view leads to concern whether organisations do strategic planning and whether they document and distribute strategic planning information, which led to questions a. and c. in the list below. If organisations do strategic planning this would lead to the question, why do they do it? The answer might be that it should lead to improved organisational performance because managers have a strategic direction to work toward, which led to question d. being included to obtain the respondent’s view about improved management performance.
A summary review of the information elements (IEs) used by authors writing about strategic planning indicates a certain variation in the terminology used; some of the alternative terms used as information elements (IE) are listed in section 2.6.4.2. A review of this list led to the possibility of using a representative set of IEs in the IARM such as (objectives, CSFs and KPIs). Question b. in the list below investigates to what extent this set of information elements is used by organisations.

Teo and King (1997) and Lederer and Mendelow (1986) discuss the importance of aligning the SISP with the OSP. Other authors that write specifically on the issue of strategic management and planning, such as Roney (2004) and Lynch (2007), do not raise the alignment issue as significant, so this is investigated by question e.

Some authors (Tarr, 2001; Kaplan & Norton, 1996) give a great deal of emphasis to the importance of performance measurement as part of the strategic planning process but Fogg (1999) does not include performance measurement as a part of strategic planning. Question f. asks what organisations do regarding performance measurement.

Kenny (2005) writes that the strategic plan can be too informal and Lynch (1994) writes that it can be too complex; these concerns about poor documentation are formulated into question g. that investigates the usability of the strategic plan document.

The list of issues that were raised from the above concerns will be listed again in Figure 26 which will indicate the methods that were used to gather data relevant to these issues:

**Issues requiring clarification for up-to-date view of strategic planning process:**

a. Whether organisations believe in doing strategic planning or not?

b. What information elements (Objectives, CSFs and KPIs) are considered in the planning process?

c. What degree of planning formality do organisations currently follow?

d. Does a formal strategic plan lead to perceived improvements in management?

e. Is there any relationship between OSP and the IS?

f. What performance measurement processes do organisations participate in?
Issues requiring clarification for up-to-date view of strategic plan usability:

g. How usable does the staff of the organisation believe the SP is?

Scheuren (2004) writes that “surveys can be classified by their method of data collection. Mail, telephone interview, and in-person interview surveys are the most common” (p.11). He also states that telephone interviews are an efficient method and that mail surveys can suffer from a poor response rate (Scheuren, 2004). A questionnaire based telephone survey would be adopted to answer the set of questions a. through f. The questionnaire would determine the degree of formality in the strategic planning process with a focus on the extent to which organisations define key information elements such as business objectives and the requisite action strategies, whether OSP is done at all, whether OSP is done in a formal manner (that is written down and distributed), which information elements are considered in the planning document (that is the depth of the planning process) and whether the strategic planning is considered effective. Data about the relationship between the OSP and the information systems and the management information system would also be gathered.

Some questions were added to obtain a view of some of the organisation’s characteristics such as size and nature of the organisation and a view of the organisation’s competencies, in case these factors had a bearing on the responses to the questions on the organisation’s use of strategic planning. A characteristic of the organisation that might suggest how well they respond to questions on strategic planning was the degree of competence of the organisation. McKay and Marshall (2004) write about core competence and they comment that the overall competencies within an organisation are needed to create business value in the organisation. They are referring not to products or functions but to the core competencies which are the knowledge and skills of the staff in the organisational processes which are required to produce and deliver the products. There is an implication in the literature when discussing the need for alignment between the business direction and the development of information systems that there are two aspects to the concept of core competencies, so in the questionnaire one set of questions focused on business activities and the other on activities related to the use of information technology.

The telephone interviews would be guided by a highly structured script of questions and would be administered by research assistants to help the interviewee through the
question interpretation and to help create a more standard set of responses across all organisations. The narrative answers were later coded for data entry and the coding is shown later with the question discussion. It does need to be considered that the interviewee having volunteered to answer a survey concerned with strategic planning in their organisation was likely to have been involved in the planning process and have a degree of bias in favour of the planning process; however it would not be possible to avoid this situation.

To gather data for question g., concerning the SP usability, a different approach was needed, in that a number of people within one organisation were required to be asked their perception of the strategic plan. The survey on usability was required to give confidentiality to respondents, to allow flexibility of when they responded and to minimise the time they had to spend on the survey. The requirement was to get the views from a cross section of staff, their involvement in the planning process and their impression of the usability of the planning documentation. This survey was designed as an online questionnaire administered by a software program that would give confidentially and allow flexibility in the timetable the participant used to respond. The usability questionnaire would provide a look inside an organisation that has a detailed strategic plan, which is published and readily available to the whole organisation.

The usability questionnaire would get views from a range of staff likely to use the strategic plan; on their perception of the ease of use of the document and also on its usefulness for their own planning purposes. The questionnaire would be completed by the individuals online with most questions requiring a rating on a Likert scale; this may lead to some error of central tendency, where respondents are biased away from the extreme ends of the scale (Albaum, Rodgers, Roster & Yu, 2005). In case there is some central tendency effect, several questions would solicit comments from the respondents which would be examined for consistency to the responses to the questions with a Likert scale.

Due to the general nature of questions in the above surveys and to ensure the research uncovers any hidden but ‘real’ problems, the drill down process would continue with a look inside a single organisation in some detail, this would obtain a more detailed view of the strategic planning process and possible differences of view from within a company. To provide this view a series of interviews with free ranging discussions with
senior managers would be held within a company designated the SV Group. A review and analysis would also be done of any planning documentation that was available.

The considerable difficulty for this part of the research would be to gain access to an organisation and to the senior managers to interview them on issues regarding the strategic planning process in that organisation. The interviews would obviously be regarded as very time consuming and company confidential. However the advantages would be a considerable insight into the executive level of an organisation and their thoughts on strategic planning issues, it would also hopefully allow closer examination of related documentation with any associated commentary and discussion.

Each of the above investigations is discussed separately and in more detail including the format of the questionnaires in section 4.2. The situation and background to the documentation that is to be examined will also be reviewed in that section.

The other phase of the research (the normative method) is discussed in sections 4.1.3 to 4.1.5, this validation phase would review a comprehensive and well publicised strategic plan in detail, to examine the documentation for the information content and quality of the information structure, the aim would be to see how well the strategic plan content conforms to the requirement for good planning documentation identified in the literature review.

### 4.1.3 Problems in Validating the IARM

Strategic planning is by its nature designed to cover a number of years. Consequently, to test one form of strategic plan against another would require a great number of years and a large number of complex factors. It is also, for many organisations, a very sensitive procedure and the resulting plan may contain company confidential material that most organisations are unwilling to disclose. The only organisations where strategic plans are readily available are government or semi government organisations and these plans are usually only in very high-level visionary objectives for public consumption.

The long term nature of the strategic planning process and the involvement of the top level people in the organisation make it very difficult to run a conventional experimental research investigation comprising hypothesis, test and validate phases. It
would be difficult to persuade the top management of an organisation to trust the future of their organisation to a new concept for the presentation of the information in their strategic plan. A strategic plan would typically need to be implemented over many years and to measure the success of the plan is an uncertain procedure also needing a number of years to evaluate. Given the volatile nature of the economic and market conditions, any conventional testing of performance variables would be impracticable and testing would have to rely on subjective evaluations of any improvement. These factors render a conventional experimental research procedure impracticable.

The final phase of the research, therefore, is to conduct a normative evaluation by using the proposed IARM (developed in chapter 3) as a guide and to review the presentation and structure of the relevant information elements from a published strategic plan evaluating for omissions and ambiguity.

4.1.4 What is Normative Research

“The term ‘normative’ is used in various disciplines and used slightly differently in each, in sociology and anthropology it means ‘according to cultural standards’ and in mathematical theories or models ‘normative’ is usually used in the sense of the model conforming to the norm. In psychology ‘normative’ research is often about looking for deviations from the normative model and then trying to explain the presence or absence of bias to the model (Baron, 2005).

On the other hand informative research describes a current situation without disturbing it. The informative research model can be added to by including a hypothesis model, whereby a hypothesis is made about the effect that changing an independent variable has on the related dependant variables.

Routio (2004) examines an alternative to the hypothesis model that can be used in normative research and notes that “a normative project often includes a decisive focal point which determines the project’s success or failure in much the same way that the test of a hypothesis does in a descriptive project” (p.5). Routio (2005) states that “normative research aims at improvements, which means that it includes evaluation of the present state of things and also of the direction of future development.” (p.1)
Bertrand and Fransoo (2002) also make the point about improvement, with the comment “normative research is primarily interested in developing policies, strategies and actions to improve over the results available in the existing literature” (p.247). They also make a point about axiomatic research being normative and refer to a fact that “almost all articles in the (US-based) OR [operations research] domain fall into this normative area” (Bertrand & Fransoo, 2002, p. 247).

A ‘best practice guide’ issued by the European Commission recommends the use of normative research methodology as a means of improving the development of European standards (Maxiquest, 2002).

Normative research differs from an informative investigation “because the target is not only to gather facts but also to point out in which aspects the object of study can be improved” (Routio, 2005, p.1). The nature of normative research makes it more subjective than informative research because of the nature of the evaluation phase which has to be from a person’s subjective aspect. Routio (2005) explains this as follows “normative research aims at improvements, which means that it includes evaluation of the present state of things and also of the direction of future development. By definition, evaluation is only possible from someone’s point of view” (p.1).

Deegan (2000) introduces normative theory into the examination of alternative accounting theories and suggests that “Different theories often have different objectives; prescribe how based on a particular perspective is a prescriptive or normative theory. predict or seek to explain are descriptive or positive theories prescribe the accounting information that should be provided to particular classes of stakeholders on the basis of their perceived information needs is a decision usefulness theory” (p.3).

This example of decision usefulness has a distinct echo of the need to provide stakeholders in an organization with information on the strategic intentions of the organization, Deegan (2000) then describes how normative theory can be subdivided with : “some normative theories as ‘true income theories’ and others as ‘decision usefulness theories’” (p. 8). This identifies decision usefulness as a normative theory.
Deegan (2000) also stresses the importance of researchers investigating prescriptive solutions (Normative theory) to problems (p. 11, citing Hewieson, 1996, p. 31) “Traditionally academics have acted as commentators and reformers on such normative issues. By concentrating on positive questions they risk neglecting one of their important roles in the community”.

4.1.5 Normative Validation of the IARM

Vroom and Yetton (1973) discuss the use of normative models to develop situational theories about leadership and comment that the ‘normative’ aspect of the model, is that it was defined by rational logic rather than long observation. This point has relevance to the development work on the IARM, in that the IARM has been developed in response to the planning problems and arguments identified in the literature. The intention is to simplify the documentation during the planning process and to provide a tool (the IARM) to assist in the development of the strategic plan.

Gavetti and Levinthal (2004) discuss the field of business strategy research and remark on the intellectual breadth of the field by showing a mapping of the areas of research into structural versus situational on one axis and behavioural versus rational on the other axis. The thrust of the paper is promoting a conceptual framework of evolutionary economics as a foundation for the positive and normative research agendas in the field of strategy formulation. They are concerned with the direction of recent developments that “delineate a coherent, unified conceptual apparatus for treating the field’s [business strategy] defining question of understanding the bases of performance variation across firms” (Gavetti & Levinthal, 2004, p.1309). They also write that “a key step in strategic thinking is the identification of the attributes of the organisation that are considered subject to directed change” (Gavetti & Levinthal, 2004, p. 1314), this statement, bearing in mind the topic under discussion of ‘business strategy’ and the comment on performance variation across firms, relates to the subject of this research.

A description of the logic of normative analysis is presented in a paper by Routio (2005) including the typical phases of normative research in a spiral of development, summarised as follows:

1. Evaluative description of the initial state (defining the need for improvement)
2. Analysis of relationships and possibilities to change things
3. Synthesis: proposal for improvement
4. Evaluation of the proposal. (p.3)

The sequence from steps 2 to 4 may be repeated over time as other information becomes available to produce an improvement of the proposal (Routio, 2004). Thacher (2006) refers to a “web of normative-belief” (p.1563) and also to an “integrated network of normative convictions” (p. 1638) when trying to answer difficult questions. Essentially, new cases and new information are tested against the current normative theory, and the new information may be adopted and the theory modified or the information is discarded, according to the fit.

For this thesis research into strategic planning, the time duration that would be required to implement a change and validate the effectiveness, combined with the difficulty of getting a large corporation to change its planning process, makes repeating the steps 2 to 4 highly impracticable. So, the research for this thesis will use one iteration through the steps and terminating with an evaluation of the proposed improvement as described below.

The first phase of a normative approach requires an evaluative description of the initial state which is provided in general by research objective one and the clarification of issues derived from the literature review and the surveys of organisations designed to establish what the current status is for strategic planning in organisations.

The second phase of the normative approach requires an analysis of IEs and relationships (which addresses objective two) and explores the possibilities for change, which would be extrapolated from the literature review on strategic planning and the results of a survey of plan usability. Complementing the two surveys would be the examination of strategic documentation pertaining to three organisations.

The third phase of the normative research methodology would be a synthesis of the features of strategic planning, to provide a proposal for improvements to the process; this would be the completion of objective 3, and the reference model developed in chapter 3 would be to provide a solution toward meeting these improvements.
The final phase of the normative approach which achieves objective 4, evaluates the reference model with reference to the requirements and current documentation limitations determined from the literature review, the executive interviews and the review of documentation.

Routio (2007) writes that the end product of normative study is one or more proposals which explain in detail the desired improvements and how to achieve them. The key question being, is it an effective, practical and economically optimized instrument for attaining the desired improvements. Two methods of evaluation are described; one is collective evaluation whereby all relevant interest groups are heard in the evaluation, and if this is not practicable, Routio discusses a theoretical evaluation where “the researcher can try to assume an objective role of arbiter and simulate a general and impartial viewpoint” (p.2). This approach will be used for evaluation of the IARM see sections 6.3 and 6.4.

Information systems research has a number of authors proposing information system design theory (ISDT) (Walls, Widmeyer, and Sawy, 1992) who advocate that ISDT is “a prescriptive theory which integrates normative and descriptive theories into design paths intended to produce more effective information systems” (P.36). They also write that “design theory is a prescriptive theory based on theoretical underpinnings” P.37), this is in order for the development of a design that is effective.

As previously noted from Routio (2004) is the fact that normative research aims at improvements and “a normative project often includes a decisive focal point which determines the project’s success or failure in much the same way that the test of a hypothesis does in a descriptive project” (p. 5).

A critical part of the research was to develop a way to improve the strategic planning process and the documented strategic plan. An IARM was proposed as part of an SPRM (see chapter 3) to assist in the presentation of information in a strategic plan. The decision was made to use a normative approach to the research on the IARM because the aim of this thesis “is to not only gather facts but also to point out in which respects the object of study can be improved” (Routio, 2005, p.1). Consequently a published strategic plan would be examined for conformance to the proposed IARM and if the conformance is low, then in addition an example of a strategic planning model
representing one section of the strategic plan would be developed to show how information could be presented based on the IARM (see chapter 5).

However before developing this phase of the research it is necessary to review the survey methods used to examine the Issues needing clarification and to see what information will be gathered from this empirical phase of the research. These survey methods were outlined previously in section 4.1.1 and each method will be explained separately in more detail in the following sections.

4.2 Research Investigations

A variety of methodologies were used to gather data on the issues related to the Issues needing clarification on strategic planning (see section 4.1.2). This section will describe the framework and context for each of the various investigative steps, and where applicable describe the survey instrument and the steps taken to gradually drill down from a broad survey of organisations down to the specific detail within one organisation’s strategic plan as follows:

- Survey of the Planning Process
- Survey Concerning Strategic Plan Usability
- Examine Executives and Documentation of Organisations
  - “SV Group” – Interviews with Executives & SP Documentation
  - “Lou’s Place” – an OPM Performance Measurement Plan
  - A Well-Publicised Strategic Plan

4.2.1 Survey of the Planning Process

This section concerns a survey of organisations in NSW, Australia to determine the importance of the strategic planning process and to get an up-to-date view on a number of issues raised in the literature (see section 4.1.2).

The planning process survey would be conducted as a telephone questionnaire by research assistants using a scripted questionnaire that would be filled in by the research
assistant with the answers from the respondent. Companies would be contacted by searching the yellow pages of the telephone directory.

The planning process questionnaire was first tested in several small trials in order to test the questions and their format. Discussions with the people conducting the questionnaire uncovered a problem that the use of terms familiar in IS/IT investigations were causing difficulties because of a lack of understanding by the business people. The solution was to use terminology that the business people in the organisations would understand and that they would all use in the same way (a shared understanding of the meaning of a question). The question formats moved away from information systems terminology and closer to business terminology. There were still some residual difficulties with the questionnaire, however the assistants were rehearsed in the meanings of the questions and understood the nature of the questionnaire, and so were able to clarify where necessary to minimise any problems that respondents might have with understanding the terminology.

To allow the respondent to be more flexible in their answers and allow them to use different terminology than that in the questionnaire, some of the answers were planned to be in narrative form and these answers would be coded at a later stage. The complete questionnaire is shown in Appendix B.

Of particular interest would be data about the degree of formality in the planning process: i.e. whether the plan was documented and distributed, and also the depth of the planning process. The latter was determined in terms of the number of levels of information elements from objectives through critical success factors to key performance indicators. The questionnaire also gathered data about the alignment of the OSP with the information system. The questionnaire also asks what performance measurement is carried out and if there is any alignment of the measures with an MIS/EIS system, to explore any relationship between the OSP and the IS.

It is felt by some authors that there should be a linkage between information elements, and the linkage should show a hierarchical structure through the information elements (Peffers et al, 2003). The IARM indicates the linkages should be very specific, in that a business objective should be defined by the critical success factors that are needed to achieve the objective and each critical success factor description must include the key
performance indicators that will measure the success of that factor. The evidence for this linkage would be complex to examine with the use of a questionnaire and so the question of linkage would instead be pursued through the examination of the planning documents of organisations that have a formally written and distributed plan. If a linkage exists between, say, the description of an objective and its associated CSF’s and the related KPIs, then it would need to be self-evident when reading the strategic plan, by the nature of a ‘direct linkage’. If it is not readily evident, then for all useful purposes it does not exist.

The questionnaire was organized into 4 parts to provide a focus of subject matter for the respondents; the first part was about the business generally; the type of business, the number of staff and some questions that asked the respondent’s opinion on what they considered to be the company’s ability on a number of issues. This section was arranged to ensure that a range of organisation sizes and types were obtained as respondents and to see if there was any bias.

The second part was about the strategic planning process and the depth i.e. number of levels of information elements in the planning process. The three levels in the planning process that were investigated were:

- If the organisation defined business objectives only,
- If they also defined critical success factors
- If they went to the detail of determining key performance indicators as well

Respondents were also asked if the information elements were documented and distributed and how effective the organisation thought this was. They were also asked if the OSP was documented and if their IS were derived from the OSP and how effective they thought their IS were in support of the OSP.

The third part included questions about the business performance measurement process, if there was a single measure for the organisation or a measure for each functional unit. There were questions about whether the performance measures were documented (formally or informally) and whether the detail of the performance measures was distributed and how effective the performance measures were thought to be in improving management.
The fourth part concerns whether there is a management or executive information system (MIS or EIS), what level of management was involved in defining the requirement for the EIS/MIS and if the MIS relates to the organisational information elements that were defined. Questions were also asked whether the organisation can retrieve the business performance measures from the MIS and how effective the MIS was thought to be in improving management.

It is however possible that organisations may have declined to participate if they did not understand what strategic planning was or were not interested in the process and this might cause a bias in that direction. Those organisations that agreed to participate were asked to nominate a respondent to assist with the completion of a strategic planning questionnaire. It is possible that they would then designate a person who had been involved in the process and that person may therefore have a bias toward thinking of the success of the planning process.

The data would be investigated by using frequency counts to see the level of participation for each of the questions.

4.2.2 Survey Concerning Strategic Plan Usability

This survey was designed for a range of people in a single organisation who were most likely to have contact with and need to use the strategic plan. Respondents were asked what their perception of the usability of their organisation’s strategic planning document was. An organisation was selected that had a comprehensive planning process with a documented strategic plan and had a wide distribution of the document within the organisation. A University strategic plan was selected as having all these attributes, in fact the planning document was on the web site and all staff were encouraged to read it, partly as a result of an impending quality audit of the University’s administration and teaching processes. This did mean that there was a great deal of attention on the strategic planning process and the use of the strategic planning document; it was therefore hoped that this attention would give additional impetus to responding to the survey. A search of the literature was conducted to identify suitable usability questions (Shawn, 2003; Davis, 1989) and a usability questionnaire was formulated to focus on the usability of the strategic planning documentation. The Davis paper is one of the first
to discuss the technology acceptance model (TAM) and the need to have both perceived usefulness and perceived ease of use questions when trying to determine usability. The TAM construct is criticized by Benbasat and Barki (2007) because it appears to have resulted in less research effort going into what actually makes a system useful. However Benbasat and Barki (2007) do say that perceived usefulness and perceived ease of use are both important determinants in understanding IS theories. Davis (1989) defined perceived usefulness as

the degree to which a person believes that using a particular system would enhance his or her job performance” and defined ease of use as “the degree to which a person believes a particular system would be free of effort. (p.320)

The resultant usability questionnaire was discussed with the Executive responsible for the strategic planning unit. As a result of these discussions, question categories 1, 2 and 3 were added to the list below. The questions added were concerned with ensuring that it was the latest plan that was being surveyed and that the focus for the respondent when answering questions was in relation to that part of the plan most relevant to them.

The following broad set of questions was chosen:

1. Know existence of Plan
3. Which section of Plan are you familiar with
4. Perceived usefulness (e.g. usage outcomes)
5. Ease of use (e.g., user friendliness, clarity, effortless)
6. Attributes of the planning document (e.g. accuracy, timeliness)
7. What was respondent’s involvement in the planning process?
8. What is respondent’s position as manager/decision maker

Question categories 4 – 7 were subdivided into more specific questions; the full set of questions is shown in Appendix C. To see if there was any significance to particular questions within the question categories, a data reduction by factor analysis would be performed.
The approach to the University was by way of an application to the Ethics committee. An application was submitted to the University Ethics Committee which included the covering email that would be sent to all potential respondents, indicating that participation was voluntary and anonymous.

The full set of questions was then compiled into an online questionnaire and to decide where to send the request to participate, the University web site was examined for the University structures and all units that were part of the structure were included. The web page for each unit was then examined to find the names of the people who formed the management for that unit.

People were selected at the management level within the particular unit based on the role they play e.g. chairperson, because they were expected to be most likely to be involved with the strategic plan. This was to avoid many answers from people not concerned with the strategic plan which might obscure the issue of usability.

Permission was granted by the Ethics Committee and a total of 235 emails were sent out, the number sent to particular areas were:

1. Administration Units 39
2. Operations Units 52
3. Research & Academic Units 17
4. International Office 4
5. University Council 57
6. University Education Committees 40
7. University Internationalisation Committee 8
8. University Research Committees 18

A period of around four weeks was allowed before collecting and processing the responses. There were 34 responses to the questionnaire, which was quite reasonable, but the use of the strategic planning document that was the subject of this survey was a significant managerial issue. The use or non-use of the planning document could be seen as a reflection on the respondent, even though the anonymity of the respondent was guaranteed. This needs to be borne in mind, particularly when reviewing the comments.
4.2.3 Interview Executives and Examine Documentation

The research identified several organisations with documentation, of either their strategic planning or their performance measurement systems. One UK high technology manufacturing organisation (the SV Group) allowed a series of interviews with senior management about strategy issues and access to their management and strategy reports. The Commonwealth Scientific Industrial Research Organisation (CSIRO) allowed access to a report on a performance measurement system evaluation which had been performed and reported by their Organisational Performance Measurement (OPM) group. The third organisation had a widely publicised and circulated strategic planning document that was examined for content and structural conformity to the principles indicated by the literature and developed into the IARM.

4.2.3.1 “SV Group” – Interviews with Executives & SP Documentation

The group is a privately owned UK business established in 1974 and comprises three operating companies that manufacture high performance semi-conductors, does wafer fabrication and distributes power and audio semiconductors. The group focus is on high performance products with a significant concentration on quality, this quality approach came about because a major proportion of their market had previously been the UK Defence Industry.

The author was given permission by one of the owners to talk to each Head of Division, the Managing Director, and the Chairman of the Board as well as the Chief Accountant, Sales Director, Production management and members of the computing group, about the strategic planning processes of the group. There are six divisions each with a director who heads the division and also reports to the group board. Each person was interviewed separately and where possible no discussion was linked from one person to another.

The aim of the interviews was to determine what form of strategic planning took place and whether it was documented and distributed. The strategic planning questions would be from two perspectives; for the group as a whole and then separately within the divisional unit the individual was responsible for. The interviews would also investigate the interviewee’s perception of the planning process and how effective the resulting
plan was. Because these would be face-to-face interviews with very senior managers, the interviews could be used to explore any issues raised by the interviewee that might enable clarification beyond the basic answer responding to the question.

The author would take notes during the interviews which would be transcribed later. The transcript of each interview would be sent to the relevant person to solicit further comment and to correct any errors. All corrections and updates would be included in the final write up of the interviews. The write up of the interviews would be rewritten into a report with de-identified data. This report would outline issues that the interviewees thought were strategically relevant; the issues would be extracted from the transcripts without reference to the person who made the comment. This meant that some issues would have to be omitted as they might identify the interviewee. This summary report would be sent to all people who had been interviewed including the owner of the company, the chairperson and the managing director.

Any documents pertaining to any of the strategic planning issues, performance measurement, strategy meetings, would be obtained for later examination.

4.2.3.2 “Lou’s Place” – an OPM performance measurement plan

The OPM methodology was summarized in the section on proposed additions to planning methodologies and included a report of a specific implementation of the methodology; it was included in the section on planning methodologies because of its relevance as a clear description of a planning method.

The OPM methodology describes a very systematic procedure for developing a performance measurement system, and in the process describes the same key IEs that have been reviewed in the literature for strategic planning. The OPM methodology is therefore an interesting subject to examine in more detail, particularly in relation to the way it presents the key IEs and the possible relevance to this research. For this reason a critique of the documented results of the process (the performance measurement plan) is included in the research results section. However it should be remembered that OPM is most concerned with measuring the current operation rather than focussing on a future organisational strategic direction.
The implementation of the OPM methodology was performed by members of CSIRO in conjunction with members of the “Lou’s Place” organisation (a Women’s Shelter) to test the efficacy of the OPM methodology and the implementation report was written by Dransfield Associates (2000).

4.2.3.3 A Well Publicised Strategic Plan

This particular strategic plan was chosen for detailed analysis because it conformed to a number of significant requirements:

- it was the result of a very formal process (in fact there is an administrative team responsible for managing the process),
- a large cross section of staff via a committee structure is involved in the planning process,
- the plan is published for all to see and
- the availability of the plan is well publicized.

The process of locating the various parts of the planning documentation will be described, the main information elements will be identified and one major theme will be followed through in some detail. The point of this exercise is to examine the strategic plan from the point of view of any staff member who feels obliged to know the direction the University is taking and wishes to coordinate their activities to parallel the University’s direction.

Difficulties encountered when searching for information or attempting to interpret information that has been found were deemed to be part of the result and no attempt was made to clarify anything with the staff involved in strategic planning as this would have invalidated the perspective of the ordinary staff member.
5 Research Findings

The review of strategic planning literature led to resolving a set of information elements to use in the IA reference model (IARM) which aided the development of the SPRM which contains the PPRM and the IARM. These reference models were developed as a proposal to improve the documentation of the planning process, and were presented in chapter 3. The set of information elements determined (see section 2.6.3.2 and 2.6.3.4) are:

- Objectives are the statements of organisational direction and the goal is the target to be reached for that objective.
- CSFs are the limited number of things to do or have in place, critical for success of the objective and to achieve the goal.
- Action plans are operational things to be done to achieve the CSF or the goal of the objective.
- KPIs are used to measure of performance for the CSF or objective. Note: it is possible the operational unit would require performance indicators (PIs) for the action plans, these are not KPIs.

There were also concerns raised during the literature review that required clarification on a number of issues that were listed at the end of the literature review chapter. The aim was to investigate the current view of strategic planning issues within a range of organisations.

The mapping in Figure 26 below shows the research methods that relate to each research objective and also shows for each issue requiring clarification which questionnaire and the specific questions that apply. Other research investigations that also have a bearing on the preliminary research question are also shown.

These other research investigations which were listed in section 4.2 are as follows:

- Examine Executives and Documentation of Organisations
  - Interviews with Executives & SP Documentation for the SV Group
  - OPM Performance Measurement Plan for Lou’s Place
  - A Well-Publicised Strategic Plan
The commentaries for each bullet point item in this group of investigations will also consider if there is any significant bearing on the Issues needing clarification. The commentaries will also assist in the normative validation of the IARM (objective iv.) by highlighting where the IARM might overcome any deficiencies or limitations associated in any associated planning documentation. To further indicate the perceived advantages of the IARM, any plan with significant differences to the IARM will have a section of the plan redeveloped as an example planning model based on using the IARM for use as a comparison tool. This example will be developed in chapter 6.

The complete questionnaires for both the planning process and the usability surveys are shown in Appendices B and C, and as stated previously, the planning process questionnaire is in four parts. In the original questionnaire the questions were numbered within each part. The specific questions relevant to answering the issues requiring clarification as indicated as objective 1 of the research aims are indicated below. Question numbers for the purpose of this mapping were reassigned to be one continuous set for the whole questionnaire:

<table>
<thead>
<tr>
<th>Research Aim: To improve the documentation of an organisation strategic plan</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective i) Issues requiring clarification</strong></td>
<td></td>
</tr>
<tr>
<td><strong>On the strategic planning process</strong></td>
<td>1. Planning process questionnaire</td>
</tr>
<tr>
<td>a. What organisations believe in doing in relation to strategic planning? <em>(see also item c.)</em></td>
<td>Q9. What form does your business planning process take? E.g., Senior managers once a year</td>
</tr>
<tr>
<td>b. What information elements (Objectives, CSFs and KPIs) are considered in the planning process? <em>(To support the choice of IEs identified in the literature review to form the IARM)</em></td>
<td>1. Planning process questionnaire Q11. Do you define business objectives, critical success factors, key performance indicators? Indicate which. 2. Examination of OPM Plan</td>
</tr>
<tr>
<td>c. What degree of planning formally do organisations currently follow? <em>(With item a, to support the view that many organisations do strategic planning and document and distribute the plan)</em></td>
<td>1. Planning process questionnaire Q12. Are these documented [the items mentioned in Q11] Q14. If yes what is the distribution throughout the company e.g. To all managers Q16. Is there a documented business strategic plan? 2. Interviews with SV Group Executives 3. Examination of OPM Plan</td>
</tr>
<tr>
<td>d. Does strategic planning lead to perceived</td>
<td>1. Planning process questionnaire</td>
</tr>
<tr>
<td>Improvements in management? (Review effectiveness of the IEs for communication of strategic intentions)</td>
<td>Q15. How effective do you judge this to have been [Q12 &amp; 14] i.e. Do managers use the document for their planning? Rate 12345, with 1 low and 5 high 2. Interviews with SV Group Executives</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>e. Is there any relationship between OSP and the IS? (Review relation between OSP and the IS)</td>
<td>1. Planning process questionnaire Q17. Are the information system requirements derived from the business strategic plan?</td>
</tr>
<tr>
<td>f. What performance measurement processes do organisations participate in? (Review importance and use of performance measurement)</td>
<td>1. Planning process questionnaire Q20. Is there a single measure for the organisation? Give an example and go to Q4 [skip next question]. Q22. Is each functional unit measured separately? Give an example. Q24. Do any of these measures link to operational data. Q33. Can business performance measures be extracted from the MIS? Give an example. 2. Interviews with SV Group Executives 3. Examination of OPM Plan</td>
</tr>
<tr>
<td>On strategic plan usability: g. How usable does the staff of the organisation believe the SP is? (Review effectiveness of the plan for communication of strategic intentions)</td>
<td>1. Usability questionnaire Q8-Q14. Perceived Usefulness (E.g., Usage outcomes) – I believe my use of the plan will have the following results a. Increased understanding of the organisation b. Etc. Q16-18. Ease of use (e.g., User friendly) – Based on my knowledge of the plan a. Managing performance according to the plan is easy for me b. Etc Analysis of respondents comments 2. Interviews with SV Group Executives 3. Examination of OPM Plan 4. Examination of a well publicised strategic plan</td>
</tr>
<tr>
<td>Objective ii) To identify the IEs that would be most useful in an OSP</td>
<td>Literature review Preliminary research question b above</td>
</tr>
<tr>
<td>Objective iii) To develop a SPRM comprising a PRM and an IARM to show how information architecture would present the IE in a clearer and more succinct way than narrative alone.</td>
<td>Reference Model formulation derived from objective i) and ii) Model development from the above formulation (see Chapter 3)</td>
</tr>
<tr>
<td>Objective iv) Explain how the documentation is useful in the context of the organisation</td>
<td>Normative evaluation by document</td>
</tr>
</tbody>
</table>
resulting from objectives 1, 2 and 3 would support better communication of the OSP and better alignment of the OSP and the Strategic Information Systems Plan (SISP)

Note: This objective essentially restates the aim of the research.

<table>
<thead>
<tr>
<th>Examination and comparison with models from objective iii)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Examination of a well publicised Strategic Plan</td>
</tr>
<tr>
<td>2. Development of an IARM example from 1. above.</td>
</tr>
<tr>
<td>(see Chapter 6)</td>
</tr>
</tbody>
</table>

Figure 26. Map relating the data gathering method to the research objective

5.1.1 Data Analysis of the Planning Process Survey

There were 54 questionnaires completed from organisations as varied as service, retail and government departments, with sizes ranging from nineteen organisations with less than 10 employees, to five with over 500 employees. There were five retail, eight government organisations and 30 service organisations; and the remainder were thinly spread over various other industry types.

SPSS 13.0 for Windows student version was used to provide the analysis of data in the following sections.

5.1.1.1 Organisational characteristics and organisation capabilities

This section regarding the organisational characteristics was needed as a safeguard against organisation selection bias, in case there was any significance of organisation size etc. on other results. The organisational characteristics that were felt most likely to affect the planning process were the size of the organisation, the amount of involvement in information technology as evidenced by the number of IT staff employed and the organisation’s core capabilities.

To ascertain the perception of the organisation’s core capabilities, respondents were asked to “Rate your company’s ability in the following areas? 1 low, 5 high”:

<table>
<thead>
<tr>
<th>Area</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing what information you need to run the business</td>
<td>12345</td>
</tr>
<tr>
<td>Implementing new systems</td>
<td>12345</td>
</tr>
<tr>
<td>Documenting your requirements</td>
<td>12345</td>
</tr>
</tbody>
</table>
The 3 questions on company ability were checked to see if there was any difference between the ratings or whether all three questions were similar in their effect. A data reduction was performed to investigate how many factors were incorporated within the three questions; the results indicate a single factor (with 70.93% of variance) for all questions, with all questions being given a similar weighting. This result indicated it was not necessary to explore the different responses to the various ability questions, it was therefore sufficient to use the first rating only, i.e. knowing what information was required to run the business.

The response for the question on number of staff in the organisation was given as an integer number, this was coded as a category variable with < 10 coded as 1, 10-50 coded as 2, 50-150 coded as 3, 150-500 coded as 4 and >500 coded as 5. Similarly for the question for the number of dedicated IT staff, with < 5 coded as 1, 5-10 coded as 2 and > 10 coded as 3.

The analysis of the general characteristics of the organisation, e.g. number of staff etc., on the ability rating, indicated there was no significant effect of number of staff on the variable of ability rating.

However the associated correlation table showed there was evidence of some correlations between some variables. There is a correlation of 0.43 between number of employees and type of business, and a correlation of 0.62 between number of IT staff and the total number of employees. These correlations are not unexpected and neither of these results is felt to be of any significance to the investigation.

The conclusion of the analysis from this section was that there was some but no significant effect between the variables in the organisational characteristics and capabilities.

### 5.1.1.2 The planning process & relationship between depth and effectiveness

Question 12 was if a copy of the documentation could be handed over and was not considered to be useful to the analysis.

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question Text</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9.</td>
<td>What form does your</td>
<td>The responses were analysed and coded to</td>
</tr>
</tbody>
</table>
This section examines whether organisations consider strategic planning to be sufficiently important that they have a planning process and investigates the depth of the planning process. The depth of the planning process was assessed on the basis of the number of levels of information elements that were defined. The three levels in the planning process that were investigated in the questionnaire were:

- If the organisation defined business objectives only,
- If they also defined critical success factors
If they went to the detail of determining key performance indicators

Out of the 54 organisations surveyed, 46 organisations (85%) define some planning elements (IEs), whether objectives, CSFs and/or KPIs. It is important to note that 36 (67%) of organisations said they define all three levels of the information elements. It might be expected that the more levels (the greater the depth of planning) that were defined, then the higher the rating of effectiveness for planning would be.

The formality of that process is examined, i.e. whether organisations document and distribute the results and how they rate the effectiveness of the process in support of planning. Finally for this section a question was asked whether there is a relationship between the IS and the OSP is examined. It is perhaps to be expected that the planning elements need to be documented (38 organisations) and distributed (30 organisations distributed at least to managers) to be useful, but it is important for the fact to be confirmed and perhaps disappointing that it was not 100%. It is also noted that 33 organisations (61%) document the strategic plan.

To see if there was any relation between the definition of IEs - Q11 and the rating for effectiveness - Q15, the coded response to Q11 indicating the definition of objectives and KPIs, was altered to 2 (the same coding as objectives and CSFs), to indicate the definition of two levels. The response for the number of levels defined was then tested for correlation to the rating for effectiveness. It is important to note that the number of levels defined for information elements (depth of planning) is correlated to the perception of how effective the planning is in improving management of the organisation, with a correlation of 0.65 at the 0.01 level which indicates as an answer to the preliminary research question d) that strategic planning does lead to a perceived improvement in management.

It is interesting to note that although 38 organisations (70%) responded that they documented the IEs, only 33 responded that they documented the strategic plan. This is however still 61% of the total respondents and together with the degree of involvement in defining three levels of IEs (67%), indicates considerable interest in the strategic planning process and resolves Issues needing clarification a) b) and c).
The possibility of a relationship between the OSP and the information system was explored and half the organisations (27) responded that they derive the information system from the OSP which answers the Issues needing clarification e).

5.1.1.3  Relationship between plan and business performance measures

The relevant questions are as follows:

Q20. Is there a single measure for the organisation? Give an example and go to Q4.

Q22. Is each functional unit measured separately? Give an example.

Q24. Do any of these measures link to operational data? Give an example.

Q33. Can business performance measures be extracted from the MIS? Give an example.

The examples given in response to the above questions were not able to be easily coded and were omitted from this discussion. The responses to the questions were coded 1 for yes and 2 for no.

When discussing with organisations the need for strategic planning of the organisation and the requirement to develop business performance indicators, there is a general response that most of the organisations (92%) already have at least one performance measure (50 organisations).

Frequency counts show that 50 out of 54 organisations measure business performance in some way, 50% of those that have a measure with a single indicator, and 52% say they measure each functional unit separately. It may be relevant that 19 organisations answered yes to a single measure and no to measuring each functional unit and 22 answered yes to measuring functional units and no to a single measure. A total of 40 organisations responded that they defined key performance measures (KPIs) this is a very significant positive response to Issues needing clarification f) although disappointing that so many only have a single measure for the organisation.

In a well structured set of planning elements, the final link will have the KPIs defined in terms of operational data wherever possible. Fitzgerald (1993) in defining a model for
better measurement of planning success, cite Venkatraman and Grant (1986) who suggest that linking the higher order constructs with an operational indicator will improve the common understanding of the real purpose of the construct. Many organisations (34) declared that they had a linkage between the measures and their operational data; however it was not possible to determine how direct the link between the measures and operational data actually was. This would be examined more closely when the planning documents were analysed.

In response to the question concerning using a management information system (MIS), 28 organisations responded that they could use the MIS to monitor the performance measures, indicating a link between the IS and performance measurement.

5.1.1.4 Summary of findings for the planning process analysis

The planning process survey was intended to answer a number of preliminary questions (see Figure 26). The first of these, question a) was whether organisations actually do strategic planning. Of the 54 organisations that responded to the survey, 46 organisations (85%) said they did strategic planning by defining some aspects of business strategic planning information (defining at least one IE).

Question b) asked specifically about the IEs that might be used in strategic planning, and it is important to note that 36 organisations (67%) say they define the three planning IEs (objectives, CSFs or KPIs), so there is strong evidence to support the use of these three IEs in the information architecture reference model (IARM) developed in chapter 3.

The survey of the planning process also looked at the formality of the planning process (question c), formality is defined in terms of documenting and distributing the planning information. The results were that 33 organisations (61%) documented their strategic plan, and 38 organisations (70%) document the planning elements referred to in the previous paragraph, and 30 organisations (56%) distribute the documentation down to the manager level.

Question d) was concerned with whether strategic planning led to improvement in managing the organisation. There was a correlation of 0.65 at the .01 level between the
number of IEs defined (indicating the depth of planning) and the perception of improvement in management.

Question e) asked if there was a relationship between the OSP and SISP, and the survey found that 27 organisations (50%) said the information system was derived from the business strategic plan.

The importance of performance measurement in relation to Issues needing clarification f) is evidenced by 27 organisations (50%) that had performance measures for each functional unit and 34 (63%) had performance measures linked to operational data.

When discussing with businesses the need for organisational strategic planning (OSP) and strategic planning of information systems (SISP) and the requirement to develop business performance indicators, there is evidence that many organisations do both strategic planning and performance measurement.

Preliminary research question g) is examined in the next section on strategic plan usability.

This questionnaire was also meant to act as a filter for further research, in that those organisations that had responses that showed detailed planning processes with a documented plan that is distributed throughout the organisation were to be looked at more closely with a view to examining the format and content of their strategic plans. However, although several responded yes to providing more information on the questionnaire, on the follow up contact with these organisations, they declined to provide the information due to company confidentiality of the strategic planning information.

5.1.2 Data Analysis of Survey on Strategic Plan Usability

A selection of senior people in an organisation was asked about their perception of the usability of their organisation’s strategic planning documentation. The attributes that determined the choice of which organisation to survey were:

- the organisation needed to have a comprehensive planning process
• a documented strategic plan
• and a wide distribution of the document within the organisation.

A particular University strategic plan was selected as having all these attributes.

The survey was in five parts, the first part being the questions about the respondent’s awareness of the strategic plan and their use of the strategic planning documents. The second part concerned perceived usefulness, the third part about perceived ease of use and a fourth part covered questions concerning attributes of the document with the second section of this part containing questions phrased to give confirmation of the usefulness set of questions. The last two questions 25 and 27 concerned the position of the respondent in relation to the strategic planning process and the type of organisational position of the respondent respectively.

A total of 34 people responded to the survey out of 235 emails sent out. The number was disappointing, but given the sensitive nature of the organisational strategic planning process and the material being investigated, this was not surprising.

The first three questions give the following results. Out of 34 responses only one indicated they did not know the existence of the plan. Of the remaining 33, there were 3 who had not read the document and 22 had read the most recent version of the plan.

Question 4 asked which section of the plan they were familiar with but the answers were free format and did not allow any convenient coding.

Question 5, was about the frequency of review of the plan: and the 33 that knew the plan existed there were 8 (24%) who never review the plan, 12 (36%) rarely reviewed it, 12 (36%) review the plan regularly on a quarterly basis and only1 (3%) reviewed it monthly (see Table 3).

Questions 6 and 7 are dependent on question 5 in that they relate to interaction with the plan. The data relating to Q5, Q6, and Q7 for one respondent was removed as being obviously inconsistent.
Table 3. Frequency Counts for Questions 1, 2, 3, 5, 6 and 7

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>2002-05</th>
<th>2005-07</th>
<th>Never</th>
<th>Rarely</th>
<th>Quarterly</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. Know plan exists</td>
<td>33</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2. Have read the plan</td>
<td>26</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3. The plan version used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Q4. Review plan frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>8</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Q5. Monitor status of tasks on plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Q6. Use plan to set performance tasks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The questions concerning usefulness are as follows:

**Perceived usefulness (e.g. usage outcomes)**
I believe my use of the plan will have the following results

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8. Increase understanding of the organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q9. Increase my performance in the organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q10. Provide my organization with advantage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q11. Provide me with greater level of knowledge for my managerial actions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q12. Provide me with information to detect problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q13. Increase the quality of my decision making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Q14. Increase the speed of my decision making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Other comments

The frequency counts for these questions are as follows:

Table 4. Frequency counts for usefulness questions

<table>
<thead>
<tr>
<th>Question #</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>3</td>
<td>14</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
A degree of similarity can be seen in the counts for the answers. However questions 10, 12, 13 and 14 do have a slightly higher uncertain count than the other questions and question 8 does have a much higher agreement (agree + strongly agree) count followed by question 11 and then question 9. The degree of similarity will need to be checked out further and this is done in section 5.1.2.1.

The next group of questions to be analysed were about the perceived ease of use of the strategic planning document and these are shown below:

**Ease of use (e.g., user friendliness, clarity, effortless)**
Based on my knowledge of the plan and the indicators

<table>
<thead>
<tr>
<th>Q16. Managing performance to plan is easy for me</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q17. I find the planning documentation is easy to understand</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q18. It is easy to interpret planning requirements into actions</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

The frequency counts for these questions are as follows:

**Table 5. Frequency counts for ease of use questions**

<table>
<thead>
<tr>
<th>Q16. Managing performance is easy</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>7</td>
<td>13</td>
<td>12</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q17. Documentation easy to understand</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>11</td>
<td>17</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q18. It is easy to determine actions</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>13</td>
<td>1</td>
</tr>
</tbody>
</table>

The above frequency counts indicate 17 agree that the documentation is easy to understand and only 12 agree that it is able to help improve an individual’s performance. Three comments from respondents to question 26 ‘that planning could be improved by’ are as follows: from - respondent 8: Improved clarity as to its relevance to people. Respondent 22: Speeding up the process, better PIs and measures. Respondent 23: Simplifying the plan. Nobody has time to read it.
The last group of questions were designated attributes of the planning document but in fact questions 19, 20 and 21 were truly attributes and questions 22, 23 and 24 related more to usefulness (as can be seen from the questions listed below). Questions 22-24 therefore acted as a check against the group of questions designated as useful in part two of the questionnaire.

### Attributes of the planning document

<table>
<thead>
<tr>
<th>Attributes of the planning document</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19. It is accurate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q20. It is comprehensive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q21. It is timely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q22. It is useful/has value add for my management function</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q23. Helps me accomplish the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q24. Increases my quality of service</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

The frequency counts for these questions are as follows:

Table 6. Frequency counts for planning document attributes

<table>
<thead>
<tr>
<th>Q19. It is accurate</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>14</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Q20. It is comprehensive</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Q21. It is timely</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Q22. It has value add</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Q23. Helps do the job</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Q24. Increases my service</td>
<td>4</td>
<td>9</td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

The frequency counts for the respondents relationship to the planning process (Q25) was that 1 person was a responsible chairperson, 7 respondents assisted on a planning committee, 9 respondents provided information and 17 responded that they were not involved in the planning process, there were 4 responses of ‘other’ relationship which is unknown.

In case the respondent’s relationship to the planning process had led to a bias in favour of the use of the plan a correlation was performed on Q5 and Q25. The question
concerning the review frequency (Q5) was checked against the question concerning the respondent’s involvement in the planning process (Q25). A cross tab and correlation analysis with question 5 ‘review plan frequency’ against question 25 the respondent’s ‘involvement in the plan’ shows no significant relationship. This indicates that an increase in the level of involvement in the planning process did not lead to an increase in the use of the plan. It is interesting however that 9 of the 12 who review the plan quarterly have been involved either on a committee or providing information to the process.

Data that might be interesting is that 13 respondents were at the operational (department or unit) level, 9 at the tactical (faculty or committee) level, 4 at the executive level and 4 other (undetermined). A cross tab and correlation analysis with question 5 (frequency of review) against question 27 which asks about the position of the respondent as decision maker, shows no significant relationship.

Before further correlations were carried out against all the questions, it seemed reasonable to determine if there was sufficient difference between the questions within a question group to warrant the correlation analysis. For this purpose a data reduction process was carried out in on each question group and the results are shown in section 5.1.2.1.

5.1.2.1 Data reduction of question groups

The next step in the analysis was to review those parts of the questionnaire, which had been subdivided into a range of questions to see if the respondents did in fact differentiate any meaning between the separate questions within each part. This would also simplify the presentation of results by removing data that had little additional information, particularly if there was any tendency for respondents to respond in an automatic way by ticking the same response for each question in a group. For this purpose a data reduction exercise was carried out and because the number of cases was small (34), a Bartlett’s test of sphericity was performed to check whether the Kaiser-Meyer-Olkin (KMO) value was > .6. The correlations were also examined to ensure significance. If the results indicated a single factor represented the group of questions then the question that contributed most to the factor was selected to represent the group in later analysis.
The first factor analysis was for the frequency of use and the responses to the three questions 5, 6 and 7 concerning frequency of review and usage of the strategic plan. The data had a KMO value of .683 and a moderate correlation for each pair of responses $\geq .660$, with a single factor representing 84% of the total variance (see SPSS results in Figure 27), it was therefore considered that the first question pertaining to frequency of review was representative of all three questions in the frequency group.
The next factor analysis was for the responses to questions 8 to 14 which were shown above in Table 4 and are about the perceived usefulness of the planning document. The KMO value was very high at .848, and the correlations all above .460. Removing question 12 which had the lowest correlation, (the question was about provision of information to detect problems), the KMO value went up to .854 and the lowest correlation was now .518. The factor analysis for the whole question group gave one component representing 71% of the variance, so question 8, (that the plan would increase understanding of the organisation), was accepted as representative of this cluster of questions.
The factor analysis on the responses to the group of questions (16, 17 and 18) about ease of use had a KMO value of .717 and all correlations equal or above .576 with one component representing 74% of the variance so question 16 was taken to be representative of the group of questions.

The last factor analysis was for the responses to questions 19 to 21 of the group designated as attributes of the planning document having a KMO < 6 at .54, the three questions on quality attributes were therefore to be treated individually as separate questions.

The set of questions 22 to 24 were added to the usefulness group and the factor analysis rerun, this analysis showed a KMO value of .887 with all usefulness questions and had a single component representing > 71% of variance, indicating all these questions had responses that were all of equal contribution and question 8 ‘to increase the understanding of the organisation’ was taken to be representative of this group of questions.

In summary, question 5 which asks how often a person reviews the plan, can be taken as representative of the frequency group of questions, question 8 that asks about an increases in understanding of the organisation, as representative of all the usefulness questions, question 16 which asks if managing performance to plan is easy, as representative of the ease of use group of questions. As this section pertains to preliminary research question g it was thought that only question 19 ‘that the plan was considered accurate’ needed to be considered in the following analysis.

5.1.2.2 Relation between frequency of review and usability

A cross tab and correlation analysis was therefore conducted for question 5 against questions 8, 16, 19, 20 and 21. The ranges of possible responses for the questions are all ordered categories so the correlations were done for ordinal data. The analysis showed a significant relationship between the responses for question 5 against question 8, 16, 19 and 20.

Table 7. Showing crosstab and correlation of Q5 * Q8 frequency by usefulness
For the frequency of review variable against the usefulness variable the significance had a Kendall’s tau-b value of .425 at the .0 significance level see Table 7.

<table>
<thead>
<tr>
<th>Crosstab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
</tr>
<tr>
<td>1 strong disagree</td>
</tr>
<tr>
<td>Q5</td>
</tr>
<tr>
<td>2 rarely</td>
</tr>
<tr>
<td>3 quarter</td>
</tr>
<tr>
<td>4 monthly</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symmetric Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>Ordinal by Kendall's tau-b</td>
</tr>
<tr>
<td>Ordinal Spearman Correlation</td>
</tr>
<tr>
<td>Interval by Interval Pearson's R</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
</tbody>
</table>

| a. Not assuming the null hypothesis. |
| b. Using the asymptotic standard error assuming the null hypothesis. |
| c. Based on normal approximation. |

For the frequency against the ease of use variable, the significance had a Kendall’s tau-b value of .482 at the .0 significance level see Table 8.

<table>
<thead>
<tr>
<th>Crosstab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q16</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Q5</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symmetric Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>Ordinal by Kendall's tau-b</td>
</tr>
<tr>
<td>Ordinal Spearman Correlation</td>
</tr>
<tr>
<td>Interval by Interval Pearson's R</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
</tbody>
</table>

| a. Not assuming the null hypothesis. |
| b. Using the asymptotic standard error assuming the null hypothesis. |
| c. Based on normal approximation. |

For the frequency of review variable against the usefulness variable the significance had a Kendall’s tau-b value of .425 at the .0 significance level see Table 7.

<table>
<thead>
<tr>
<th>Table 8. Showing crosstab and correlation of Q5 * Q16 frequency by ease of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q16</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Q5</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symmetric Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>Ordinal by Kendall's tau-b</td>
</tr>
<tr>
<td>Ordinal Spearman Correlation</td>
</tr>
<tr>
<td>Interval by Interval Pearson's R</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
</tbody>
</table>

| a. Not assuming the null hypothesis. |
| b. Using the asymptotic standard error assuming the null hypothesis. |
| c. Based on normal approximation. |

For the frequency against the ease of use variable, the significance had a Kendall’s tau-b value of .482 at the .0 significance level see Table 8.

<table>
<thead>
<tr>
<th>Table 9. Showing crosstab and correlation of Q5 * Q19 frequency by accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Q5</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
For the frequency against the accuracy variable, the significance had a Kendall’s tau-b value of .574 at the .0 significance level see Table 9. For the other two attribute variables; the question Q20 ‘it is comprehensive’ had a tau-b value of .425 and question Q21 ‘it is timely’ had no significance at all.

The data indicates a relation between an increase in frequency of review and an increase in the perceived usefulness, ease of use, accuracy and comprehensiveness. This could mean that those respondents that review the plan more frequently have perceived the usability to be higher, than those that do not review or read the strategic plan. This means that either the more useful they find it the more often they read it or the more often they read it the more useful they find it. It is interesting to note that there is no correlation with people saying it is timely.

Just how meaningful this result is, in terms of whether the plan is overall considered to be usable, might be better gauged from the 21 respondents (62%) who do not review it regularly and the question of why this is. An examination of the comments included in the responses might provide more insight and this is dealt with in the next section.

5.1.2.3 Categorisation and analysis of respondent comments
The full set of respondent comments and the coding that was given can be seen in Appendix D. The Questions 15, 26 and 28 that allowed comments to be entered, were coded for their qualitative content as follows:

- C was for a comment about survey format
- N given for a negative comment about the plan or process
- P given for a positive comment about the plan or process
- S for a constructive suggestion to improve the plan or process

The N, P and S comments were further analysed to see if the nature of the difficulty could be determined further, the comments were divided into those about the bureaucracy (unnecessary complexity) of the process or the plan, and those requiring more user involvement.

Examples of the comments and the coding given (each bullet is one respondent) are as follows:

- **Q15 – Perceived usefulness** - “Not sure how or if it would help”.
- **Q26 – Planning could be improved by** - “improved clarity as to its relevance to people at” [response cut off by software] (coded as NS = LB, meaning negative overtones with a suggestion for less bureaucracy or complexity).
- **Q28 – General comment or feedback** – “The recent changes to the University Strategic, incorporating the core function plans is a significant improvement. Provides greater clarity of priorities and relationships across strategic areas.” (coded as P, meaning a positive comment)
- **Q26 – Planning could be improved by** – “Active involvement of staff and linking with other” [response cut off by software] (coded as S = UI, meaning suggestion for more user involvement).

For questions 15 and 26 there were four negative comments and nine suggestions; the nine suggestions divided into five concerning bureaucracy or complexity and four about more user involvement. The response to question 28 was more verbose; there were 7 comments about the survey form and in relation to the strategic plan added five additional negative comments and two positive comments. For this question the
negative comments were more in the form of criticisms rather than suggestions, two
comments concerned bureaucracy and three concerned user involvement.

Overall out of 34 respondents, there are nine comments with negative overtones and
only two positive comments; there were seven comments/suggestions concerning too
much complexity or bureaucracy and seven concerned with more user involvement.
There may of course be more than one suggestion/comment from any one respondent.

These comments should be considered in the context that the strategic plan was widely
advertised at a time when a quality audit was about to take place and staff were
recommended to read the document. It was freely available on the University web site
and 213 emails were sent to those staff most likely to be involved in planning. Of the 34
replies, 21 or 62% did not review the plan regularly.

Given the amount of focus that the organisation had placed on the strategic planning
process and that reviewing a strategic plan is a task that ought to be a regular part of a
manager’s planning role, the few respondents (13 or 38%), that review the plan
regularly, is significant.

Given that only 26 respondents had read the plan, the number and nature of the negative
comments and suggestions are very significant. The suggestions are very interesting in
that they follow other research in identifying two of the difficulties associated with
strategic planning, i.e. concern with the amount of bureaucracy or complexity of the
process and of the plan, and insufficient involvement of all users (stakeholders). These
points clearly relate to the preliminary research question g on strategic plan usability
and indicate a need for improvement.

5.1.3 Interviews with SV Group Executives

The group is a privately owned UK business established in 1974 and comprises three
operating companies that manufacture high performance semi-conductors. There are six
divisions each with a director heading the division and who reports to the Group board.
The author interviewed separately each Head of Division, the Managing Director, and
the Chairperson of the Board as well as the Chief Accountant, Sales Director,
Production management and members of the computing group about the strategic planning processes of the Group.

The focus of the interviews was originally to determine what form of strategic planning took place and whether it was documented and distributed. However, it was apparent when conducting the interviews that most directors were of the opinion that there was no standard process for strategic planning and that they were not working to a strategic plan. The interviews were consequently directed to discussing what their concerns and issues were at the strategic planning level. The strategic planning questions were from two perspectives; for the group as a whole and then separately within the unit for which the individual was responsible.

Two issues that came to the forefront of most of the discussions were that there was a strong culture of quality management throughout the organisation, and some confusion as to whether there was a strategic planning process or not. Two people mentioned there had been a recent important meeting of Directors to discuss strategic issues and there were regular senior meetings to examine performance against KPIs. So why was there a significant feeling of disquiet throughout the group about the lack of strategic planning process? On a number of occasions it was mentioned in interviews that the change of market from a small but highly focused defence market to a global market place was causing some dislocation within the Group and they were concerned that the change was not being dealt with in any coordinated manner.

During the interviews several concerns were expressed about the future of the Group and the Group’s ability to overcome its current difficulties and to progress toward a profitable future. The concerns were categorised and collated into a report. A caveat was included in the report that “any good ideas are the property of the individuals spoken to; any errors or omissions belong to the author”.

The Chairperson emailed a reply saying “I was pleased to see many of your observations accord with my own ... We will review your report in detail and then prioritise a program of work to address the main points”. This comment is only included to indicate that the interviews and the subsequent report did conform to views held within the company.
During the course of the interview with the Managing Director (MD), he gave access to a report of strategic issues that had been the result of a Directors meeting (with the primary owner present) some six months previously. The documentation was discussed briefly. When asked for the conclusions and the resulting action plan, he admitted that they had not gone that far. When asked if the results of the meeting were raised at the monthly meetings he said the documentation was too voluminous to be discussed on a regular basis but that he was working on implementing some of the ideas from the meeting.

Points from this report were extracted and categorised by the author to try and give a more structured format. Unfortunately this report contains too much company confidential product information to be included in full; however a sample is included below in section 5.1.3.1.1. The report was in fact a status report from each Division with most points just listed without any discussion of importance, relevance to overall objectives or even what follow up action should be taken. With the analysis of this documentation any issues that could be identified as strategic by this author were extracted and marked by a specific bullet point indicator.

The MD also gave access to minutes of a sales management meeting and a production management meeting to show the KPI system that they were using; these were again too confidential to include. Each KPI was defined and was reviewed on a regular basis to ensure it was still pertinent to current needs. A document showing the definition of the KPIs was obtained.

A list of documents received and reports generated were as follows:

The report was in fact a status report from each Division with most points just listed without any discussion of importance, relevance to overall objectives or even what follow up action should be taken.

Received
1. Copy of KPI definitions.
2. Reports from strategic issues meeting.

Generated
1. Transcripts from interviews.
2. Transcripts reformatted to highlight strategy concepts.
4. Report from strategic issues meeting [reformatted by author to highlight action items and outstanding issues].
5. Executive summary prepared by the author for the owners, Chairperson and MD, with synopsis from the report on strategic concepts [point 3 above] and report from strategic issues meeting [point 4 above].

The following has been drawn from the Executive summary with some modification for confidentiality, the points were selected that were particularly relevant to this thesis giving an overview of the status and concern regarding strategic planning within the organisation and to provide a summary of the interviews and document analysis pertinent to strategic planning within the SV Group.

Information for the executive summary was drawn from two sources, the first is a series of interviews with senior staff (a summary redrawn under headings of strategic issues is attached) and the second is based on notes taken at a strategy meeting (an extract of points is attached).

Two issues are a concern:

• Why did many staff think that there were no strategic planning meetings when there are a set of minutes for what appeared to be a strategy meeting?

• There is obviously a lot of very deep thinking within the organisation about product creation, design and development but what is being done about the organisational development of the engineering conglomerate that comprises the group to best manage the products?

The answer to the first question is that there was a meeting where a number of strategic issues and concerns were raised but the meeting had not been a strategic planning meeting, because there was no consensus resolution of how to deal strategically with any of the issues. For there to have been a strategic plan resulting from the meeting there would have needed to be a clearer picture of the risk assessment or return on investment for each issue, with a prioritization of the issues and a determination of the requisite action. If there had been, then a strategy of how to deal with the issue, the time frame for key milestones, and who will be
responsible for the action, could then be formed into a strategic plan and raised at regular progress meetings.

The second point is that each unit or division has a very competent engineer looking after a specific range of products, which may even include the sales for the product. This however has created a conglomerate comprising a loose coupling of divisions rather than a **holistic** company organisation. The result is very effective in selling a complex product to a knowledgeable customer, but desperately calls for a specific mechanism to overcome the lack of communication between units and a need for them to develop a set of organisational strategies. The lack of strategy development can be seen in a summary of strategic issues raised in the interviews and a somewhat similar list drawn from the product strategy meeting; issues that have been raised but few have been dealt with.

### 5.1.3.1 Extracts from summaries included with the executive report

The Summary of interviews was included below to give an insight into top manager’s view of strategic planning in one company. Thematic analysis was applied rather than content analysis as there was insufficient material in the summaries for content analysis. More raw data is not possible as this was a one off opportunity to discuss strategy issues with top management. The material used is a summary of all the relevant information gathered concerning strategy discussions and is an in-depth insight into one company. A review of theme counts given in section 5.1.3.2 with some commentary.

#### 5.1.3.1.1 Interviews of senior staff in the SV Group organized by strategy issue

An extract of strategy issues are shown below. This is not meant to be a comprehensive list of all the issues the group should address, but rather issues that have been extracted after a brief set of interactions with senior staff which point the way to a methodology that should be exercised by the senior staff to draw up their own top issues and how to deal with them.

**Production**

**Delivery Strategy**

The problems needs to be addressed at a strategic level, the primary issue is how to improve delivery times, then how to guarantee a delivery promise. Issues that follow on are: the way the constraints are used to schedule, the accuracy of buffers and lead times and a formula for giving one customer preference over another.
There is a need to give some global considerations about customers and how best to leverage product manufacturing between the various units of the Group wherever appropriate. There is a need for a strategic association with the entire Group, in particular a memorandum of understanding about the way to share product manufacturing to leverage each unit to best advantage.

**Quality Strategy**
The strategic issue is that the ISO 9000 procedures do not appear to include enabling corrective changes via a continuous improvement program.

**Engineering Strategy**
There should be a strategy for dealing with the various production issues as mentioned above; this should translate to a clearly expressed job description or a list of task commitments for the specialized engineering resources.

**Pricing**

**Costing Strategy**
There should be a review of the way costing is done to clearly identify the appropriate margin for each product.

**Customers**

**Relations Strategy**
The strategy should be for all units to share customer information via a central database and the possible use of off-the-shelf CRM (customer relationship management) software. This would help each salesperson know what other products the customer might be interested in and the history of discussions by other SV Group people with various contacts in the company. All this increases the customers feeling that the SV Group knows what they are doing and that each customer is important.

**R & D Strategy**
There should be a strategy to evaluate new concepts/products; to determine when in the product life cycle it is seen to be viable or more importantly at what stage it can be determined to be non-viable. The strategy for product development should be reconsidered with an evolutionary review of the ROI for each product set in place, to contain early threshold limits in the development cycle. This would enable
reviews to determine if the product is not as successful as it was thought. Without this approach the company may have more ideas than they can deal with.

**Marketing strategy**
There should be a person responsible for formulating a marketing strategy and providing a cohesive approach for the Group image and Group marketing.

**Information Systems**

**Faster turnaround strategy**
Investigate the capability of query and report writer software on parts of the database.

**Local Applications strategy**
A risk assessment of local development versus. off-the-shelf software is urgent and should be done in conjunction with an ROI.

**Database strategy**
A strategy should be put in place to gradually clean up the database and to investigate the move toward the use of standard off-the-shelf software products.

5.1.3.1.2 Extract from SV Group Strategy Meeting

In the meeting the author had with the Managing Director the notes from a strategy meeting held with senior staff were discussed. The notes appear to have been taken by one person and are dated Oct 03. Much of the notes are very product oriented and too condensed to ascertain what the primary issue was in every case. Moreover many of the points appear to require further clarification in respect of what should be done (this clarification should have been done at the meeting if it had been a strategic planning meeting), so these points have been extracted and a coded set of bullet points used to categorise the recommended course of investigation. This coded extract formed another report that was sent to the Group management and is as follows.

The notes from each division have a heading called (ROI) Return on Investment; however the ROI is often in terms of a single figure, which is not as useful as it could be.
For comparative analysis of investment opportunities the ROI would be more useful if shown as:

- the value of the investment,
- how long to achieve an outcome,
- when does the benefit start and
- what the annual benefit is.

Some of the points need a risk assessment; this could be done as follows:

- determine probability of occurrence,
- determine impact if it does occur,
- if probability and impact is low then discard and
- for the rest, determine a risk minimization strategy.

To create the extract from the strategic issues meeting, sections from the notes have been extracted and organised with a set of bullet points as follows:

- What are you going to do about this?
- Indicates a company strength
- Needs a full ROI as above
- Needs a Risk assessment
- Indicates an action item.

The list of overall strategy issues from the meeting using some points expressed in the summary as examples are:

**Marketing strategy**

The need for a marketing strategy has a lot of focus (*is this because the Sales Director took the notes?). *

The SV Group image appears to be:

- Once known – good service and long term secure source of supply
- Flexible and innovative package solutions
- Leading edge module technology and will design to meet customer needs
- Need to show SV Group is a reliable source compared to others.
- *Need to leverage all the parts of the technology group and show the strength in the whole.*

**Customer focus strategy**

- Meeting customer’s spec in a timely manner along with current demand
Customers changing their design requirements, Customers demanding faster turn round of design, a lot of detailed proposals needed and not funded by customers. Customers request meeting time where we cannot charge.

**Engineering resource strategy**

£ Production engineering & Management of projects

**Standards strategy**

⇒ Obtain 19500 approval, query AS9001.

**Quality strategy**

⇒ Poor yield (for many reasons but can be addressed)

**Purchasing strategy**

⇒ Lack of contract / negotiation in purchasing and lack of control in equipment purchases

**CONCLUSION BY THE AUTHOR**

During the interviews with the Division Heads there were a number of concerns raised about the Group’s performance with and concerns about potential difficulties ahead. The description was of a group of energetic units each striving to find their own answers for their Division. There is a desperate need to create a structure to coordinate the units to find collaborative solutions to the problems. Some of the issues raised are definite showstoppers in the sense they have the potential to cause serious damage to the Group and these need to be resolved quickly.

End of the included reports

5.1.3.2 _Conclusions from interview transcripts and internal reports_

In the strategic issues report from the interview transcripts there were 18 strategic issues raised which could be categorised as follows:

- Costing (three items),
- Information or Database (four items),
Global issues (four items),
Production (three items), and
Product strategy (one item).

Discussions with one senior board member ascertained that there was one director who was also responsible for computing in addition to his division responsibilities but no dedicated information manager and there was a director responsible for sales but no dedicated marketing manager.

In the full reformatted strategic issues meeting report there were only 13 items that could be marked as action items and a total of 65 that were marked (by this author) as requiring further explanation as to what should be done in response to the issue raised. This further reinforces the fact that it was an issues meeting rather than a strategic planning meeting.

During the interviews the author had with the senior executives there was only one product strategy issue raised, however, the report from the MD on the strategic issues meeting (author not present but saw the report later) listed mainly product strategy issues. This might have been because, at the strategic issues meeting, the primary owner was present who has a great deal of influence on product strategy. During the interviews mentioned previously the author gained the impression that the owner’s presence during this strategy meeting might have created a bias in the direction of discussing product issues. There is quite obviously a communications issue within the SV Group, with many senior managers wanting to discuss non-product issues but it would seem the only opportunity was with an outside contact.

The most striking conclusion is the confusion over what is meant by strategic planning within a group of highly competent technical people who had a great deal of focus on product development at the leading edge of technology. They had concerns over how the Group was progressing and an understanding of problem issues in production and marketing but were unaware how to progress the issue of strategic planning and the development of a strategic plan.

The Group did not have a strategic plan, only a strategic issues report that was too voluminous to use at regular management meetings (this comment was from the MD).
The non-product related strategic issues were not being addressed in any formal manner. The MD did have a formal set of KPIs that were reviewed regularly but these were primarily focussed on production issues and not necessarily related to the strategic initiatives.

These comments provide more insight on preliminary research question a) ‘what do organisations do in relation to strategic planning’ and question c) ‘planning formality’ as there was no formal strategic planning process or documented strategic plan. Even if the strategic issues report was taken as the strategic plan the fact that it was not distributed to, nor reviewed by, the executives, meant that it was not a usable document. There is here, a clear example of the communication gap referred to at the beginning of chapter 4. There was a strong emphasis on performance measurement that reflects on preliminary research question f) ‘what performance measurement is done’; however the emphasis for the KPIs was on production not on strategic initiatives. The lack of a formal strategic plan and the omission of actions required as a result of the strategic issues raised means that it is not possible to draw an example planning model from the limited information available.

5.1.4 “Lou’s Place” Discussion of an OPM Plan

Section 2.2.5 summarised an implementation report by Dransfield Associates (2000) which outlined the process of developing an organisational performance measurement (OPM) plan for an organisation known as “Lou’s Place” which is a charitable organisation providing a day crisis centre for women. The report on the OPM process was described in section 2.2.5 because it has a very systematic procedure, which includes many of the IEs identified in the literature review as important for describing a strategic plan. This section discusses the possible alignment of OPM with the IARM to highlight if there are any major differences. To briefly recap the main points covered in the process section, the major process steps are:

1) To identify the core issues of the organisation and
2) To conduct an environmental scan, in this case using the mnemonic PESTIE.
3) To use the OPM set of suggested stakeholder areas as a checklist to help identify all the involved stakeholders.
4) The management team determines the stakeholder’s value needs, that is, what the drivers are, that achieve stakeholder value.

5) The senior management project team identifies the CSFs and potential KPIs.

6) In conjunction with the stakeholders, validate the stakeholder value needs with an insistence on consensus between the two groups.

7) To refine the CSFs using all the collected knowledge.

8) The project team broadens its membership to develop strategies necessary to achieve each CSF and identify the key performance indicators essential to measuring the achievement of the CSF.

9) To work out operational definitions for each KPI.

10) Finally, to identify the process linkage with the CSFs and link processes to the stakeholder value needs.

Each of the above steps is examined for the benefits it provides to a strategic planning process and also if there are any possible disadvantages. Some of the discussion is not meant as criticism of the OPM procedure, but rather to highlight that it is a performance measurement process and not a strategic planning process.

Step one identifies the organisation’s core issues which could be related to the idea of determining the strategic focus areas.

Step two determines the environment the organisation is operating in. The environment analysis is generally regarded as good start to describing the organisation’s background. Perhaps using PESTIE for the environment scan would not be as useful for a more commercial organisation as would using Porter’s Five Forces system, this is of course a very subjective issue and one for each organisation to determine.

Step three, to identify all the essential stakeholders, and step four, to determine what is important to them in the form of the value trees, are key steps and appear to occupy the place of setting objectives. The OPM procedure is primarily about setting up a system of performance measurement, therefore the setting of strategic objectives does not have a significant focus. These two steps are crucial in that they extend the scope of involvement beyond the planning team. However these steps do not appear to allow any prioritisation of stakeholder value needs and do not cater for resolution of any potential
conflicts of interest both between stakeholders themselves and between stakeholders and the long term well being of the organisation.

Step five, to identify for the chosen objectives the related CSFs and the potential KPIs, is an essential component of the IARM.

In step six the idea of obtaining a consensus is important because the process would increase the amount of shared understanding in the organisation about what is being attempted in the development of the performance measurement system.

Step seven which refines the CSF in the light of accumulated knowledge is a very useful step and should be incorporated into any strategic planning process.

Step eight is to encourage the senior management project team to broaden its membership to work on the implementation strategies for each CSF and the associated KPIs. It is unfortunate that this is not a mandatory step, as it could be a significant step toward increasing the potential quality of the strategies and increasing the shared understanding in the organisation. It is worth noting the requirement that the KPI should be directly linked to the associated CSF that it is monitoring is a component of the IARM.

One limitation might be the senior management team are only ‘encouraged’ to broaden their membership, perhaps it would have been better to test the understanding of the CSFs further, by passing them down to the next level of management or to the relevant stakeholder, for their input in developing the necessary strategies and the essential KPIs for each CSF, and then getting together with the senior management project team to finalise the answers by consensus.

Step nine which is to work out operational definitions for each KPI, should include a validation step to confirm that by using the SMART mnemonic, the KPIs have been well defined. The SMART mnemonic is suggested elsewhere in the OPM literature and it is surprising that it is not incorporated into the procedure.

The final step is to identify the process that is linked to the CSF, and to the stakeholder value need. This again seems to identify the performance measurement aspect of the
OPM system rather than the requirement to determine initiatives (actions) to achieve strategic objectives that would be required of a strategic planning process.

A limitation of the whole process is that there is no requirement to identify the rationale of the stakeholder value needs or of the CSFs. The rationale would identify why each element has been chosen as critical and what effect the success of these elements will have on the performance of the organisation or what impact they might have on other elements.

The OPM methodology is very comprehensive in gathering the input from all stakeholders and building the critical success factors and key performance indicators and testing their validity with a formal procedure within the organisation concerned. It is therefore disappointing that even when following the OPM’s careful and rigorous procedure, to see the resulting plan lacks the well-defined structure to be able to call it an information architecture. Some aspects of this lack of definition and structure is discussed by examining a section of the Lou’s Place performance measurement report.

The information in Tables 10 and 11 is extracted from the Lou’s Place report on a performance measurement system (ref?). One CSF is shown in Table 10 as - Consolidate Lou’s Place by sustaining the existing model and further developing services and operating efficiencies consistent with the model. The first strategy listed for this CSF is - deliver and enhance core services and the KPIs for this strategy are headed - core services provided as scheduled and the associated detailed KPI’s are listed in Table 11:

<table>
<thead>
<tr>
<th>Critical success factor</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consolidate Lou’s Place by sustaining the existing model and further developing services and operating efficiencies consistent with the model.</td>
<td>1.1 Deliver and enhance core services (as defined by the MAB)</td>
</tr>
<tr>
<td></td>
<td>1.2 Create developmental pathways for clients</td>
</tr>
<tr>
<td></td>
<td>1.3 Maintain attractive home-like, inspirational environment</td>
</tr>
</tbody>
</table>

Table 11. Key performance indicators for strategy 1.1
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Key Performance Indicators</th>
</tr>
</thead>
</table>
| 1.1 Deliver and enhance core services (as defined by the MAB) | % core services provided as scheduled  
1.1.1(a) % professional services provided vs. scheduled  
1.1.1(b) % programme/activities provided vs. scheduled  
1.1.2 No. of total visits:  
- women  
- children  
- No. of known turnaways  
- No. of new people  
1.1.3 Outcomes index (to be developed)  
1.1.4 Client satisfaction index (TBD) |

These KPIs seem at first glance quite detailed and effective, however when analysed further a different perspective emerges of confusion in interpretation. To assess the quality of the KPIs above, a strength and weakness analysis was done (McKee 2003). The rationale for this was that the original measures may have been very meaningful to the participants but would they be meaningful or open to interpretation when examined by a third party. This is important because often the planners are not the people who implement the plan, as people change positions over time. The important question is whether the KPIs are meaningful to different people. The first two KPIs (see Table 7) for the first CSF are examined and for KPI 1.1.2, the dialogue between the researchers is shown in Figure 28. The dialogue shows the ideas of what the KPI means to different people. The dialogue indicates a level of confusion over the interpretation of the KPI when examined by people not part of the planning group.

The number in Figure 28 below relates to the KPI number in the table above, the prefix I stands for the investigator and prefix R stands for the response, the associated text indicates the comment made by the researchers about the original KPI to try and determine what it stood for.

| 1.1.1 | I) What do you think of this KPI?  
R) Doesn’t cater for the time differences according to nature of case, which could be very divergent. |
| 1.1.2 | I) What do you think of this KPI?  
R) It includes non relevant.  
  I) Do you mean visits - may need to further break this down into relevant visits and non |
relevant visits
R) Cannot see if there is a trend
I) There may not be a trend. Or it may highlight a trend. People may visit the centre more in winter because they have physiological needs like warm place to visit or food/blankets. This statistic could highlight that.

Figure 28. Dialogue of analysis of two KPIs

What we can see from the dialogue, is that regardless of the effort that was put into developing these KPIs, there is still a lot of ambiguity in the use of the KPI as a measure, the degree of change that represents success is not clearly stated, and more critically, there is no distinction between any activity and meaningful activity. These limitations make it extremely difficult for staff to know what performance level to aim for. It would also be impossible to incorporate an automatic threshold mechanism when capturing operational data that can show that the success measure is being achieved. To further examine these KPIs they can be tested against the SMART mnemonic.

From the literature review, a brief explanation of the SMART mnemonic follows:

- **Specific**, - indicate exactly what result is expected.
- **Measurable**, - in quantitative and/or clear qualitative terms.
- **Accountable**, - the measure should be owned by a specific group.
- **Results oriented**, - aligned to track an important benefit of a strategy.
- **Time-bound**, - to give a specific time frame for a result to be produced.

The application of the SMART characteristics of the KPIs in Table 7 show the following flaws in the definition:

<table>
<thead>
<tr>
<th>KPI</th>
<th>SMART?</th>
<th>Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>% core services provided as scheduled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.1(a) % professional services provided vs scheduled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific</td>
<td>No</td>
<td>Service not defined except that it is a core service</td>
</tr>
<tr>
<td>Measurable</td>
<td>No</td>
<td>The % value improvement not given</td>
</tr>
<tr>
<td>Accountable</td>
<td>No</td>
<td>Not specifically given</td>
</tr>
<tr>
<td>Results Oriented</td>
<td>No</td>
<td>No indication of useful result to be achieved</td>
</tr>
<tr>
<td>Time Bound</td>
<td>No</td>
<td>No time period set</td>
</tr>
<tr>
<td>1.1.1(b) % professional activities provided vs scheduled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The above Table 8 indicates that the KPIs that were examined had almost no conformance to the SMART criteria.

The “Lou’s Place” performance measurement report does show that the OPM method is very systematic and does include many of the aspects of the IARM, including the concept of direct linkage between the objective and its related CSFs and KPIs. It does however fall short on a couple of critical issues which may relate to the fact that it is not a strategic planning method. The most critical issues are that there was no overt prioritisation of stakeholder value needs that led to the CSFs and KPIs and there was no rationale given for the stakeholder value needs or CSFs to show why they were selected and what influence they would have on meeting the required organisational performance.

5.1.5 Analysis of a Well Publicised Strategic Plan

This analysis of the strategic planning documentation follows the survey of senior staff within the University about their perception of the usability of the planning documentation. This analysis is to determine the degree of conformance to the IARM and whether the plan has worthwhile features not supported in the IARM or whether there are serious omissions in the planning documentation that would have been recognised if an IARM was being used.
5.1.5.1 Locating the Plan Documentation

The strategic plan for the University is published on the university web site. A keyword search was done from the University Home page; this located the PDF document entitled ‘Strategic Plan 2005-2007’. Inspection of this document showed it to be the overarching University Plan but it did not have the details for the various University Units. A diagram on page 7 showed the whole plan to be made up of various sub-plans, (a full discussion on the overall plan and the sub-parts will follow later). The first requirement was to locate all the parts. As these are not accessible from the PDF document it was necessary to go back to the University Home page and explore the menus. The menu ‘About the University’ was followed and this lead to a sub-menu for ‘University Structure and Governance’ which contains an entry for ‘Strategic Planning’.

Following the link for ‘Strategic Planning’ leads to the following sub-menu:

1. The Strategic Plan – (the one found on the key word search)
2. The Planning Model
3. The Planning Review Process
4. Quality and Planning
5. Planning and the Community
6. Faculty Plans Template

As the detailed plans for the University units had still not been found, each of the sub-menu links were followed. The item ‘The Planning Model’ linked to the diagram of the whole plan that was mentioned above as part of the PDF document for the overarching University Plan. Underneath the diagram is a discussion on the diagram listing the component strategic plans, including one for ‘Learning and Teaching’. This was also a link, which was followed to the documented plan. There was also a list of supporting planning documents including one for ‘Faculty Directions & Resource Plan’ and as this was assumed to be related to the ‘Teaching and Learning’ plan, the link was followed to find this planning document as well.

The link for ‘The Planning Review Process’ retrieved a document containing a flowchart of the process which then had a link to a ‘Review Schedule’ which was also retrieved.
The documentation so far retrieved was felt to be sufficient material for the intended examination of the planning documentation and the information elements it contained. The documentation was analysed to determine the relationship, structure and usefulness of the IEs compared to those contained in the IARM described in chapter 3.

5.1.5.2 The Planning Review Process and Schedule

The strategic planning process has a 12 month timetable from November to October the following year. The strategic plan is a rolling plan with the strategic and core function plans reviewed every three years which is an excellent format for the review of strategic plans. The starting point of the process flowchart (see Figure 29) is the provision of templates and key data by the Strategic Planning Unit (SPU) in November. According to the schedule, the Faculties and Administrative Units then report against current objectives to the SPU which collates and reports under planning objectives. The collated reports are passed to the main committees; University Education Committee (UEC), University International Committee (UIC), University Research Committee (URC), and the Community Engagement Committee (CEC). The draft reports are finally transformed into the Annual Planning Progress report to the University Council for the budget meeting in October.

The planning process described above is a very comprehensive review process which is basically a timetable of review events with the responsible parties nominated. The analysis and planning presumably takes place within these various review meetings, however there is no detailed procedure given for the analysis and planning process. There is a planning conference each year attended by the executive and senior managers where there is a great deal of discussion on strategic objectives and strategies but there is no outcomes report to be found as part of the strategic plan documentation on the web site.
templates and key data provided.

faculties and units report against current objectives (part C – Faculty Plan and Part E – unit business plan templates)

strategic planning unit collates and analyses reports under planning objectives

collated reports to chairs & secretaries UEC, UIC, URC, CEC:
- for Annual report chapters
- for draft review reports for committees

chapters to secretariat for Annual report

UEC, UIC, CEC consider draft review reports at first meetings of year.

L&T, International, Community Engagement Plan Review reports to Academic Senate

senate comment referred to committees for annual action plans

SPU collates reports and comments

strategic planning working party meeting

First planning progress report to Council - reviews

research plan Review report to Senate

strategic planning working party meeting

Annual Planning Progress report to Council at budget meeting

the faculty and unit plans are rolling plans. the university strategic plan and the core function strategic plans are reviewed every three years by the strategic plan working party and core function committees and revised plans presented to academic senate and council.

figure 29. the university strategic planning process 12 month schedule

5.1.5.3 The University Strategic Plan 2005-2007
The first phase of the analysis for this research is to create a synopsis of the main features of the plan, to ascertain the main structure and linkages between elements of related information. It is necessary first of all to identify the essential background information and environmental issues used to form the basis of the planning process. However because the full documentation covers a great deal of material, the analysis will be limited to aspects of teaching and learning rather than to the whole plan. The aim is to get a sense of the whole structure rather than investigate the fine detail of each part.

The plan starts with the Vice Chancellor’s Introduction which sets out the key directions:

- More responsibility to raise and manage resources needed.
- More accountable to the stakeholders (students, staff, government, and community).
- Will have to demonstrate quality of programs in competitive environment.

The introduction also refers to the shift in society to:

- Expanded knowledge intensive economy.
- Volatile international environment
- Aging population.
- Further globalization.

The Vice Chancellor finishes by specifying three major commitments:

- Investment in nurturing minds and skills through learning and research.
- The development of capital & intellectual resources and diversification of funding base
- Redefinition of planning processes from institutional to unit level.

This is obviously a good start to the strategic planning process by giving a broad summary of the environmental position of the University.
Following the Vice Chancellor’s Introduction there is a statement of the “University Vision, Values & Attributes”. The statement says the vision can be achieved by promoting excellent and innovative teaching, excellent and innovative research, a rewarding student experience staff development and recognition etc.

The statement then goes on to say that the University is guided by shared principles and values and some of the shared principles and values that are listed for the University community are; excellence, creativity and mutual respect and collegiality. Some of the values listed for the University as self-governing institutions are; integrity and good faith in decision making, and consultative and timely policy development and implementation.

Then are listed the attributes required for all graduates and those additional attributes required for research graduates.

Following the statement of the “University Vision, Values & Attributes” is detailed the planning context, which represents the concept of the University strategic plan as the centre point with supporting plans for:

- Learning and Teaching.
- Research.
- Internationalisation.
- Community engagement.

These plans are in turn supported by more specific plans as follows:

- Faculty direction and resource plans – for each faculty.
- Facilitating plans – Student Equity, IT, HR and Capital.
- Professional units – the main administrative units.
- Campus management – the plans for other campuses.

There is a snapshot of the external environment for 2004, the main parameters of growth for 2001-2004 and a summary of achievements against goals. There is finally in this section a list of the perceived challenges & priorities for 2005-2007. The first three of these are:
Stabilise growth in student numbers and focus on quality of outcomes across all areas.

- Build on research strengths and opportunities.
- Ensure a quality education and student experience.

The documentation then gets to the more specific planning detail for the period 2005-2007.

The first section is the list of the “Goals & Objectives 2005-2007” which are as follows:

1. Excellence and innovation in teaching practice and programs
2. Excellence and innovation in research
3. A University experience that gives all students the opportunity and skills to develop, grow and learn.
4. A strong international focus in all activities
5. Skilled and informed staff that can respond creatively to challenges and opportunities.
6. Productive engagement with regional, national and international communities.
7. Enhanced capacity to take full and timely advantage of business opportunities that will support the Vision and Goals.

The first goal of “excellence and innovation in teaching practice and programs” has the following objectives listed:

i) Apply a quality process (plan, act, review, improve) in all teaching programs and practices, including course development and assessment.
ii) Continue to invest in staff development, mentoring and reward.
iii) Promote innovative services and technologies.
iv) Continue to evaluate teaching through student feedback, self and peer appraisal.
v) Capitalise on the interaction between teaching and research to inform curricula and practice.
There are then several paragraphs on projections from the plan, implementation of the plan and audit of performance; the audit paragraph refers to the KPIs listed in the document’s Appendix. The Appendix 1 of the plan shows for goal one, the list of KPIs and aligned plans as follows:

**Table 13. Appendix 1 of the University Strategic Plan Showing KPIs and Aligned Plans**

<table>
<thead>
<tr>
<th>Goals &amp; Objectives</th>
<th>Key Performance Indicators</th>
<th>Aligned Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excellence and innovation in teaching practice and programs</td>
<td>Graduate Employment Rates.</td>
<td>Learning and Teaching Strategic Plan.</td>
</tr>
<tr>
<td>1.1 Apply a quality process (plan, act, review, improve) in all teaching programs</td>
<td>CEQ survey results.</td>
<td>Research Strategic Plan.</td>
</tr>
<tr>
<td>and practices, including course development and assessment.</td>
<td>UAC HSC first preferences.</td>
<td>Faculty Plans</td>
</tr>
<tr>
<td>1.2 Continue to invest in staff development, mentoring and reward.</td>
<td>Proportion of International students enrolling at UOW.</td>
<td>Relevant Unit Business Plans</td>
</tr>
<tr>
<td>1.3 Promote innovative services and technologies.</td>
<td>Outstanding Teaching Award applicants and recipients.</td>
<td></td>
</tr>
<tr>
<td>1.4 Continue to evaluate teaching through student feedback, self and peer</td>
<td>Successful completion of teaching development programs.</td>
<td></td>
</tr>
<tr>
<td>appraisal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Capitalise on the interaction between teaching and research to inform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>curricula and practice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix 2 of the Plan covers the strategic projects which are grouped under six</td>
<td></td>
<td></td>
</tr>
<tr>
<td>areas of strategic priority as follows:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Strengthen university and regional development.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Build on research strengths.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increase income opportunities through funding diversification.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Selectively strengthen strategic partnerships that benefit the University.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensure effective key management processes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensure a quality education and UOW experience.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To follow the learning and teaching theme through the strategic plan documentation,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>it is necessary to look next at the Learning and Teaching Strategic Plan 2005-2007.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**5.1.5.4 Learning and Teaching Strategic Plan 2005-2007**
The introduction to the planning context for this particular plan indicates that the function of this plan is to guide the activities of the faculties and is central to goals one and three of the University Strategic Plan. It also refers to imparting the student attributes to graduates and has a specific aim to enhance teaching and learning and sets the following priorities:

- To offer a learning and teaching environment distinguished by the support and empowerment of students and staff.
- To give students an enthusiasm for knowledge & learning, equipped for employment.
- To offer high quality educational programs.

There is then a snapshot of the external environment with mention of the perceived demands for:

- Demonstration of quality processes and outcomes in learning and teaching in a deregulated student fee environment.
- Increased accountability in course delivery.
- Recognition of excellent performance in learning and teaching.
- Benchmarking against international standards.

The next section is a list of eight challenges envisaged for 2004-2007, these are briefly:

- A renewed emphasis on strategic planning in learning and teaching.
- An enhanced focus on quality processes, including communication and review.
- Enhanced accountability for course planning.
- Continuous improvements in teaching performance.
- Pressure on the number of student places.
- Pressure on the University Administration Index (UAI) cut-offs to rise.
- Ongoing internal policy changes aimed at enhancing quality, equity and consistency.
- A substantial increase in the international student component of the student body.
Following the description of the planning context, the objectives, strategies and performance indicators of the plan are then detailed against goals 1 and 3 of the University Strategic Plan 2005-2007. The objectives of the Learning and Teaching Strategic Plan 2005-2007 are:

1. Cultivate within our students the attributes of a graduate.
3. Offer quality teaching programs.

To give a sense of the structure of the planning documentation the specifics of the first objective will be detailed. To achieve objective one, the proposed strategies are:

1. Develop skills to support the attainment of the attributes by incorporating them in course structures
2. Internationalise the curriculum through tailored offerings and overseas placements.

The performance indicators listed as one combined list for both the above two strategies are:

1. UOW student participation in overseas study opportunities.
2. Completion of International Studies Minor or Language Subject/Minor.
3. Course Experience Questionnaire (Generic Skills) outcomes.
4. Subject descriptions with learning outcome attributes.
5. Research skills identified in undergraduate (UG) subject outlines.
6. Information Literacy Participation.

The final piece of information is in Appendix 1 of the Learning and Teaching Strategic Plan which presents examples of activities and resources supporting learning and teaching. The example given for objective one - strategy one “to develop skills to support the attainment of attributes”, has the following resources listed, but unfortunately no further explanation:

- Tertiary literacy’s program.
- Information literacy’s introductory program.
- Skill development workshops.
- Student portfolio project.

The next section covers implementing the plan and details the University committee structure and recognizes that the success of the plan depends on it being communicated across the University community. Performance is to be monitored via action plans that will be developed annually, and the use of the performance indicators including those listed in the University Strategic Plan. There is specific reference to the fact that specific performance indicators will need to be identified in Faculty and other plans. The plan operates under the annual review cycle.

Therefore in order to complete the search for all the IEs used in the strategic planning it is necessary to find the Faculty strategic plans and determine how they link to the Learning and Teaching Strategic Plan and the University Strategic Plan.

5.1.5.5 Faculty Direction and Resource Plan

Located with the above Learning and Teaching Strategic Plan and the University Strategic Plan, is a guidelines document for development of faculty plans, but faculty strategic plans are not located here nor is there a link to them. The guidelines document is obviously a very useful document for each faculty in preparing their strategic plan. However a member of staff believing they were examining all the University Strategic Plans would not locate the faculty plan here.

A search of one Faculty web site under the heading ‘Staff Intranet’ found what appears to be the Faculty Strategic Plan titled the ‘Faculty Direction and Resources Plan for 2006’. There was also a description of the Faculty Mission and the Faculty Objectives & Goals under the Faculty description heading. The goals listed under the mission statement for teaching in the Faculty were:

- To review continually the quality of teaching at undergraduate and postgraduate levels in order to develop the Faculty's strengths in both integrated and
specialised courses, to promote internationalisation, to enhance skills of critical evaluation and the application of technology to commerce.

- To enhance the Faculty's reputation for integrating its various disciplines, through the undergraduate and postgraduate offerings.
- To monitor & sustain the Faculty's reputation for its specialist disciplines.

The Faculty Direction and Resources Plan for 2006 had the following parts:

1. Faculty Planning Timetable.
2. Public Summary: Vision and Direction.
4. Faculty Planning for Core Business activities – Progress against Objectives.
5. Faculty Planning for Core Business activities – Forward Planning

The aim of this analysis is to follow any linkage of strategic planning information elements (IEs) between the University Strategic Plan the Learning and Teaching Strategic Plan and the Faculty Strategic Plan, therefore only the specific ‘Forward Planning’ section in part 5 will be examined in more detail. The aim is to find the structure of IEs that make up the whole strategic plan starting from the environmental background outlined in the University Strategic Plan and the main objectives, through the Learning and Teaching Strategic Plan to the Faculty Forward Planning for the detail how the main objectives from the University Strategic Plan are to be achieved. Therefore the section on ‘Faculty Planning for Core Business Activities – Forward Planning’ is the section of most interest to this research.

To identify the IEs it is only necessary to look at the column headings of the tables used, however a sample of the information presented in each column is used to check the interpretation of the column heading and to obtain a realistic flavour of the nature of the information being presented.

The introductory paragraph for this plan links the following sections to both the Learning and Teaching and the Internationalisation Plans. The first section is headed Student Learning (content and academic support) and the three entries are summarised
and listed as indicative of the information structure, to focus on identifying linkages related to the IARM, the square brackets are inserted by the author.

Table 14. The Format of the Faculty Direction Plan – Forward Planning

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Strategies</th>
<th>How do you intend to measure/review progress</th>
<th>Identify constraints/roadblocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate academic performance of undergraduate students.</td>
<td>Database information provided by SPU.</td>
<td>Adjust entry requirements resulting in improved performance.</td>
<td></td>
</tr>
<tr>
<td>Increase entry and academic support for aboriginal students.</td>
<td>Discussions with staff. Liaison with community. Marketing of programs. Mentoring students.</td>
<td>Increase in enrolments and academic performance.</td>
<td>Faculty is not a traditional area for aboriginal students.</td>
</tr>
<tr>
<td>Internationalisation</td>
<td>Faculty to send 4 groups to overseas Universities.</td>
<td>Knowledge and experience of students expanded</td>
<td>Timing will be a critical issue</td>
</tr>
</tbody>
</table>

The column headed ‘objectives’ uses the same term as the IARM but has no target or rationale included. The second column is headed ‘strategies’ and indicates that it is about how to achieve the objective; these are indicative actions and not specific about what exactly is to be done. The third column is concerned with ‘measuring progress’ and could be termed the KPI, but does not include the rate of improvement that is expected. The last column headed ‘constraints’ is loosely related to a CSF recommended in the IARM, but is only partial CSF in that it reports what might be a problem, but not what must be done to succeed.

The next section of the ‘Faculty Planning for Core Business Activities – Forward Planning’ is Program Development and Delivery (I.e. the framework) Once again, only the first two entries will be listed to see if this information adds any clarification and new IEs to the previous section.

Table 15. The Format of the Faculty Direction Plan – Program Development and Delivery

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Strategies</th>
<th>How do you intend to measure/review progress</th>
<th>Identify constraints/“roadblocks”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue review of all postgraduate course work</td>
<td>Associate Dean(education) to further analyse</td>
<td>Final report with curriculum changes to FEC [faculty education]</td>
<td>Possible resistance to changes.</td>
</tr>
</tbody>
</table>
However an analysis of this table shows that the information structure in this table is very similar to the information structure in the previous table and adds no new IEs or relationship information. The objectives are consistent with the IARM, the measures are like KPIs but poorly defined and the constraints are not as effective as CSFs would be.

The ‘Program Delivery’ section above is followed by two other sections: the first is a section headed ‘Staff’ which has the objective of replacing staff through normal recruitment channels and the second section is on “Other Objectives for Learning and Teaching” with no objectives listed at all.

This Faculty Plan has the IEs of objectives and strategies (which could be interpreted as action plans) with the requirement to measure the progress (poorly defined KPIs), and a need to identify potential problems in the form of roadblocks (partial CSFs), but the information is fairly simplistic and not easily useful to a third party member of staff to know how they are to implement the objectives as required.

Chapter 6 evaluates the degree of correspondence between the IEs in the University Strategic Plan, the Learning and Teaching Strategic Plan and the Faculty Plan, determining the relationship to the information elements in the IARM and attempts to create a University planning model from these IEs following the principles of the IARM.

5.1.5.6 Strengths and Weaknesses of the University Strategic Plan Documents

The initial impression of the planning documentation is that it is well-thought-out and well-structured and organized; however it does take some time to chase through all the links for the planning documentation on the web site and a stakeholder or member of staff looking for information related to their needs may be uncertain whether all the relevant and essential parts of the strategic planning information have been found.
Given the dynamic nature of the economic and educational market, it is very useful that it is an annual rolling review for a three yearly strategic plan. However the main planning documents obtained from the web site appear to be the three year plans, but it is unclear where the annual progress update is shown.

The main themes looked for in this analysis are as follows:

- The scope and the nature of involvement of the stakeholders.
- The clarity of the documented presentation of the objectives and how the objectives are to be achieved.
- How clearly identified, are the drill down linkages from objectives to the corresponding CSFs and operational actions.
- How good is the definition of target information that needs to be shown to nominate how success is to be identified.
- The quality of the KPIs used to track whether success is being achieved.

The University Strategic Planning process flowchart indicated that there is a great deal of involvement of the University Committees, Faculties and other Organisational Units; however it is not clear how the input from the student or employer stakeholders is obtained. The process also indicates plenty of opportunity for review and redrafting within the committee structure; however it is not clear how the staff stakeholders outside the committees are invited to contribute. It is known that it can be difficult to make committees accountable and difficult to implement a mechanism that ensures the committees adequately gather input and feedback from the population they represent.

The documentation does contain a significant description of the environment that the University is operating within and the challenges to be met but there does not appear to be a methodical analysis of the whole of the external environment. Porter’s Five Forces Model, for instance, would consider suppliers to the University, that would include the high schools and the Colleges that are preparing students to enter University. Another consideration would be to look at customers, to determine what students require and what organisations employing graduates require. It is possible that all aspects of the environment, including Porter’s Five Forces Model are being considered within the overall intelligence gathering of the Committees and Units of the University. However these aspects could be more explicit in the plan, to show all stakeholders what aspects
have been considered by the planning committee. By dealing with these aspects more explicitly within the scope of the plan they can be directly linked to goals and objectives dealing with the issues, and make it easier for stakeholders to understand the circumstances of what is to be achieved and why the objectives are necessary.

There is some confusion of objectives when the objectives of the different planning levels are compared between University Strategic Plan, the Learning and Teaching Strategic Plan and a faculty document for ‘Faculty Planning for Core Business activities – Forward Planning’.

With regard to the clarity of direct linkages, the ‘University Strategic Plan 2005-2007’ does identify the goals that set the strategic direction and details the objectives to achieve the goals and there is a list of KPIs. However neither the ‘University Strategic Plan’ nor the ‘Learning and Teaching Strategic Plan’ show KPIs directly linked to specific objectives; instead KPIs are listed against the overall goal. There are no targets identified to indicate how success will be identified and many of the KPIs have no easily quantified measurement associated. The KPIs are mainly of the ‘blue skies’ variety which although laudable, it is unclear what operational actions will lead to achieving them and harder to determine what measurements will show they are being achieved. If there is to be a purely qualitative KPI then it needs to be accompanied by a description of how success will be identified. There are KPIs and partial CSFs at the Faculty level; however, given that the objectives at the Faculty level do not exactly relate to the University level objectives, the KPIs and CSFs at the faculty level are not useful in measuring success at the University level.

In order for the documentation to be used as a communication tool where everyone can see what actions are needed to achieve the organisational goals, it should contain fewer omissions and ambiguities in describing objectives. The plan should have CSFs for each objective, which would assist understanding and focus operational activity. The CSF is important because the associated analysis would determine if there are any encumbrances and in particular, the things that must be done in order for the objective to be achieved. If a CSF has been identified, then the plan could have KPIs for each CSF that would show progress on achieving the CSF and its related objective.
The document could be better structured with the information elements hierarchically linked, where appropriate, to show the essential associations. The whole document and its constituent parts should have simpler navigation. The navigation should enable an individual to easily find any part relevant to them and should enable them to link through to any necessary actions required by them.

5.1.6 Summary of Issues from Examination of Documents

The SV Group is a medium-size high-technology organisation operating in line with ISO 9000 quality standards. The strategic documentation was a report on strategic issues and did not have any planning information of objectives or actions to be performed. The document was reported as being too verbose to be used at meetings and many executives did not believe that there was any strategic planning done within the Group.

The report on performance measurement at ‘Lou’s Place’ followed a very comprehensive procedure and contained many of the same components as the IARM, however the objectives had no rationale or associated targets and there was no prioritisation to show which were the most important objectives in order to achieve improved performance of the organisation. The analysis procedure did call for KPIs to be developed with SMART criteria but this was not evident when examining the specific KPIs.

The University strategic planning documentation had a well-defined process for development and was well publicised for staff to use. The documentation had objectives set at the University level, the Learning and Teaching Plan level and the Faculty level, however the wording of the objectives at each level was different and the objectives were not linked in a straightforward manner. There were no targets or rationales given for the objectives and no CSFs for the objectives at the University, and the Learning and Teaching Plan level. There were partial CSFs and KPIs at the Faculty level but they were not developed with the SMART criteria.

The next section will attempt to structure the information from the University Strategic Plan and the Learning and Teaching Strategic Plan into a diagram using the format suggested in the IARM.
6 Using the IA Reference model

6.1 The IARM and University Strategic Plan Documentation

The example of the published documentation for University strategic planning that was summarised in the research section 5.1.5.3 can be used here to demonstrate the use of the IARM to highlight limitations in the University strategic plans and show that by following the IARM the planners would have been guided to include essential additional information.

The academic planning levels for the University organisation could be said to be the University Senate and University Executive meetings at the highest level, then the Faculty level and then the Schools that make up the Faculty. There is also a parallel planning structure with the various committees throughout the University that were identified in the University planning review process in section 4.3.5.2. At the University level there are a number of major activity themes e.g. Administration, Research etc., however, for the purposes of this research, only the Teaching and Learning theme has been analysed in detail.

The University strategic planning documentation examined was:

   L1. University Strategic Plan 2005-2007. The level one of the planning documentation
   L3. Faculty Direction and Resource Plan for 2006. Level three of the documentation

The three plans examined will be known collectively in the succeeding discussion as the University strategic planning documentation (USPD).

There is insufficient information available in the published University strategic planning documentation (USPD) to be able to compare the planning process used against the process reference model. So comparison will be restricted to examining the information
elements and structure detailed in the published strategic plan. To test the usefulness of the IARM for strategic information architecture, it is desired to transfer the information elements from the University strategic plans to create a University planning model. This model will then be examined to test the claim that the IARM can increase the quality and usability of the strategic planning documentation.

The detail of the IEs (planning elements) used in the IARM listed in section 3.2 are as follows:

- Developing the strategic implementation plan documentation.
  The following procedure is based on using the IARM to guide the development of the strategic planning model (SPM), and requires determining for each focus area, the IEs identified in section 2.6.3.4 as follows:
  
  - The objectives required to implement the agreed strategic initiatives and the target (goal) to be achieved for each objective.
  - For each objective determine the CSFs and the target values.
  - For each CSF determine the KPIs that will demonstrate progress.
  - For each information element (objective, CSF – describe the rationale - why the information element is required and what it is to achieve)
  - Where there is more than one CSF contributing to an objective then the planner should define the expected degree of contribution of each CSF to the objective.
  - Action plans are operational things to be done to achieve the CSF or the goal of the objective.
  - For each KPI the data sources should be nominated - whether internal operational data or external survey data and the formula for calculating the KPI, and the KPI should be defined according to the SMART criteria.
  - Similarly if there is more than one KPI that is associated with a CSF then the degree of association should be indicated.
The main information or planning elements are focus area, objective and target value, action, CSF and KPI that together, with the direct link, the rationale and degree of relation, make up the IARM.

The USPD contains a number of terminology elements, and the USPD uses different terminology to the IARM. In order to standardise the terminology used, this analysis will assume the focus areas for the planning model are those points set out by the Vice Chancellor in the introduction to the level one document entitled UOW Strategic Plan 2005-2007. The VC in his introduction notes that there are three responsibilities to be accepted in exchange for an increase in base funding; these include the University’s need to take on more responsibility for raising and managing resources needed for core activities. The VC also refers to three items listed as major commitments to strengthen the University’s capacity to manage change in higher education; the six focus areas assumed from the VC’s introduction to the strategic plan are:

1. Raising and managing additional resources needed to sustain and develop core activities.
2. Being more accountable to the ‘stakeholders’ (students, staff, governments, community).
3. To demonstrate the quality of programs in a highly competitive environment.
4. Investment in nurturing minds and skills through learning and teaching.
5. Strategic development of capital and intellectual resources which includes the need to diversify the funding base.
6. Redefinition of the planning processes from institution to unit level.

It should now be possible to map the goals and the objectives shown in the section marked “The Plan” in the University Strategic Plan 2005-2007 into a strategic planning model. However the goals from this document do not follow the definition of a goal used by Martin (1990) who suggested that a goal was the target value of an objective. Instead the wording from the University Strategic Plan 2005-2007 (USP) is using ‘goal’ where the IARM uses ‘objective’ and is using ‘objective’ where the IARM might use ‘action plan’.

To examine the planning terms used in the USPD and how they compare with the terms used in the IARM, the following chart has been drawn up to show the assumptions
made. Both terms will be used in the development of the planning model and the term used in the IARM will be shown in square brackets.

Table 16. Comparison of planning terms between University Strategic Plan and the IARM

<table>
<thead>
<tr>
<th>The IE from the IARM</th>
<th>Assumed equivalent from USP</th>
<th>Reason for equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Area</td>
<td>VC’s definition of responsibilities and commitments.</td>
<td>They are the concerns the VC has drawn specific attention to in his introduction to the University Strategic Plan 2005-2007</td>
</tr>
<tr>
<td>Objective &amp; target value</td>
<td>Goal</td>
<td>Highest level of information element in “The Plan” section of L1.</td>
</tr>
<tr>
<td>CSF</td>
<td>Not identified anywhere in the USP.</td>
<td></td>
</tr>
<tr>
<td>Action plan</td>
<td>Objective</td>
<td>Written as a strategy on how to achieve goal</td>
</tr>
<tr>
<td>KPI</td>
<td>KPI</td>
<td>KPI</td>
</tr>
</tbody>
</table>

The goals listed in the level 1 University Strategic Plan 2005-2007 (USP) are as follows:

1. Excellence and innovation in teaching practice and programs
2. Excellence and innovation in research
3. A University experience that gives all students the opportunity and skills to develop, grow and learn.
4. A strong International focus in all activities
5. Skilled and informed staff that can respond creatively to challenges and opportunities.
6. Productive engagement with regional, national and international communities.
7. Enhanced capacity to take full and timely advantage of business opportunities that will support the Vision and Goals.

There is no obvious direct equivalence between the focus areas taken from the VC’s introduction and the goals; some of the goals and focus areas can be interpreted as being similar or overlapping and others as being totally different. The author, in developing the first level of abstraction for the planning model (which should follow the main architecture of the IARM as per Figure 30 below); has made a best guess for how some
goals relate to the focus areas. It is useful to revisit the diagram elements of the IARM at this point and the following diagrams are reproduced:

Note the suggestion that the focus areas for strategic activity could perhaps be indicated in order of importance relevant to the expected degree of benefit for that focus area. For each focus area the rationale of why it is important to the organisation should be stated and that might include the level of benefit expected.

The first symbol shows the information elements which include the target value where appropriate and the rationale.

<table>
<thead>
<tr>
<th>Description of Information Element</th>
<th>Target Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale for this Information Element</td>
<td>% of contribution or association</td>
</tr>
</tbody>
</table>

The next symbol shows how the direct linkages and the degree of contribution or association would be represented.

If there is only one sub-item linked to an information element then the degree of association is obviously assumed to be 100%.

The first level of abstraction for the IARM is meant to list all relevant focus areas for the ensuing strategic planning; the associated objectives and CSFs may be filled in at later stages as the planning develops.
Figure 30. First level of the IARM for focus areas and objectives

The planning model of the above USP focus areas and goals (with some interpretive license by the author – the suggested equivalent IARM term is shown in square brackets), is as follows:
Only focus area 1 appeared to have a rationale included as part of the VC’s introduction. The following four goals are not covered within the University Focus areas given in the Vice Chancellors introduction, there is certainly no mention of ‘research’, references to ‘staff’ or ‘communities’ and in regards to a strong international focus there is only a passing reference to “volatile international environment” and “visible international prominence” in the VCs introduction:

G2. Excellence and innovation in research
G4. A strong International focus in all activities

G5. Skilled and informed staff that can respond creatively to challenges and opportunities.

G6. Productive engagement with regional, national and international communities.

It could be that these four goals are meant to be additional focus areas but there is no overt link between the ideas raised in the VC’s introduction and the goals raised in “The Plan” so this interpretation has no basis in the document. Another alternative is for the VC’s introduction to be ignored and for all the “goals” to be treated as focus areas. This would make the VC’s introduction of no value – why is it there? The point is, that in trying to draw the direct link between focus area and goal, as suggested in the IARM, it becomes obvious that clarification is required.

If The University had used the IARM they would have realised that most of the VC’s responsibilities and commitments [IARM: focus areas] were not associated with any of the University’s goals [IARM: objectives] and that many of the University’s goals [IARM: objectives] were not based on any of the VC’s responsibilities and commitments [IARM: focus areas]. In addition it would have been obvious that no rationale or prioritisation was given, for both the VC’s responsibilities and commitments [IARM: focus areas], or the University’s goals [IARM: objectives]. If the University had used the IARM these weaknesses would have been immediately identified and further clarification or negotiation could have been sought.

The IARM does not necessarily show target and rationales for objectives in the level one model, as this is meant to give a summary overview of the main aims and directions of the strategic plan. However this detail is definitely required at the second level of the IARM that can be seen in Figure 32.

It is very important that focus areas of ‘accountability’ (F2) ‘planning’ (F6) and possibly capital development (F5), have not been associated with a goal and are therefore not addressed by the planning document at all and do not have any objectives listed for them. This point alone would cause some confusion for the reader.
However the goal of ‘teaching excellence’ (G1) can be associated with the focus area, ‘program quality’ (F3) and has the following five objectives [IARM: Action plans] listed:

O1. Apply a quality process (plan, act, review, improve) in all teaching programs and practices, including course development and assessment.
O2. Continue to invest in staff development, mentoring and reward.
O 3. Promote innovative services and technologies.
O 4. Continue to evaluate teaching through student feedback, self and peer appraisal.
O 5. Capitalise on the interaction between teaching and research to inform curricula and practice.

The next stage in the development of the University strategic planning model (SPM) is to add the objectives [action plan – author’s interpretation of the way the objective is worded] but as it is not the intention of reproducing the whole planning document. Only the focus area ‘quality program’ (F3) with goal, ‘teaching excellence’ (G1) and the focus area ‘skills investment’ (F4) with goal ‘student growth’ (G3) are taken to the next level to show the related objectives [IARM: Action Plan] associated with the goal [IARM: Objective]. The goals of ‘teaching excellence’ (G1) and ‘student growth’ (G3) have been chosen because these two goals are the only two that are referred to by the level two document, the Learning & Teaching Strategic Plan 2005-2007 (L & T plan).

The next level down in the reference model hierarchy describes in detail the CSFs required to achieve each objective; this is shown in Figure 32 reproduced here.

---

**Figure 32. Second Level Abstraction Showing Objective to CSF Relationship**
In this level of the planning model the detail of the relationships between IEs are shown. The actual planning model would not normally repeat the focus area at this second level however, because of an element of confusion to be discussed later over interpretation of the relation between focus area, goal [IARM: Objective] and objective [IARM: Action Plan], the focus area is repeated in Figure 33 below.

---

**Figure 33. Information elements from University strategic plan 2005-2007 shown via IARM level 2**

- **F 3** Demonstrate quality of programs in a highly competitive environment.
  - **G1 [Objective]** Excellence & innovation in teaching practice and programs
    - **Rationale**
    - **G1.O1 [Action plan]** Apply a quality process (plan, act, review, improve) in all teaching programs and practices, including course development and assessment.
      - **Date by & Responsible unit**
    - **G1.O2** Continue to invest in staff development, mentoring and reward
    - **G1.O3** Promote innovative services and technologies
    - **G1.O4** Continue to evaluate teaching through student feedback, self and peer appraisal
    - **G1.O5** Capitalise on the interaction between teaching and research to inform curricula and practice.

- **F 4** Investment in nurturing minds and skills
  - **G3 [Objective]** Give all students the opportunity & skills to develop, grow and learn
    - **Rationale**
    - **G3.O1** Cultivate within all students the graduate attributes
    - **G3.O2** Provide policies, services and facilities to encourage students to succeed.
    - **G3.O3** Facilitate access to quality information resources and skills development.
    - **G3.O4** Facilitate the transition from student to graduate life and career
In the level one of the USPD no target or rationale is provided for any of the goals [IARM: Objectives] shown in Figure 33. If an organisation designed their own reference model to be followed in developing their SPM then of course there may be differences in terminology or IE definition. However at some point in the model there should be targets to achieve and rationales to explain why the IE is important. In the above model there are no targets or rationales at any level. There are no dates for achievement or the naming of responsible unit for any of the objectives [IARM: Action Plan], however for clarity of the model in Figure 33 this fact is only shown for G1.O1. The dashed text box for CSF n indicates that given the diverse nature of the objectives [IARM: Action Plans] shown against each goal [IARM: Objective] there would need to be more than one CSF contributing to the goal [IARM: Objective].

There can also be some confusion between the focus ‘demonstrate quality of programs in a competitive environment’ (F3), and the goal [IARM: Objective] thought to be most closely related ‘Excellence and innovation in teaching practice and programs’ (G1). The objectives [IARM: Action Plan] listed as designed to achieve that goal do not add any clarification.

The confusion is that the focus area requires demonstration in a competitive environment and though the goal [IARM: Objective] and related objectives [IARM: Action Plan] are somewhat related to the concept of improving the quality of teaching, there is no discussion on how the ‘quality of programs’ is to be demonstrated. Some of the confusion may be due to the author’s interpretation; however the documentation does not contain any goals [IARM: Objective] or objectives [IARM: Action Plan] that are more obviously related to the focus area F3.

There could be further confusion in that G1.O2 that relates to ‘staff development’ and could also be related to the goal ‘to have skilled staff that can respond creatively’ (G5). Also G1.O5 relates to ‘interaction between teaching and research’ and could belong to goal ‘excellence and innovation in research’ (G2). However these objectives [IARM: Action Plans] were all listed in the university strategic planning document as belonging to the goal ‘excellence & innovation in teaching’ (G1).
The likelihood of confusion becomes more obvious when the focus areas and goals are placed alongside each other in the model of the Strategic Plan in the Figure 33 above.

Level one of the USPD is then examined for references to CSFs or anything that might be equivalent, in order to relate it to the next level of the IARM, which requires that CSFs should be associated with each objective. The requirement is to find further explanation for the choice of goal [IARM: Objective] which would help explain the idea behind the goal. However level one of the document does not appear to have anything that adds further explanation to the goal [IARM: Objective]; therefore this part of the model has to be omitted. It should be noted that the use of CSFs would almost certainly have clarified some of the above confusion.

The final IEs available in level one of the strategic plan that are recommended in the IARM, are the KPIs and aligned plans that are associated with each goal. The KPIs are all shown in the appendix to level 1 of the USPD. This was shown in section 5.1.5.3 and is reproduced below.

<table>
<thead>
<tr>
<th>L1 - Goals &amp; Objectives</th>
<th>Key Performance Indicators</th>
<th>Aligned Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excellence and innovation in teaching practice and programs</td>
<td>Graduate Employment Rates. CEQ survey results. UAC HSC first preferences. Proportion of International students enrolling at UOW. Outstanding Teaching Award applicants and recipients. Successful completion of teaching development programs.</td>
<td>Learning and Teaching Strategic Plan. Research Strategic Plan Faculty Plans Relevant Unit Business Plans</td>
</tr>
<tr>
<td>1.1 Apply a quality process (plan, act, review, improve) in all teaching programs and practices, including course development and assessment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Continue to invest in staff development, mentoring and reward.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Promote innovative services and technologies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Continue to evaluate teaching through student feedback, self and peer appraisal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Capitalise on the interaction between teaching and research to inform curricula and practice.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, the KPIs are all listed against all the objectives [IARM: Action Plans] and not against each objective [IARM: Action Plans], there is therefore nothing to be gained by modelling this information any further. In addition the KPIs listed, only
indicate a source of information and do not include a target value or any improvement measurement. The result is that the document does not indicate any way of being able to use the KPI to monitor progress toward achieving any objective [IARM: Action Plans]. The document does say that these KPI should be detailed in the Faculty plans.

Note there is additional information in an appendix to the level one of the USPD that includes a list of projects; these could be useful to indicate the actions necessary to achieve the declared objectives. The projects are grouped under six areas of strategic priority – by interpretation it is possible they might be linked to the focus areas but there is no specific relationship stated and the wording does not allow them to be easily related.

The next step in the creation of the University SPM is to go to the level two of the USPD, to the Learning and Teaching Strategic Plan (L & T Plan) to see if this includes any of the missing IEs and relations or clarifies the goals [IARM: Objectives] or objectives [IARM: Action Plans] from the level one documentation that has been modelled above, and if there is any description for how these IEs might be achieved.

The L & T plan specifically indicates that it is central to achieving goals one and three of the USP. “The Learning and Teaching Strategic Plan guides the activities of Faculties … and is central to the achievement of the University Strategic Goals 1 and 3”, see Figure 33 for G1 and G3 and the objectives listed for them. The L & T Plan then lists the following objectives:

LTO1. Cultivate within our students the attributes of a graduate.
LTO3. Offer quality teaching programs.

The first thing to note is that there are only four objectives listed here against the nine listed in level one of the USPD against the goals G1 and G3. The first concern is that they are worded differently, which can lead to misinterpretation, and it is not easy to see the relationship between the two sets of objectives; this difficulty is highlighted in the following Figure 33. The Figure shows the two goals [IARM: objectives] from the level 1 University Plan that are the focus of the level 2 Learning and Teaching Plan (L & T
Plan). Also shown are the objectives [IARM: Action Plans] related to those goals [IARM: objectives] from the level 1 Plan and the objectives [IARM: Action Plans] from the level 2 L & T Plan. Why are all nine objectives from level 1 of the USPD not part of the level 2, the L & T Plan, given that they all relate to the appropriate goals?

The important question to ask is why it is necessary for the objectives to be worded differently in the two sections of the plan especially as the L & T Plan declares that it relates to the G1 and G3 of the USP. There is, for instance, no reference to ‘staff’ in the L & T plan which is in the USP as G1.O2 and no reference to ‘research’ which is G1.O5. This may be intentional, if it is it certainly adds to the confusion.

Figure 34. One focus area from University Plan with two sets of objectives [IARM: Action Plans]

The level 2 of the USPD, the L & T Plan had no further clarification of the IEIs and their interrelationship, and has only added confusion over how the strategic goals [IARM: objectives] are to be achieved. It is necessary then to drill down further to the faculty
level of the USPD to look for the explanation for how the strategic goals [IARM: objectives] are to be achieved. Specifically it is required to determine if the faculty level documentation has the CSFs and KPIs or something equivalent defined in sufficient detail to complete the University strategic planning model.

One of the significant features of the IARM is to show the direct relationship between associated IEs to show the hierarchy of association between the IEs. Because the USPD shows very little in the way of explicit direct relationships, it was necessary to develop a table (Table 14) of the IEs in order to determine what direct relations can be implied. However when the objectives from the Faculty Plan are also included in the comparison with the L & T Plan, the confusion increases; as can be seen in Table 14. This table was produced to show the relationship between the L & T Plan and those of two typical faculties. To follow the IARM in developing the University planning model it is first necessary to determine which of the University strategic goals [IARM: Objective] is being dealt with. Again the attempt to line up equivalences between objectives is this author’s responsibility. It is possible that some of the planners that drew up the document knew what each IE meant and where it fitted, but it is also possible that they all did not know about all the IEs. It is certainly highly likely that other staff using this documentation will be misled when trying to determine what their role is, and what actions are required of them.

It is interesting to note that in the planning guides and templates for the second Faculty there is a description of the University objectives which are specified exactly as the L & T Plan, but in the actual Faculty planning document the words are different as can be seen below.

<table>
<thead>
<tr>
<th>Objectives [IARM: Action Plans] from L2. Learning &amp; Teaching Plan</th>
<th>Objectives from 1st Faculty Plan</th>
<th>Objectives from 2nd Faculty Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTO3. Offer quality teaching programs</td>
<td>Internationalisation by overseas tuition AUQA review of undergrad program</td>
<td>Provide an effective educational experience for all students that will produce quality graduates. Review course and subject offerings in line with quality review framework with clear focus on key national and (where appropriate) international industry and social sector needs</td>
</tr>
<tr>
<td>LTO2. Support student learning</td>
<td>Support for aboriginal students Evaluate student performance</td>
<td></td>
</tr>
<tr>
<td>LTO4. Support quality teaching and professionalism</td>
<td>Review teaching allocations. Encourage teaching collaboration within SMAS.</td>
<td></td>
</tr>
<tr>
<td>LTO1. Cultivate graduate attributes</td>
<td>Consolidate all offshore partnerships</td>
<td></td>
</tr>
<tr>
<td>EQUIS International accreditation</td>
<td>Develop Dean’s Scholars program across Faculty degrees.</td>
<td></td>
</tr>
</tbody>
</table>

The above figure shows the difficulty of following through the different levels of the planning documentation and lining up the objectives. The L & T Plan objectives [IARM: Action Plans] LTO3 and LTO4 are grouped together as they appear to be related to a group of faculty 1 and 2 sets of objectives [IARM: Action Plans]. These are shown in the same row at the head of the table.

There could of course be strategic objectives detailed at the faculty level that are different from the University level where they are needed to express the faculty view, however there should not be a problem of relating those faculty objectives [IARM: Action Plans] to the relevant University goal [IARM: Objectives].

Why are the goal [IARM: Objectives] and objectives [IARM: Action Plans] set out in levels 1 and 2 of the USPD if they are not to be followed by the faculty? Similarly if the faculty has an objective [IARM: Action Plans] that is sufficiently important to include in its forward plan, why is it not raised to level 1 of the USPD? The faculty plan ought to show their faculty objectives [IARM: Action Plans] and how they relate to achieving the University goals [IARM: Objectives]. Showing the direct linking of objectives [IARM: Action Plans] at the different levels in a planning model would clarify the intent.

It must be noted here that to continue the same conventions through the three levels of the USPD, the faculty ‘objective’ is related to the IARM term ‘Action Plan’, however in the faculty plan there is also a term “strategy” for how the faculty objective is to be achieved, so the faculty term ‘objective’ is more in line with the IARM term ‘objective’.

Because it is not possible to relate objectives at the different levels of the USPD to the University goals [IARM: Objectives], it is not relevant to use the IARM to develop the
University planning model any further. What would be necessary would be to break the sequence and show a level 3 faculty plan separate from its relationship to levels 1 and 2 of the USPD.

6.2 The Mismatch Factors between a University Strategic Plans and the IARM

This research investigates whether the use of an architectural model for information contained in a strategic plan would increase the ease of use and the shared understanding within an organisation with regard to the business directions. Using an information architecture in the form of the proposed IARM should allow a better presentation of the organisations objectives and should provide a clearer understanding of what is needed to improve business performance. The model of the information elements of the strategic plan should also contain information on how to achieve the objectives and what indicators to use to measure progress toward them.

As previously explained one of the significant features of the IARM is to show the direct relationship between associated IEs to show the hierarchy of association between IEs. Because the USPD shows very little in the way of explicit direct relationships, it was necessary to develop a table (Table 14) of the IEs in order to determine what direct relations can be implied. Table 14 revealed that the objectives presented in different parts of the documentation are worded differently. The University Strategic Plan, the Teaching and Learning Strategic Plan and two Faculty Strategic Plans do not use the same wording and therefore do not easily relate to each other, which becomes evident when trying to use the IARM to develop the planning model. This will create confusion for the lower level decision makers as to which objectives they are meant to work toward or even what each objective actually means.

An important IE in the IARM is the CSF and there are no CSFs documented for achieving the objectives in any of the plans except in a very limited form in a faculty plan, and it is worth repeating Peffers et al (2003) that “CSF analysis ‘discovers latent structure’ in the needs of an organisation by linking ‘business goals and related causal factors” (p.57), which is why the CSF was incorporated into the IARM. The objectives in a strategic plan are often described in very high-level often visionary terms and the CSF analysis is needed to clarify the operational requirements. If an organisation decides not to use the CSF analysis then the explanatory function of the CSF should be
replaced by giving more explanation to the objective, perhaps by clarifying any constraints or assumptions. The lack of clarification is exacerbated because there is no indication of the specific actions that are required to achieve the objectives except in the one faculty strategic plan and in that case there are many action items for each objective which in itself can cause confusion in the allocation of resources.

The above faculty plan does state a roadblock against achieving the first objective in the learning and teaching focus area which is that “the process is slow, time consuming and resource intensive”. This is perhaps an indication that defining the CSFs in the IARM to focus attention and the choosing the few action items most likely to achieve those CSFs would be more profitable than just a long list of actions. Kenny (2005) writes “[s]o just what are these few things around which organisational activity must focus and which leads to success? The answer is strategic factors!” (p. 3). The underline is this author’s to show the emphasis and Kenny uses the term strategic factors in a similar way to CSFs except strategic factors according to Kenny (2005) are externally focussed and refer to such areas of activity as customers and suppliers.

A important direct linkage that is incorporated into the IARM is that the KPI be specific to a CSF it is required to monitor for performance and that the KPI conform to the SMART criteria. When examining the USPD for this feature it was found that the KPIs that are indicated cannot be directly attributed to one particular objective; instead there is a list of KPI sources for a set of goals. There are no values associated with a KPI, either in the form of a target value or as a relative increase or decrease in value. There is no commentary to the KPI to say in what way the KPI would demonstrate improvement in any designated objective. The second faculty plan does have measures attached to some of the actions items specified against an objective but as these measures are at a lower level than the objective or CSF they may be regarded as performance measures (PIs) rather than KPIs.

These omissions of CSFs and KPIs and the lack most of the relationship information defined as part of the IARM, can make the strategic plan difficult to understand for stakeholders other than those who prepared the documentation. It can be also difficult for the lower-level decision makers to implement because of a lack of understanding what the strategic directions of the organisation really are. The Strategic Plan does not
enable staff to determine what their actions should be to enable an improvement in the direction toward achieving the objective.

In trying to develop a strategic planning model, the resultant discussion of the limitations and omissions, develops the point that by using the IARM as a guide, any discrepancies in the planning documentation will be highlighted. The missing information elements and omitted relationships between elements would all have helped clarify the objectives and would have made the resultant documentation easier to follow and understand.

6.3 Example: using the IARM to present University Planning Information

The proposed IARM has been used to interpret part of the University Strategic Plan. Focus area 3 and Goal 1, taken verbatim from the SP are assumed to be linked and the first Objective of Goal 1 is taken as an example. To show what the preferred information architecture for just one objective might look like using the reference model, a possible scenario has been invented to include fictional but feasible targets and rationales for the objective and examples of what the CSFs and KPIs might be.

The resulting model is represented in Figure 35 and shows how following the proposed IARM creates a better visualisation of requirements, actions and performance measurement which is clearer for all staff to understand and to participate in where required.

The symbols used to in the model have the following definitions. The first symbol shows the information elements and includes where appropriate the target value and the rationale.

<table>
<thead>
<tr>
<th>Description of Information Element</th>
<th>Target Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale for this Information Element</td>
<td></td>
</tr>
</tbody>
</table>

The next symbol shows how the direct linkages and the degree of contribution or association would be represented.
<table>
<thead>
<tr>
<th>% of contribution or association</th>
</tr>
</thead>
</table>

---
Focus area 3
Demonstrate quality of programs in competitive environment

Goal 1
Excellence and innovation in teaching practice and programs

Objective 1
Apply a quality process (plan, act, review, improve) to all subjects.
Will improve University reputation for quality subjects

Action item 1
Set up academic subcommittee to meet with employers and industry groups and develop quality standard.

Action item 2
Each lecturer to peer review two subjects per year against quality standard.

Action item 3
Each lecturer to update one of their subjects per year that is 20% below standard.

CSF 1
All sub-standard subjects will need to be updated.

CSF 2
Need a quality standard for subject content and presentation
Will enable subjects to be reviewed against a standard required by employers

CSF 3
Subjects need to be audited against a quality standard for content and presentation
Will apply the review and identify subjects that need revision

CSF 4
Subjects > 20% below audit grade need to be updated to conform to standard
Will apply the improve requirement and thereby increase total program quality

Goal 1
Excellence and innovation in teaching practice and programs

Objective 1
Apply a quality process (plan, act, review, improve) to all subjects.
Will improve University reputation for quality subjects

Figure 35. Strategic Plan Reference Model – showing CSF and KPIs for one objective
As the CSFs, KPIs and actions are all fictional, there may be disagreement as to the validity of the information in Figure 35 particularly for the reasonableness of the activity levels and the timetables. However it should be evident that there is clarity of intent and a clear sequence of actions evident by following the IARM when developing a strategic planning model.

Figure 35 represents part of the Strategic Planning Model (SPM) developed for a specific organisation using the IARM and following the steps of the SPRM. An important recommendation of the SPRM is to have ongoing discussion among the various stakeholders during development of the SPM. Both the steps of the SPM and the structure of the IARM foster such discussion, allowing the evolving SPM to be dynamically modified and for additional explanation to be added, as competing requirement are accommodated.

It should also be evident that all the features of the IARM do not need to always be represented, but that the process of considering each feature and including or discarding it, will lead to a more comprehensive review of requirements and the inclusion of all essential information.

6.4 Conclusions Drawn from Applying the IARM

Before discussing the conclusions, it is necessary to revisit the method used to evaluate the proposal and to do this it is necessary to look at the quote from Routio (2007) who writes that the end product of normative study is one or more proposals which explain in detail the desired improvements and how to achieve them. The key question being, is it an effective, practical and economically optimized instrument for attaining the desired improvements. Routio (2007) describes a theoretical evaluation where “the researcher can try to assume an objective role of arbiter and simulate a general and impartial viewpoint” (p.2). This approach was used for evaluation of the IARM see sections 6.1, 6.2 and 6.3.

In this chapter the IARM has been used to develop an example of an SPM from the documentation given for an organisation with a well developed SP process. The comparison with the IARM revealed several very significant omissions and confusions with the various levels of the USPD that was examined. The IARM was then used to develop an example of a more effective representation of strategic planning information.
which it has done quite easily. This validates the IARM and concludes the normative evaluation of the IARM, thereby achieving objective iv) which is the final research objective. This process also achieves the research aim which was to develop an improvement to strategic planning documentation.

The SPM of the IEs developed as part of the strategic plan and following the IARM, would also allow organisations to build an information system (IS) to supply the necessary information that would enable better management of the business. The same definitions and models would allow monitoring of business performance and enable more effective management control.

The data analysis of the survey of organisations and their strategic planning presented in the research section, indicated that if the MIS/EIS system is perceived to be related to the objectives in the plan, then it relates to perceived improvement in management. The above improvements in developing the IS from the SPM would also flow on to the development of an MIS/EIS that would be better able to monitor required business performance.
7 Conclusions

7.1 Introduction

The aim of this research was to examine the case for an improvement in the documentation of strategic planning, and to determine whether an information architecture was an appropriate mechanism to provide the improvement. The research had four objectives designed to complement and support each other in building a solution to the aim.

The four objectives are:

i. To get an up-to-date view of the strategic planning process.

ii. To identify the Information Elements (IEs) that would be most useful in an OSP.

iii. To develop a Strategic Planning Reference Model (SPRM) comprising a Process Reference Model (PRM) and an Information Architecture Reference Model (IARM) to show how information architecture would present the IEs in a clearer and more succinct way than narrative alone.

iv. Explain how the documentation resulting from objectives 1, 2 and 3 would support better communication of the OSP and better alignment of the OSP and the Strategic Information Systems Plan (SISP).

7.2 Research Conclusions

Objective four of the research for this thesis uses a normative research approach and is aligned to the suggested phases for normative analysis described by Routio (2004). The four phases of the normative approach in this research also encompasses successful completion of the above four research objectives.

1. Evaluative description of the initial state (defining the need for improvement)
2. Analysis of relationships and possibilities to change things
3. Synthesis: proposal for improvement
4. Evaluation of the proposal.
The first phase of a normative analysis requires an evaluative description of the initial state which is provided in general by research objective one and the Issues needing clarification which were dealt with by the surveys of organisations designed to establish what the current status is for strategic planning in organisations.

A major conclusion of the survey of organisations and their strategic planning processes was that most organisations surveyed were involved in strategic planning. 46 (85%) of the 54 organisations surveyed say they define some aspect of business context information, whether objectives, CSFs or KPIs. It is important to note that 36 (67%) say they define all three of these planning levels which provides support for objective two. Survey results indicated that the more effort that an organisation put into strategic planning the more they thought they got out of it. Although most organisations had some form of performance measurement system it was surprising that half the organisations only had a single measurement indicator which means that control over the achievement of the strategic planning objectives would be very limited.

For the survey of strategic plan usability, only 35% of respondents said they reviewed the strategic plan regularly. For the respondents who had read the plan, the large numbers of comments with negative connotations are very significant. The comments given with the survey follow other research, by identifying two of the difficulties associated with strategic planning, i.e. concern with the amount of bureaucracy and complexity of the process / plan and insufficient involvement of all stakeholders.

The above information concludes the summary of the current status of strategic planning in organisations thereby achieving objective 1. These two surveys are the first of their kind, to both explore the actual status of strategic planning in a variety of organisations, and in-depth within one organisation; as such they set an important benchmark in the research into strategic planning.

The second phase of the normative approach requires an analysis of IEs and relationships (which addresses objective two) and explores the possibilities for change, which can be extrapolated from the conclusions of the literature review on strategic planning and the results of a survey of plan usability, carried out as part of this research.
A review of the literature on problems in strategic planning identified the following common factors:

- Confusion between the development of initiatives and the planning for implementation of already determined objectives.
- The plan is too informal and unstructured or
- The plan goes to the other extreme and is too complex and detailed.
- Lack of involvement from the complete range of stakeholders.
- Lack of common understanding of the elements in the plan.

The literature review helped to achieve objective one but more importantly also identified a strong candidate set of IEs for use in OSP, thereby achieving objective 2.

Complementing the two surveys discussed above were the examination of strategic documentation pertaining to three organisations. These examinations gave a strong indication of the gap in perception concerning strategic planning between the senior management of an organisation, who thought the strategic plan was effective, and the lower managers who were concerned that they did not know what they were expected to do.

The organisation performance measurement (OPM) system has a careful and rigorous procedure; it is therefore disappointing in the report on “Lou’s Place” to see there is no rationale or prioritisation of the objectives, or of the CSFs. Also that the resulting KPIs lack sufficiently precise definition that would enable them to be an effective part of information architecture.

The problems identified in the SV group documentation are: a surprising confusion over what is meant by strategic planning within the group, and the Group did not have strategic plan but only a strategic issues report that was too voluminous to use at regular management meetings.

The USPD had objectives [IARM: Action Plans] described at different levels of the organisation which causes confusion of intent. The objectives had no rationale or prioritisation attached to them and the only CSFs and KPIs were at the lowest level,
these were not well defined and could not be related to the level 1 and 2 objectives [IARM: Action Plans] or the level one USPD goals.

The documentation analysed failed to make full use of all the IEs and relations specified in the IARM and were consequently less useful to the organisation than they might have been. For example recording the rationale of the IE identifies why these information/planning elements are been chosen as critical and what effect the success of these elements might have on the performance of the organisation. The additional information creates better understanding of the relationship of the information element to the external environment to enable staff adapt the strategies according to changing circumstances. More precise KPIs allow better monitoring of progress toward achieving objectives. The omission of these features reduced the usefulness of the documentation and lends support to objective 2.

The third phase of the normative research methodology is a synthesis of the features of strategic planning, to provide a proposal for improvements to the process; this is the completion of objective 3, and a reference model is developed in chapter 3 to provide a solution toward meeting these improvements. The reference model is the strategic planning reference model (SPRM) which comprises the process reference model (PRM) and the information architecture reference model (IARM). The PRM is essential background to the way information could be provided for the IARM.

The SPRM would either assist organisations to develop their own reference models or they could use the SPRM directly as a guide to their strategic planning process and use the IARM as a guide to develop their planning model as part of their strategic plan.

The final phase of the normative approach which achieves objective 4, evaluates the IARM. Chapter 6 shows an example in the way the information elements from the University strategic plans would be structured with use of the IARM. The example highlights what is missing from the documentation and highlights the degree of confusion and therefore how the IARM would draw attention to the missing IEs and relationships in the strategic plan.

This evaluation also develops an example SPM to show how one University strategic planning objective would be better presented by following the IARM. The example
SPM of just one part of an objective, developed by following the IARM is easy to read in terms of intent and clearly describes the actions to be carried out and targets that are desired to be achieved. The actions required by the staff in each subject discipline and even for individual subject coordinators can be seen. Providing these people have access to the source data relating to the CSF and KPI information, they would be able to see what effect they are having on the overall performance of one University Objective.

Using the IARM need not omit any existing planning strategies or processes, as the intention is that an organisation uses the IARM only as a guide toward developing their own reference model. They can easily include whatever is necessary within the relevant stage of the IARM, which is then used as a guiding template to build their own reference model. In using the IARM or their own reference model to develop their SPM the planners need not exclude any crucial additional information that was felt to be necessary but did not fit directly into the resulting planning model. Any additional material would merely be included as addenda to the relevant point in the SPM.

It is clear that the IARM, developed according to architectural principles, would be an effective tool for including in the strategic planning process and for developing a strategic plan. At the very least it would act as a guiding template for critical elements that need to be included in the strategic planning process. Thus objective 4 has been achieved.

In its totality this research has achieved all four (4) of the objectives of the research aim set out in section 4.1 and listed again at the head of this chapter.

7.3 The significance of this research

The significance of this research for other researchers is that

1. It has provided an up-to-date view of strategic planning in Australian organisations across a range of industries, in terms of both size and industry sector. These are important benchmarks that can be made available.
2. It provides survey instruments and document analysis techniques to be used in future studies.
3. It has identified and validated a strong candidate set of IEs and relations which can be used in other work.

4. It has developed an SPRM which includes a PRM and IARM that could be used to test the efficacy of strategic planning procedures.

There is also particular significance in this research for Management and IT practitioners:

1. The IARM has a rigorous information architecture definition to aid in the development of planning models that contain the key information elements of the strategic plan in a succinct form that will assist in the presentation and regular use of the strategic plan.

2. The primary significance in the IARM is that it allows more people to be easily involved in the planning process and it enables the process to iterate, it can therefore act as a self validating mechanism. This is because of the concise nature of the IARM that acts as a guide and an index to the development of the planning information.

3. The SPRM provides more effective participation of more levels of management and stakeholders in the development of planning information which means that there is more shared understanding developed for the contents of the strategic plan. There is, therefore, a far greater likelihood that the strategic plan is a useful working document to guide the management and performance of the organisation.

4. The concise nature of the IARM allows it to be incorporated into conventional management meetings to allow review and updating on a continuous basis, allowing it to be adapted to meet any changing circumstances.

7.4 Limitations of this research

One limitation of the research is that most of the organisations surveyed were all in Australia and included only one overseas organisation (UK). Overseas experiences might show a different emphasis or approach to strategic planning. The organisations
for this research were selected from the yellow pages phone directory in a fairly random fashion and therefore the survey was not statistically representative. It did however cover large and small organisations and government and commercial organisations.

A further limitation is that there is no actual organisation that is currently using the IARM to develop a strategic planning model, so at this point there is no empirical data to directly support the use of the IARM. The model has been evaluated normatively, but future research could benefit from a pre-test/post-test evaluation if time allowed and an organisation could overcome the problems of company confidentiality and would participate.

7.5 Future research Directions

The points that are expressed in section 7.3 describing the significance of this research identified several factors that could be used to develop further research as follows:

1. The benchmark surveys can be used by researchers’ in future comparative studies of of organisations in other countries or longitudinal studies over time.
2. The survey instruments and document analysis techniques could be used in future studies either across different classes of industries or to drill down into specific organisations.
3. The set of IEs and relations could be used and developed in future research. Other researchers may add to this set or to further refine them when checking their suitability across different industries, countries, organisational size or complexity.
4. The SPRM which includes a PRM and IARM could be used to provide comparative testing of the efficacy of the strategic planning procedures in a variety of organisations.

An important step would be to transfer an entire strategic plan to a SPM using the IARM as a guiding template; however as can be seen in the University case study, it is likely that much of the critical information would not be available. In particular it is likely that the relationship information would not be present in any existing strategic plan. It is probable that the only way forward is to test the SPRM in its entirety and develop the whole strategic planning process using the reference model.
A very useful advantage of the IARM is its ability to be used in evolutionary cycles for updating purposes. This also means that a first pass pre-test could be done using a very limited time scale and only including two or three of the most critical elements. This outline plan could then be refined and more detail added on a quarterly or some similar routine basis as the organisation developed confidence in the model.

An important direction for future research would be to examine the way to visualise the progress of the strategic plan. Given that the strategic plan is developed with the regular structure of information architecture set down in the reference model and if it also includes the required precise definition of key performance indicators and target values for the critical success factors; then it should be possible to derive a graphical visualisation of the whole strategic plan.

7.6 Concluding Remarks

The problem of communicating an organization’s strategic business intentions to the general staff of an organization is widespread and persistent. Many staff are given little more than their job description and are told very little about the strategic objectives of the organization for which they work. Some years ago the latest “management thing” was management by objective (MBO) and managers were asked to develop the objectives of their department. As a team manager in a multinational steel making company, this author was asked to develop the objectives for his team; when the departmental manager was asked for the departmental objectives he responded by saying “just do your team’s objectives for the next year”. Over many years this has not been an uncommon experience.

More recently, there has been a focus on the development of mission and vision statements by organizations and departments; the lack of detail about how to achieve these visionary statements has been glaringly obvious to those within the departments.

Most recently, the author was responsible for administrative information systems in a university, at a time of devolution of responsibility to the academic units within the university. Interviews were held with the senior academic managers about their information requirements. Many of these managers were new to the job and the concept
of devolution was new to everyone, so it was thought useful to ask them what information they would require to do their job more effectively. They were asked what information would enable them to manage the task of running an academic unit as a business enterprise more effectively. Many did not know what was required of them in this respect and did not know what information to ask for.

The literature review and interviews and surveys of many companies conducted as part of this research have confirmed that this problem is still widespread. The IARM presented in this thesis and the strategic model that would result from using the IARM as a guide, can be seen to be an effective way to present the key elements of information contained in a strategic plan. The information is presented in a way that provides an effective communication tool to the organization as a whole. The IARM comprises a number of information elements which were selected from the literature as being representative of the main aspects of a strategic plan. However, it is recognized that an organization may wish to choose terms for their own IARM, which may more closely match the way that they do business.

Nonetheless, the central requirements of an IARM and the resulting strategic model do need to show the strategic directions (objectives) of the organization and the anticipated target values, the objectives and targets need to be supported with an analysis of critical factors affecting success. The strategic plan must include a set of action items which would assist the organization to move in the stated direction. These action items need to be linked explicitly to the applicable objective and the key performance indicators that can be used to monitor progress. The most critical aspect of the strategic model is that the direct relationship between the information elements is explicitly shown, such that there is a clear progression from the high level direction through to the actions required to implement the direction with clear and explicit performance indicators attached to each critical element to manage progress. Given these key requirements the strategic model becomes a very effective communication tool, allowing the organization’s staff to know exactly what needs to be done to achieve the strategic direction and how to measure progress in achieving that direction.

Many organizations particularly those with an owner-manager, seem to have a difficulty in communicating their strategic directions to their staff. With some, it is a reluctance to let the staff know this information and for this situation there is no solution possible.
With others it is a difficulty in expressing the strategic directions in an objective form, and here the IARM provides a mechanism for evolving the plan in a gradual manner and assisting in the coordination of other expertise into the planning process. The high-level directions can be stated with as much information about rationale as possible and then passed to other managers to add appropriate detail. If required, the suggested directions could be divided up and passed out to different departments and then reassembled on return to the planning committee. The plan could be started with just one or two important issues and then refined and added to as more information and confidence become available. With time, and as experience grows, it would be hoped that additional detail in the form of expected budget and anticipated return on investment would also be added.

With the added detail in the strategic model, the development of an information system that is aligned to the strategic direction becomes easier. It also becomes easier for the information system to be developed to collect and monitor the key performance indicators, perhaps even producing a graphical visualisation showing the current progress against targets.

The current global financial crisis, brought about in part at least, by the so-called toxic assets, is another example of business being carried out with insufficient transparency of information and very senior managers doing business with insufficient information available to them. This is not necessarily a strategic planning issue but it would be surprising if some elements of the problem have not been part of strategic issues meetings, given the amount of money involved and the size of risk assessments that must have taken place.

While it would be audacious to claim that the widespread use of the IARM in the financial sector would have obviated the GFC, it might have made it less of a surprise and less destructive. Nonetheless, the IARM proposed in this thesis, seems to have enormous potential for strategic planning and for the integration of IS with organizational strategic plans.

7.7 Conclusion

This research has achieved all its objectives. It has developed an up-to-date view of strategic planning in the Australian context. It has produced valuable results in
identifying major information elements of strategic planning and in suggesting an effective model for presenting this information. It has also identified future research directions.
Publications

Book chapters


Refereed Conference Papers*


Information Systems Discipline presentations at University of Wollongong

2002 Skill sets for the new IT person

2003 Strategic Planning and Information architecture

Other papers (For EDS (Australia) - commercial)

2000 A Communications Gateway Architecture

2000 A Security Single Sign-on Architecture

1999 A Comparative (financial & performance) Analysis of Unix and IBM mainframe architectures.

1999 - 2000 Participated in drafting the Architecture Reference Model for the “Enterprise Architecture Project” on behalf of Australian Customs
References


EDS (n.d.b.) *Strategy Map Instructions (EDS Focus)*.


Scheuren, F. (2004). What is a survey?


Tarr, J. D. (2001). *Total Performance Measurement - Turning Strategy into Action*


Throughout the thesis, there have been many references to the "University's Strategic Plan". For reasons of organisational confidentiality, these references are not accompanied by citations which, of course, would have identified the University being studied. Should the reader need to validate any of the assertions made about the strategic plan, he or she should contact the author of the thesis.
Appendices

Appendix A. Bailey and Peak Framework for Organisational Planning
Appendix B. Questionnaire for Survey of planning process
Appendix C. Questionnaire for Survey of plan usability
Appendix D. Comments of a general nature
Appendix A. Bailey and Peak Framework for Organisational Planning

Management by Degrees Planning

A Framework for Organisational Planning

LEVELS

1

2

3

4

CSP’s = Critical Success Factors; KPI’s = Key Performance Indicators; SMART = Specific, Measurable, Achievable, Realistic, Time planned.

Figure 2. To show how the process of Organisational Planning may be viewed on different levels. Each level is denoted by the first figure on the top line of each box. The second character, a letter, denotes the box on level two from which it is evolved. Level 2 has five boxes, given the letters a to e. In this representation there is no significance in performing the activities by starting on the left and progressing to the right. The relationship of the activity boxes is shown in more detail in the activity charts described throughout this chapter.
Appendix B. Questionnaire for Survey of planning process

Part 1 - What is the Business

<table>
<thead>
<tr>
<th>Title</th>
<th>First name</th>
<th>Family name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position or Role in Organisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation Name</td>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Suburb</td>
<td>State</td>
<td></td>
</tr>
<tr>
<td>Postcode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Business (tick relevant area)</td>
<td>Financial…..</td>
<td></td>
</tr>
<tr>
<td>Service…………</td>
<td>Manufacturing…..</td>
<td></td>
</tr>
<tr>
<td>Mining………</td>
<td>Transport………</td>
<td></td>
</tr>
<tr>
<td>Retail………………</td>
<td>Government…</td>
<td></td>
</tr>
<tr>
<td>Other………………</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of staff in organisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major uses for computing (tick each one relevant)</td>
<td>Accounting/finance……..</td>
<td></td>
</tr>
<tr>
<td>Manufacturing/scheduling……..</td>
<td>Customer relations……..</td>
<td></td>
</tr>
<tr>
<td>Management Information……..</td>
<td>Office management (WORD etc)….</td>
<td></td>
</tr>
<tr>
<td>Other………………</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of dedicated IT staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate your company’s ability in the following areas? 1 low, 5 high</td>
<td>Using technology to meet business requirements 12345</td>
<td></td>
</tr>
<tr>
<td>Knowing what information you need to run the business 12345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluating new applications and technology for the business 12345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluating the benefits of using technology 12345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementing new systems 12345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documenting your requirements 12345</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Correspondence Table for question numbers used for analysis to the question numbers in original questionnaire

Section 5.1.1.2

<table>
<thead>
<tr>
<th>Question</th>
<th>Part</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Q10</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Q11</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Q13</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Q14</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Q15</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Q16</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Q17</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Section 5.1.1.3

<table>
<thead>
<tr>
<th>Question</th>
<th>Part</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q20</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Q22</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Q24</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Q33</td>
<td>Part 4</td>
<td>3</td>
</tr>
</tbody>
</table>
**Part 2 - The Planning Process**

1. What form does your business planning process take? e.g. Senior managers once a year.


3. Are these documented?

4. If yes, can we get a copy? If no, go to Q7.

5. If yes, what is the distribution throughout the organization e.g. To all managers.

6. How effective do you judge this to have been i.e. Do managers use the document for their planning? Rate 12345, with 1 low and 5 high.

7. Is there a documented business strategic plan?

8. Are the information system requirements derived from the business strategic plan?

9. How effective do you judge this to have been, that is does the information system effectively support the business strategic plan? Rate 12345, with 1 low and 5 high.
### Part 3 - Performance Measurement

1. Does your organization measure business performance. If no exit

2. Is there a single measure for the organization? Give an example and go to Q4.

3. Is each functional unit measured separately? Give an example.

4. Do any of these measures link to operational data

5. If yes give an example

6. Are these measures documented formally

7. If yes can we get a copy?

8. Are these measures documented informally, how e.g. Newsletter or staff meeting

9. If documented what is the distribution of the documentation throughout the organization

10. How effective do you judge this to have been in improving business management? Rate 12345 where 1 low and 5 high.
1. Do you have an MIS or EIS? If no exit.

2. If yes what was the process to define the functionality? E.g. Ask managers what information they need.

3. Can business performance measures can be extracted from the MIS? Give an example else exit.

4. Does the MIS relate to the above business objectives etc from part 2?

5. What is the distribution of access to MIS throughout the organization e.g. Only managers.

6. How effective do you judge this to have been in improving management? Rate 12345 with 1 low and 5 high
Appendix C. Questionnaire for Survey of plan usability

Questionnaire to Survey Usefulness of Strategic Plan before being compiled into online survey instrument, question numbers have been added to this form to make it easier to relate to the SPSS analysis output.

Perceived usefulness and perceived ease of use of the strategic planning documentation.

Below are statements of your personal opinion of the usefulness and ease of use of the documentation of the strategic plan and related business performance indicators. This will be referred to just as the “plan” in each of the statements, please circle the value of your response to each of the statements.

1. **Know existence of Plan** Please circle your response
   - **Q1** I know the plan exists yes / no
   - **Q2** I have read the plan yes / no

2. **Which Plan version** Please circle your response
   - **Q3** Version date 02-05 / 05-07

3. **Please enter Plan section heading** e.g. Strategic projects, Campus Management Plan, Research Plan etc.
   - **Q4** The plan section I am familiar with is:

   …………………………………………………………………

4. **Frequency of Use**

   My frequency of use of the Plan is: Never Rarely Quarterly Monthly Weekly

   - **Q5** I Review the plan 1 2 3 4 5
   - **Q6** I Monitor status of tasks on the plan 1 2 3 4 5
   - **Q7** I Use the plan to set performance tasks 1 2 3 4 5
5. **Perceived usefulness (e.g. usage outcomes).**
   I believe my use of the plan will have the following results

<table>
<thead>
<tr>
<th>Q</th>
<th>Description</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
<td>Increase understanding of the organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q9</td>
<td>Increase my performance in the organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q10</td>
<td>Provide my organization with advantages</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q11</td>
<td>Provide me with greater level of knowledge for my actions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q12</td>
<td>Provide me with information to detect problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q13</td>
<td>Increase the quality of my decision making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q14</td>
<td>Increase the speed of my decision making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q15</td>
<td>Other Comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. **Ease of use (e.g., user friendliness, clarity, effortless)**
   Based on my knowledge of the plan and the indicators

<table>
<thead>
<tr>
<th>Q16</th>
<th>Managing performance to plan is easy For me</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q17</td>
<td>I find the planning documentation is easy to understand</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q18</td>
<td>It is easy to interpret planning requirements into actions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

7. **Attributes of the planning document**
   Attributes of the planning document are:

<table>
<thead>
<tr>
<th>Q19</th>
<th>It is accurate</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q20</td>
<td>It is comprehensive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q21</td>
<td>It is timely</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q22</td>
<td>It is useful/has value add for my management function</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q23</td>
<td>Helps me accomplish the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Q24</td>
<td>Increases my quality of service</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
8. What was your relationship to the planning process?

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Assisted on Committee</th>
<th>Provided Information</th>
<th>Not involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairperson</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Q25 I was involved as

Q26 Planning could be improved by: Please add your comments:

9. What is your position as manager/decision maker

<table>
<thead>
<tr>
<th>Operational</th>
<th>Tactical</th>
<th>Strategic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Faculty</td>
<td>Executive</td>
</tr>
<tr>
<td>Or unit level</td>
<td>Committee level</td>
<td>level</td>
</tr>
</tbody>
</table>

Q27 My function is at the

Q28 Any other feedback or suggestions
Appendix D. Comments of a general nature

The response to Q28 on the online questionnaire allowed a lot of room and so some answers are very long, although not everyone made a comment here. To make them readable they have been extracted from the form and reformatted but not altered.

These comments have been linked by quoting the responder number; to the comments made to question 15 perceived usefulness and question 26 planning could be improved by. These comments are on next page, see that page for qualitative analysis of positive / negative connotation of all comments.

The comments have been coded as follows
C = survey comment, N = negative comment, P = positive comment, S = suggestion (which is further coded as), LB = less bureaucracy, UI = more user involvement.

Responder 5 (coded C, N / LB)
The gaps above are too small to make meaningful comments. Much management theory has in the past few years correctly emphasized creativity and imagination whereas the UoW process is highly paper-bound and bureaucratic. It is rigid and could be acting as a deterrent to innovation from the grass roots.

Responder 6 (coded P)
The recent changes to the University Strategic, incorporating the core function plans is a significant improvement. Provides greater clarity of priorities and relationships across strategic areas.

Responder 7 (coded C)
This strikes me as a strange set of questions to be asking about the Strategic Plan. Some of them seem to indicate a lack of knowledge by the Plan by the survey builder.

Responder 8 (coded C)
Survey construction did not seem to address my circumstances. Also, dialogue box for Q8 did not take complete response.

Responder 13 (coded C, N / UI)
Comment space in Q8 too small. Planning being driven from the top down is not always the best way to go.

Responder 15 (coded N / UI)
Plans (and this survey) seem tailored for senior executives. They are blueprints for the next few years. As a non-managerial person my answers to this survey reflect my lack of engagement with the plan on a day-to-day basis. As a Senate member I am conscious of its existence and read all such documents when they are created, although admittedly this is mainly due to a perverser enjoyment of the capacity of managerialism to mangle the English language, which amuses me greatly.

Responder 17 (coded N/LB/UI)
The planning process appears disjointed and there isn't in practice a cascade effect from the University planning to planning in faculty depts/admin units. Further
down the plan adds little value to individuals in their PP or CDR. Very few people on campus that I have spoken with have 'buy-in' to the plan. They feel that it is largely rhetoric and removed from them as staff members. Values can only be embraced if they belong to the staff members and are integrated in not only policies & procedures but also work practices. The areas for improvement are to make the plan more inclusive, user friendly and marketed more widely.

**Responder 21 (coded C)**
The entry and password screens are clunky and not very well thought out.

**Responder 24 (coded N / LB)**
I felt my involvement and participation in the plan was of greater value to me in understanding and appreciating the strategies of the uni than reading the plan. I was involved in both Faculty and URC levels--felt the Faculty level was not as useful, easy to understand or strategic--perhaps because faculties are less focused and multifunctional entities.

**Responder 25 (coded C)**
More questions on content of Strat Plan and things that could be added, removed or varied.

**Responder 27 (coded C)**
Does not appear to be written from the perspective of an academic unit, so will provide limited feedback from faculties. It also provides limited space/ options for responses.

**Responder 29 (coded P)**
I have used the UoW Strategic Plan to help promote discussion at a School Planning Day in late 2004. This assisted in creating a set of key priorities for our school in 2005 (an operational plan).

**Responder 31 (coded NA)**
My role is in Management in WUC but I have also been involved in some university committees

Counts for the various Codes:  C = 7, P = 2 N / LB = 3, N / UI = 3
<table>
<thead>
<tr>
<th>Respondent</th>
<th>Q4-which section of plan are you familiar with</th>
<th>Q15- perceived usefulness</th>
<th>Q26- planning could be improved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Campus</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>UOW Goals and Objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Campus Management Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Faculty sections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>all of it.</td>
<td>5c below is ungrammatical</td>
<td>A less bureaucratic approach.</td>
</tr>
<tr>
<td>6</td>
<td>Learning and Teaching, Research, Interna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Your section headings do NOT match actual</td>
<td>There are no tasks on the plan</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Not really sure if or how it would help</td>
<td>improved clarity as to its relevance to people at</td>
</tr>
<tr>
<td>9</td>
<td>Internationalisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>May have flicked through the document</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Research plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>goals and Strategies 2002 - 2005</td>
<td></td>
<td>Active involvement of staff and linking with other</td>
</tr>
<tr>
<td>14</td>
<td>Strategic Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I have read all of it.</td>
<td>Answers depend on level of responsibility</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>international</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Strategic Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Offshore and International</td>
<td>NA</td>
<td>directed comments from schools then faculties</td>
</tr>
<tr>
<td>20</td>
<td>Goals &amp; Strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>All sections of all plans</td>
<td>Question 4e should relate to the PIs</td>
<td>speeding up the process, better PIs and measures</td>
</tr>
<tr>
<td>23</td>
<td>teaching</td>
<td></td>
<td>Simplifying the plan. Nobody has time to read it.</td>
</tr>
<tr>
<td>24</td>
<td>Research Plan</td>
<td>not enough space to make my comment!</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>planning context</td>
<td></td>
<td>more feedback from 3rd parties</td>
</tr>
<tr>
<td>26</td>
<td>Research plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Learning &amp; Teaching; Research Plan;</td>
<td></td>
<td>assisting faculties/academic units to integrate it</td>
</tr>
<tr>
<td>28</td>
<td>faculty plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>UoW Vision, Research Plan, Community Eng</td>
<td></td>
<td>linking closer to day to day actions</td>
</tr>
<tr>
<td>30</td>
<td>Strategic projects, Research plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Learning and Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Strategic Projects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Count of Qualitative analysis of comments

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Qualitative analysis of comments Q15 &amp; Q26</th>
<th>Qualitative analysis of comment Q28</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>NS = LB</td>
<td>C, N = LB</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>P</td>
</tr>
<tr>
<td>7</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>8</td>
<td>NS = LB</td>
<td>C</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>S = UI</td>
<td>C, N = UI</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>C</td>
<td>N = UI</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>N = LB/UI</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>S = UI</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>22</td>
<td>S = LB</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>NS = LB</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>N = LB</td>
</tr>
<tr>
<td>25</td>
<td>S = UI</td>
<td>C</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>S = UI</td>
<td>C</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>P</td>
</tr>
<tr>
<td>30</td>
<td>S = LB</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>S = 9 (LB = 5, UI = 4)</td>
<td>N = 4 (LB = 3, UI = 3)</td>
</tr>
</tbody>
</table>

**N = 4**  
**P = 2**
Appendix E. Covering letters

University of Wollongong

INITIAL APPLICATION APPROVAL
In reply please quote: HE05/051
Further Enquiries Phone: 4221 4457

11 February 2005

Mr J McKee
School of Economics and Information Systems
Faculty of Commerce
University of Wollongong

Dear Mr McKee,
I am pleased to advise that the Human Research Ethics application referred to below has been approved.

Ethics Number: HE05/051
Project Title: Usefulness of Strategic Planning Documentation.
Name of Researchers: Mr Jim McKee
Approval Date: 11 February 2005
Expiry Date: 10 February 2006

This certificate relates to the research protocol submitted in your original application as modified in your letter of 9 February 2005. As a condition of approval, the Human Research Ethics Committee requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforseen events that might affect continued ethical acceptability of the project.

You are also required to complete monitoring reports annually and at the end of your project. These reports are sent out approximately 6 weeks prior to the date your ethics approval expires. The reports must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

Yours Sincerely,

Associate Professor Rod Nilsen
Chairperson
Human Research Ethics Committee
Appendix F. Sample of Raw Data

Created by Jim Mcke on 19-Dec-03

**Survey questions**

**Part 1 - What is the Business**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>First name</th>
<th>Family name</th>
<th>Position or Role in Organisation</th>
<th>Address</th>
<th>Suburb</th>
<th>State</th>
<th>Postcode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Organisation Name:**

**Type of Business (tick relevant area):**
- Financial
- Service
- Manufacturing
- Mining
- Transport
- Retail
- Government
- Other

**Number of staff in organisation:**

**Major uses for computing (tick each one relevant):**
- Accounting/finance
- Manufacturing/scheduling
- Customer relations
- Management Information
- Office management (WORD etc.)
- Other

**Number of dedicated IT staff:**

**Rate your company’s ability in the following areas? 1 low, 5 high:**
1. Using technology to meet business requirements
2. Knowing what information you need to run the business
3. Evaluating new applications and technology for the business
4. Evaluating the benefits of using technology
5. Implementing new systems
6. Documenting your requirements

**Notes:**
- No formal S & P
- Very vague about measures - Main goal was sales
- Illusion about part 2 (8) is
- Illusion about MIS was - knew they had computer systems
- That's all!
Part 2 - The Planning Process

1. What form does your business planning process take? e.g. Senior managers once a year, Recruit mentor monthly.
   - BO: increase sales
   - KPI: increase business income
   - KPI: individual sales
3. Are these documented?
   - Yes, increase client contact generated.
4. If yes can we get a copy if no go to Q7
5. Is there a documented business strategic plan?
6. How effective do you judge this to have been i.e. Do managers use the document for their planning? Rate 1-5;
7. Are the information system requirements derived from the business strategic plan?
8. How effective do you judge this to have been, that is does the information system effectively support the business strategic plan? Rate 1-5;
Part 3  Performance Measurement

1. Does your organization measure business performance. If no exit
   Yes Revenue > sales targets

2. Is there a single measure for the organization? Give an example and go to Q4.
   Single measure: sales/revenue/total dept

3. Is each functional unit measured separately? Give an example.
   Yes, e.g. sales

4. Do any of these measures link to operational data

5. If yes give an example
   Yes, people tracking candidates and reference checks

6. Are these measures documented formally?
   Yes

7. If yes can we get a copy?
   No

8. Are these measures documented informally, how e.g. Newsletter or staff meeting
   Yes, staff meeting

9. If documented what is the distribution of the documentation throughout the organization
   Company

10. How effective do you judge this to have been in improving business management? Rate 1-5
    where 1 low and 5 high. 3
Part 4 - Management Information Systems

1. Do you have an MIS or EIS? If no exit.

MIS

2. If yes what was the process to define the functionality? E.g. Ask managers what information they need.

3. Can business performance measures can be extracted from the MIS? Give an example else exit.

4. Does the MIS relate to the above business objectives etc. from part 2?

5. What is the distribution of access to MIS throughout the organization e.g. Only managers.

6. How effective do you judge this to have been in improving management? Rate 1-2-3-4-5 with 1 low and 5 high.
Appendix G Survey Data SPSS format see CD