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Obtaining business benefits from IT:

Factors that influence the adoption of benefit realisation methodologies in New Zealand organisations

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This thesis is presented as a part of the requirements for the award of the Degree of Master of Computer and Information Sciences of the Auckland University of Technology

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ATTESTATION OF AUTHORSHIP

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgements."

Yours sincerely,

(Saritha Kodthuguli)

ETHICS APPROVAL

The research conducted as a part of this thesis has been approved by the Auckland University of Technology Ethics Committee, Reference Number: 04/37

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ABSTRACT

Almost without exception organisations have become reliant on Information Systems (IS) and Information Technology (IT) applications. Although competitive advantage, task efficiency and effective information management are considered to be among the major drivers for investing in IS/IT, recognising, valuing and realising these expected business benefits from their investments has proved to be a complex task for organisations. The track record of the IS/IT industry shows that there are high rates of project failures, budget overruns and cancellations, resulting in the so-called IT productivity paradox. Researchers argue that the current evaluation techniques (primarily financial) are insufficient to identify, track and evaluate benefits obtained through IS/IT projects. Therefore they encourage organisations to employ non-financial techniques that are apparently more suitable for IS/IT investments. There is still much debate, however, concerning the efficiency and effectiveness of the current evaluation techniques in terms of satisfying the IS/IT investment evaluation criteria.

Benefit realisation (BR) approaches are among the non-financial techniques suggested by some in order to facilitate organisations to track, identify, measure and optimise business benefits from IS/IT projects. It appears, however, that most organisations worldwide have failed to change their practices, in part due to managerial perspectives and uncertainty of the effectiveness of BR models.

The situation in New Zealand in relation to BR is unknown. This research therefore focuses on analysing the perspectives of IT and business/finance managers' towards their current IS/IT practices. Thereby to investigate the influence of three key factors, *awareness*, *use* and *effectiveness* of BR models those were identified from past studies, in New Zealand business context.

In order to assess these factors, this exploratory study employed a positivist cross-sectional survey approach and selected five hundred IT-enabled New Zealand organisations across a variety of industry sectors, sizes and localities as the main sample. The results describe local perspectives on current IS/IT evaluation practices and on formal BR models in use. The report further compares and contrasts IT and finance managers' views towards organisations' current IS/IT practices and BR approaches. Finally concludes with recommendations for practice and implications for further research.

Although the survey received relatively low levels of response, some preliminary outcomes are evident. The main insight obtained through this study is that among the responding organisations, awareness of formal benefit realisation and use of formal BR models are fairly low. In spite of this low awareness, there is some evidence of the presence of BR *practice* among nearly one-third of IT respondents and almost half of finance respondents, who indicated the use of in-house developed models. Some of the in-house models encompass important aspects of formal BR approaches. However the extent of their use varies significantly.

Many of the responding organisations, in acknowledging their limited awareness of BR, indicated a desire to know more about the formal methods available. Moreover this research's findings are consistent with the similar studies conducted in Australia and UK. Therefore this study emphasises the need for improvement of NZ organisations' current IS/IT practice by incorporating a BR approach in order to better optimise business benefits from IS/IT. This study recommends that organisations identify the missing links in their current practices through a conceptual framework suggested here and to improve their awareness (and likely adoption) of BR in order to better optimise their business benefits and justify their investments in IS/IT.

CHAPTER 1 INTRODUCTION

1.1 Introduction

Ongoing developments in Information Systems (IS) and Information Technology (IT) have resulted in a growing need among organisations to build, integrate or acquire the most suitable applications that will enable them to achieve their corporate strategy more efficiently and effectively (Lin & Pervan, 2003; Peppard & Ward, 2004; Wang & Tai, 2003; Zee, 2002). This potentially demands huge financial commitment and high risk exposure (Kumar, 2002; Milis & Mercken, 2004; Zee, 2002) which organisations need to recognise and manage in order to justify, prioritise and carry out their investments in IS/IT. It has been well documented however that organisations struggle to justify their investments in IS/IT and to obtain monetary return on investments (Lin & Pervan, 2003; Ward & Peppard, 2002). This complexity and confusion of investing in IS/IT and obtaining expected return from these investments has been termed as "IT productivity paradox" (Brynjolfsson, 1993; Lucas, 1999). Thus in order to act more responsibly organisations need to deal with their IS/IT investments in a different way in order to justify investments and to understand business benefits.

Many studies have stated that the difficulty organisations have in justifying IS/IT investments is primarily due to the commonly used financial evaluation techniques that consider only capital return on IS/IT investments (just as from any other investments) (Apostolopoulos & Pramataris, 1997; Irani, Ezingeard, & Grieve, 1998; Lin & Pervan, 2003; Milis & Mercken, 2004; Simmons, 1996; Stamoulis, Kanellis, & Martakos, 2002; Ward & Peppard, 2002). These studies suggest that these techniques are inappropriate and ineffective to justify investments in IS/IT due to the intangible nature of IS/IT benefits which are difficult to quantify.

For more than a decade then many practitioners and researchers (Farbey, Targett, & Land, 1994; Gunasekaran, Love, Rahimi, & Miele, 2001; Remenyi & Sherwood-Smith, 1998; Shang & Seddon, 2002; Thorp, 1999) have asserted that evaluation of IS/IT should be performed considering the business benefits delivered from IS/IT projects rather than simply seeking capital return on investments. There remains much confusion and uncertainty regarding the benefits available from IS/IT, due to the evaluation methods that are being used (Brynjolfsson, 1993; Santos & Sussman, 2000; Serafeimidis & Smithson, 2003; Staples, Wong, & Seddon, 2002; Thorp, 1999).

Despite their acknowledged limitations, recent international evidence suggests that organisations continue to follow customary accounting methods to justify their IS/IT investments (Lin & Pervan, 2003; Ward & Peppard, 2002).There is resistance to change in practice and to the adoption of other techniques in spite of ongoing incidence of project failures, budget overruns, project cancellations and delays in project delivery, which clearly result in low or no return on investment (Anthes & Hoffman, 2003; *The CHAOS Report(1994),* ; Santos & Sussman, 2000; Thorp, 2001) leading to a spiral cycle of under performance and resulting in mistrust of IT in the business community (Teo & Ang, 1999b).

Many studies, long standing to most recent (Baets, 1992; Caunce, 2004; Lin & Pervan, 2003; Peppard & Ward, 1999; Staples et al., 2002; Teo & Ang, 1999b; Thorp, 2001; Ward & Peppard, 2002) have highlighted the existence of unclear business objectives, mismanagement of investments, unrealistic expectations and lack of effort to obtain benefits as some of the primary causes resulting in business-IT misconceptions and an evaluation paradox contributing ultimately to higher failure rates. All of these factors indicate that organisations needs to use one or more non-financial techniques that can look beyond purely quantifiable IS/IT benefits to see those that contribute to organisational strategy as well as to the bottom line (Apostolopoulos & Pramataris, 1997; Coleman, 1994; Gunasekaran et al., 2001; Simmons, 1996).

While a range of studies have identified several issues that contribute to the IT evaluation paradox, only a few have addressed those issues through benefit seeking in an effort to facilitate organisations as to ‘what’, ‘when’ and ‘how’ to identify and obtain business benefits from IS/IT projects. Farbey *et al*. (1994), Shang and Seddon (2002) and Work (2002) suggested that benefit frameworks or a benefit map be used to locate benefits in different functional areas in an organisation. Further, they suggest that a benefit delivery plan be used in order to maintain a time-frame for expected business benefits delivery. Although the above efforts were necessary and useful, they were not sufficient to effectively manage benefit delivery. Other researchers (Gunasekaran et al., 2001; Remenyi & Sherwood-Smith, 1998; Thorp, 2001) therefore facilitated organisations with ‘benefit realisation’ (BR) models to effectively track, manage, measure and optimise business benefit delivery, to evaluate IS/IT projects against corporate strategy and to justify IS/IT investments.

However, the recent study by Lin and Pervan (2003) on large Australian organisations and related earlier study by Ward and Peppard (2002) indicate that it is rarely an organisational strategy to utilise *any* formal BR model for justifying IS/IT investments. These studies suggest that in spite of the availability of benefit realisation methodologies most organisations do not follow any formalised evaluation paradigm. They have however noted that organisations that practice some kind of BR approaches have achieved a significant level of satisfaction from IS/IT investments. Such organisations seem to have a positive perception on the use of BR methodologies.

1.2 Research objectives

The situation just described leads to a number of questions. Why are organisations not following BR approaches? What has held them back from adopting BR techniques? Are these models perceived as inadequate in terms of delivering desired results and satisfying organisational objectives? Or are the organisations simply unaware of such models? These are just some of the questions that need to be addressed in this arena in order to obtain a clearer understanding of perspectives regarding BR approaches in today's organisations. This research therefore aims to address these and other questions (*see* Chapter 4 for more detail) in the New Zealand business environment. While most research pertaining to BR has been undertaken in offshore environments it would be equally interesting and useful to know whether New Zealand is also among those countries that do not appear to fully understand or achieve actual benefits of IT.

The current study originally intended to replicate Lin and Pervan's(2003) study reported in "The practice of IS/IT benefits management in large Australian organizations". However instead of limiting its scope only to large organisations, this research includes a large sample of New Zealand's organisations from various industrial sectors, sizes and localities that use IT mainly to support their business. In order to achieve this research objective, the current study pursues a positivist approach to compare and contrast the perspectives of IT and business managers towards the evaluation of IS/IT investments and benefit realisation. This will enable us to understand organisations' perspectives regarding BR models, the extent of BR use, and to identify the factors that influence the adoption of BR models in the New Zealand context.

1.3 Thesis structure

This thesis is organised in seven chapters. The next chapter critically reviews relevant prior research in this arena, then chapter 3 describes and discusses various BR models currently available. These two chapters outline the significance of this study in terms of its potential value for contemporary business practice. The survey method, sample selection, questionnaire design and associated information are discussed in detail in chapter 4. Chapter 5 presents comprehensive results from both the IT and finance managers' surveys. The survey outcomes are discussed in detail in chapter 6 by comparing the views of IT and finance managers with respect to the research objective. The final chapter presents the final outcomes, summary of the current study, its limitations, recommendations for practice, and implications for further study

CHAPTER 2 AN OVERVIEW OF CURRENT IS/IT PRACTICES: GLOBAL AND LOCAL PERSPECTIVES

2.1 Introduction

In order to illustrate the potential value of the current research, this chapter provides a background highlighting organisations' perspectives towards IS/IT investment trends and evaluation techniques worldwide and those in New Zealand. Recent literature discussed the difficulty of obtaining business value from IS/IT investments. This chapter sets up an appropriate basis for the current research highlighting the most critical management issues in assessing the business value of IS/IT investments.

The first section of this chapter begins by reviewing literature on IS/IT investment and discussing practitioners' and researchers' views in this regard, followed by a review of studies undertaken in New Zealand in this area to understand investment trends, current IS/IT practices and perspectives in this country.

2.2 IS/IT investment trends - A global perspective

It has been well documented that recent evolutionary developments in technology have resulted in the growing need for organisational business transformation, as a result of which organisations' investments in IS/IT are also growing (Grover, James, & Fiedler, 1998; Peppard & Ward, 2004; Santos & Sussman, 2000; Wang & Tai, 2003). This growth is in order to keep up with the pace of technological advancement, the intent being to choose the most suitable IS/IT applications that can enable organisations to better perform their business tasks efficiently and effectively, most of all to improve channels for communication and collaboration (Peppard & Ward, 2004; Wang & Tai, 2003; Zee, 2002).

Common among these applications in recent times are Internet-based systems, Mobile technology applications, Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), Decision Support Systems (DSS), Information Portals, Data warehousing and others. These applications are intended to help organisations streamline business processes and perform effective information management facilitating informed decision-making. Peppard (2003, p. 467) pointed out that "Over the years the role of IT in business has expanded significantly to the extent that it now often shapes business strategy". As today's businesses are more

information-driven the availability of timely information is critical to virtually every organisation.

IS/IT applications can incur huge financial commitment and also expose organisations to potential risks (Kumar, 2002; Milis & Mercken, 2004; Zee, 2002). Organisations find it difficult to link IS/IT investments with improved business performance using their existing evaluation techniques (mainly financial techniques) (Apostolopoulos & Pramataris, 1997; Gunasekaran et al., 2001; Milis & Mercken, 2004; Simmons, 1994, 1996). Yet, realising the increasing necessity of information management as critical to organisational activities, investing in IT-related expenditure seems to be inevitable.

It appears that organisations invest in IS/IT with some predetermined expectations in order to gain business benefits from technological innovations, which in turn may vary from business to business or from application to application depending on the organisations' strategy. It is evident from international studies (Legris, Ingham, & Collerette, 2003; Lin & Pervan, 2003; Peppard & Ward, 2004; Wang & Tai, 2003) that the major drivers for IS/IT investment are cost cutting, improved task efficiency, improved productivity, availability of timely business information for effective decision-making and either to gain or sustain competitive advantage or to maintain business agility. The survey conducted as part of this research (*see* chapters 4 through 6) addresses these issues to understand New Zealand organisations' perceived business benefits and business drivers for IS/IT investments.

Organisations' expectations seem to change gradually with their perspectives. For instance, the competitive aspect of IS/IT investment can change gradually. Organisations may not invest in IS/IT just for a competitive advantage; for some it is primarily for survival. Some studies point out that if organisations fail to invest in IT they may lag from being competitive. Complementing this view, Peppard & Ward (2004) suggested that organisations need to sustain their competitiveness in order to maintain business agility because competitive advantage can be copied easily by others. In addition to the above, past evidence also indicates that varied perceptions in management can also be a driver or barrier for investment. It has been a challenge for researchers and practitioners to analyse varied organisational perspective in relation to IS/IT investments. The current study, therefore, intends to assess organisational perspectives regarding IS/IT and its management in NZ organisations.

In addition, the widely claimed paradox of IT productivity arises mainly when IS/IT projects fail to deliver any or some of these expected business benefits (Brynjolfsson, 1993; Davis, Dehning, & Stratopoulos, 2003; Lin & Pervan, 2003; Santos & Sussman, 2000; Stratopoulos & Dehning, 2000) or when the organisations themselves fail to realise the benefits delivered by IS/IT (Shang & Seddon, 2002; Thorp, 2001) creating bitterness and suspicion regarding technology investments among the business community.

Causes that contribute to the IT productivity paradox are many and varied. Those most commonly identified in the literature are:

- Improper alignment of the organisation's business objectives with IS/IT project objectives, leading to inappropriate project selection (Baets, 1992; Peppard, 2003; Teo & Ang, 1999b; Thorp, 1999).
- Unrealistic or overly high expectations of benefits from IS/IT projects (*The Standish Group Report - Chaos*, 1995; Staples et al., 2002; Teo & Ang, 1999b) coupled with overstated promises of IT deliverables in order to get top-level approval for project investments (Lin & Pervan, 2003; Staples et al., 2002).
- Uncertainty of expected benefit delivery (Farbey et al., 1994; Shang & Seddon, 2002)
- Organisations' impatience to wait for long-term and yet to be realised IT benefits (Lin & Pervan, 2003; Stratopoulos & Dehning, 2000)
- Use of financial techniques to evaluate IS/IT returns, techniques that consider only monetary returns from projects (Apostolopoulos & Pramataris, 1997; Coleman, 1994; Milis & Mercken, 2004) and fail to quantify or even consider intangible benefits of IT (Gunasekaran et al., 2001; Irani et al., 1998; Ward & Peppard, 2002).

Financial techniques that include Return on investment (ROI), Net Present Value (NPV), Internal Rate of Return (IRR), Cost-benefit analysis or other similar payback approaches for calculating the return from IS/IT projects are the most commonly used approaches for justifying investments in IS/IT (Irani et al., 1998; Lin & Pervan, 2003; Milis & Mercken, 2004). These financial techniques, however, fail to consider the long-term and intangible benefits that accrue from IS/IT investments (Apostolopoulos &

Pramataris, 1997; Coleman, 1994; Gunasekaran et al., 2001; Irani et al., 1998; Milis & Mercken, 2004). The vast literature in this arena indicates that identifying, realising and valuing IS/IT business benefits, which may not be quantifiable through financial techniques, is becoming increasingly important. Researchers, therefore, suggest that organisations need to look beyond such financial techniques in order to effectively justify their investments (Apostolopoulos & Pramataris, 1997; Simmons, 1996). The survey conducted in this study addresses this aspect to obtain understanding of NZ organisations' strategy of evaluating IS/IT investments and to find out whether they utilise any non-financial techniques which are more suitable for IT evaluation.

In addition to the issues in and around evaluation techniques, varying management attitude has been pointed out by many studies as one of the major causes for the IT evaluation paradox (Grover et al., 1998; Peppard & Ward, 1999; Stratopoulos & Dehning, 2000; Teo & Ang, 1999b). They suggest managers fail to recognise and manage essential benefits delivered by IS/IT. Santos & Sussman (2000) argue that the delay on return on investment is "due to two separate, yet interdependent failures : failure in strategic thinking and failure to overcome senior managements' resistance to change". Studies (Grover et al., 1998; Lin & Pervan, 2003) suggest that business managers consider IT to be too technical and therefore exert minimal effort to understand and realise the business benefits delivered by the IS/IT projects. Most studies pointed out that the difficulty in evaluating IS/IT investment is more a business issue than a technical one. In this context, Baets (1992) emphasised that IT departments' participation is crucial in general business planning. Done effectively this will help groups understand the need for the right technology. Furthermore, monitoring and managing IS/IT tasks in the broader business context are equally important to obtain perceived benefits.

The above indicate that challenges remain in terms of aligning and reconciling the views of IS/IT and business managers. The current research will therefore analyse business and IT managers' perspectives, and assess their contribution to harness expected business benefits from IS/IT projects.

There is some empirical evidence to suggest that business managers have high expectations from IS/IT projects but exert a low effort to retrieve expected business benefits. Teo & Ang (1999b) found in their survey sent to 600 senior IS executives that

having top management's confidence in the IS/IT department and its capabilities is one way of gaining support for the strategic use of IT and successful implementation of IS/IT strategies. They affirm this as one of the important critical success factors for an IS/IT project. It is now commonly acknowledged that top management or business executives must know what the technology is capable of delivering, and how (Ogilvie, 2003; Thorp, 2001); it is according to these same criteria that projects should be selected.

On the other hand IT managers are required to be well aware of the business strategy and the value of IS/IT projects to that strategy, enabling them to better suggest appropriate technology that suits the business needs (Ogilvie, 2003; Teo & Ang, 1999b). Hence most researchers and practitioners emphasise that IS/IT project selection should be carefully planned and well aligned with business objectives and business needs (Baets, 1992; Datz, 2003; Ogilvie, 2003; Peppard, 2003; Peppard & Ward, 2004; Staples et al., 2002; Teo & Ang, 1999b). This process is discussed in detail in the following section.

2.3 Aligning information technology with corporate strategy

'Aligning IT with businesses' or 'aligning IT with corporate strategy' generally involves IS/IT better understanding the corporate strategy and identifying suitable technology that will enable the organisation to achieve this corporate strategy. Teo and Ang (1999b) affirmed that "Strategic information systems planning" has been one of the top ten issues for senior executives for the past one decade. The fundamental challenge to bring the two plans into a cohesive single intent. Therefore a clear understanding of corporate goals and IT needs is a must to ensure a productive relationship between the two.

The goal of IT strategy, then, is to support and accomplish the strategic aims of the organisation. If this is not well defined, however the likelihood of an IT project adding value to the corporate strategy will be minimal. Willcocks, Petherbridge & Olson (2002, p. 37) emphasise that "The key to effective use of IT is to have a clear business strategy and business model, an information strategy that supports those, and use of technologies to make these business and information strategies efficient". An organisation that fails to understand these fundamentals may reflect ineffectiveness and inefficiency everywhere. The rest of this section discusses the importance of aligning IT with

corporate objectives and highlights the causes and consequences of not aligning these two entities. Several practitioners and researchers have suggested various tools and techniques that can be considered for better alignment of IT with business. These tools and techniques are briefly discussed here, to provide an appropriate background for the current research.

As discussed in section 2.2, most organisations are focused on taking advantage of advancing technology to be competitive or to exist in their business arena. In order for this to occur, organisations need to be aware of which technology to choose, what its deliverables are and how they are related to their business strategy. Realising this, many studies (Baets, 1992; Datz, 2003; Ogilvie, 2003; Peppard & Ward, 2004; Teo & Ang, 1999b) over the past decade or more have continuously emphasised that formally aligning IT with business objectives is fundamental to every business and is also crucial in justifying IS/IT investments.

Based on the review of relevant literature, it is understood that there are several factors that underlie ineffective IT-business alignment. Key among them are the lack of awareness of non-financial evaluation techniques (Apostolopoulos & Pramataris, 1997; Gunasekaran et al., 2001; Simmons, 1996), the mismatch in business and IT perspectives (Pijpers, Bemelmans, Heemsra, & Montfort, 2001; Santos & Sussman, 2000), difficulties in defining the role of IT and role of information in the organisation (Avison, Cuthbertson, & Powell, 1999; Peppard, 2003) and the lack of support from business management in handling IS/IT tasks (Teo & Ang, 1999b). As a result, appropriate IS/IT projects will not be selected and actual business benefits of these applications may not be realised. The following section summarises issues around these factors and presents various researchers' views in this regard.

2.3.1 Causes and consequences of not aligning IT and business objectives

As mentioned previously limited *awareness* and conflicting *perspectives* of IT and business managers are viewed to be among the key factors for non-aligned business and IT. Staples *et al*.(2002) and Lin & Pervan (2003) affirmed that sometimes in order to get project approval IT managers 'oversell' the outcomes of IS/IT projects. Based on disconfirmation theory Staples *et al*. (2002) stated that "unrealistically high expectations will result in lower levels of perceived benefits than those associated with realistic expectations". As a result business managers who tend to have high expectations from

IS/IT projects outcomes are disappointed to see low returns (Teo & Ang, 1999b). This reflects a lack of awareness of a particular IS/IT project's capabilities and their relationship (or otherwise) to the organisation's requirements.

It is commonly held that in order to overcome this, business managers need to be more proactive and come out of the illusion that IT is 'too technical' (Lin & Pervan, 2003; Peppard, 2003). Pijpers *et al*. (2001) suggest that they should devote more time to explore the IT tools they possess. In 1998, Grover, James **et al**. commented that business managers considered IT as "a cost centre and a utility, and would only take notice if the machines didn't work". However the same authors added that the business executives' perception towards IT was gradually changing in the organisations who considered that IT had the potential for strategic use. This indicates that in order to understand and maximise the actual contribution of IT, organisations' perceptions and practices must change.

For their part, IT managers' awareness of business strategy, the financial status of the organisation and making an effective contribution to the business strategy are also critical. Ogilvie (2003) emphasised the importance of IT managers having knowledge of the organisation's financial status, their ability to analyse business requirements and awareness of risks associated with IS/IT projects. Baets (1992) stated that "organizations with less participation by the IS department in business planning have more severe problems than organizations with greater participation".

Teo and Ang (1999b) found that in a few extreme cases, organisations do not disclose the business plans and budget information to the IT department due to the competitive nature of their industry, resulting in limited knowledge and understanding of business strategies among employees. Naturally, due to limited strategic awareness, appropriate projects that could add strategic value may not be selected which in turn will affect the business strategy and firm performance. Ensuring that IS/IT is placed at a level of the organisation that enables awareness to be shared would seem crucial to overall success. The survey therefore addresses management practices involved in IS/IT project selection in NZ organisations.

Both groups – IT and business - are responsible for making an IS/IT project successful. In order to accomplish this, each needs to understand the other's perspectives and

collaborate in order to retrieve the actual benefit from technological investments. This in turn should enable organisations to overcome the difficulty of making optimal investment decisions (Grover et al., 1998) and will go some way to addressing the IT productivity paradox. Lack of awareness and varied perspectives may also result in a neglected contribution from business managers in managing IS/IT tasks, considered to be a contributing factor in terms of not aligning IT with business plans (Brynjolfsson, 1993; Lin, 2002; Teo & Ang, 1999b). The existence of varied perceptions between IT and business managers is considered in the current study, which uses two surveys to compare and contrast the views of NZ managers.

In general IS/IT can be viewed as either supportive to business or as an enabler for key operational processes. It is necessary for organisations to be sure about what IT can achieve for them. In order to ensure that technology adds value to the organisation's strategy, it is important to ensure that technology is leveraged optimally in the organisations (Peppard & Ward, 1999; Pijpers et al., 2001). If the place and role of IT in the organisation itself is not well understood then any IT investment plans are likely to be hazy at best.

There are several techniques that organisations can employ in order to make the right investment decisions and to justify their investments, apart from cost-benefit analysis and similar. Pre-investment appraisal techniques such as the Technology Acceptance Model (TAM) can be used to consider the pros and cons of any proposed project (Ward & Peppard, 2002). It also enables managers to analyse use, and user's behaviour (Legris et al., 2003; Pijpers et al., 2001). Thus a comprehensive evaluation of the technology's ease of use and its contribution to business value can be conducted. The use of TAM, or any relevant model, can contribute to a fuller analysis of likely project outcomes and enable organisations to better justify their investments in IT. Envisaging the importance of such practices in ensuring sensible investments, the current study addresses pre-investment techniques pursued by New Zealand organisations.

2.3.2 Techniques for aligning IT with business

An entire thesis could be written on this topic alone. Given the focus of the current study, we restrict our discussion to issues relevant to investment and business benefits. Most studies suggest prioritising corporate objectives as the most important approach used in business-IT alignment. However based on the vast literature reviewed in this

arena, prioritisation of IT initiatives in general is influenced by two inter-dependent factors – *economic* factors and *human* factors.

The economic factors encompass the financial situation of the organisation and its ability to invest in desired technology. Human factors include organisational culture (Grover et al., 1998) managers' and employees' resistance to change (Santos & Sussman, 2000), user groups' competence to use a particular technology (Grover et al., 1998) false promises and unrealistic expectations (Lin & Pervan, 2003; Staples et al., 2002), managerial attitude towards technology and its management. All these factors can lead to ineffective decision on IS/IT investments (Grover et al., 1998). The impact of these factors and managerial attitude in today's NZ organisations' IS/IT practices will be analysed in this study.

Much has been researched in the area of aligning IT with business in order to increase awareness among organisations about alignment causes and consequences. A range of studies (Baets, 1992; Hayward, 1987; Peppard & Ward, 2004; Ward & Peppard, 2002) have been conducted for more than a decade to understand and emphasise the importance of aligning business strategy with IS/IT strategy. The core concept of these models is to align IT objectives with business strategy in order to understand the drivers for IT, the role of IT and how IT is going to contribute to their business.

As discussed previously collaboration from IT and business management is the key in developing business-IT strategy. This will enable organisations to select appropriate IS/IT projects. IT has the potential for effective business transformation if used and managed in the right way. Therefore the influence of human factors is very high in the case of handling, harnessing and realising the effective business benefits of IS/IT. Further, in order to realise total IS/IT capability Peppard and Ward (2004) suggest that along with IT and business managements' collaboration, stakeholders' knowledge, experience and attitude are very crucial. The current study addresses this in the survey in order to understand organisations' approaches to IS/IT project selection.

Reiterating the core concepts of aligning IT with business strategy and the impact of IS/IT capability on the organisation's performance, Peppard and Ward (2004) have developed a new model that incorporates a new component called 'IS capability', emphasising the influence of IS capability across a range of strategic and operational

activities (illustrated in Figure 2.1). The model extends the view of aligning IT with business and suggests proliferation of IT value throughout the organisation. They insist that the performance of IT in each area will contribute to the other, create new business avenues, provide support, contribute to the business strategy and in turn result in better organisational performance. These models and paradigms may not guarantee successful evaluation of IS/IT investments, however failure to consider these aspects can result in more complications.

In accepting such a level of 'infiltration' of IT, it is therefore vital that the organisation monitors IT initiatives closely and consistently if the full business benefit is to be gained. If not those involved may lose confidence in the organisation's ability to derive total IT value creating a paradox of IT productivity. The survey conducted as part of this study will therefore address the level of monitoring performed in NZ organisations with respect to IS/IT projects.

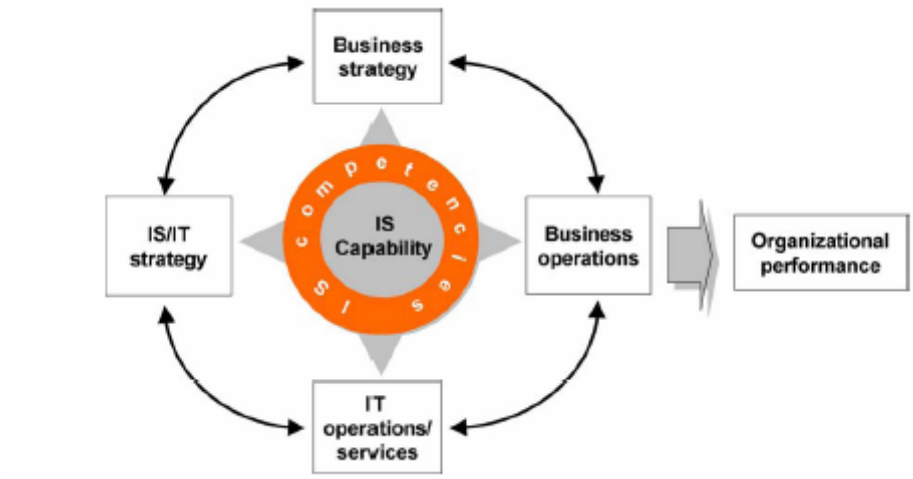


Figure 2.1 The new IS/IT alignment: IS capability and organisational performance [Source: Peppard and Ward (2004)]

The vast array of research in this area of IT has suggested a variety of ways to align IS/IT functions and objectives with corporate strategy in order to unlock the actual business value of IS/IT projects. For instance, Peppard (2003) suggested that management of IT services should be considered as a portfolio of services in order to obtain maximum contribution to organisational performance. The current study will address the management approaches taken by the NZ organisations to link IT

investments and business objectives to analyse the effort these organisations expend to align IT with business.

2.3.3 Managing IS/IT applications

As is evident from the above discussion, among the fundamental aspects of aligning IS/IT with organisational aims and objectives are the selection of appropriate IS/IT projects as per the business objectives, managing them effectively and being aware of and mitigating against potential risks associated with IS/IT projects. Studies by Ward and Peppard (2002) and Peppard (2003) suggest that IS/IT projects should be strategically classified into four categories – strategic, high potential, key operational or support depending on the project's contribution to business value, illustrated in Figure 2.2. The 'infrastructure' depicted in the Figure 2.2 indicates the impact on the infrastructure by the capabilities of those IS/IT application in the four areas.

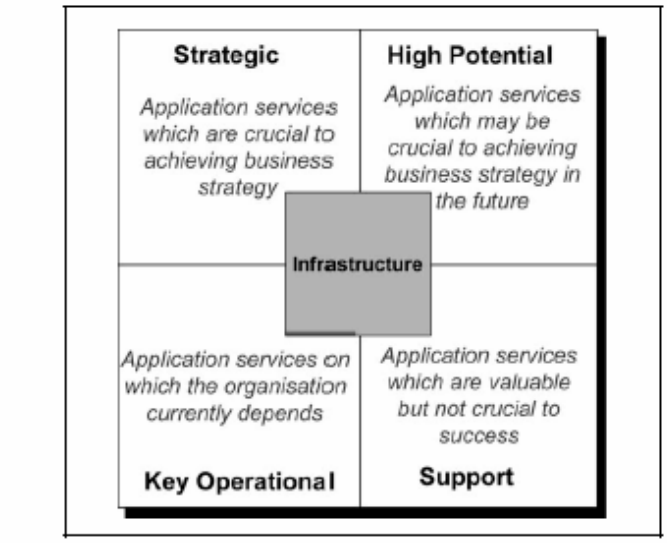


Figure 2.2 The applications services portfolio and IT infrastructure
[Source: Peppard (2003)]

Such a classification should enable an organisation to better understand the role that IT can play across all levels of activity. Further it should help them analyse the amount of effort they need to apply in order to extract maximum benefits from their projects and improve the quality of services that business managers and other stakeholders expect from technology investments.

Gaynor (2003) points out that finance managers and others at the board level have the responsibility for IT spending in their organisation and that spending should maximise productivity and result in better economic performance. Collaboration between high-

level business and IT personnel should enable them to understand each other's objectives, problems and limitations. This will further enable them to make informal decisions on effective project management, decide on implementation issues and also on the criteria with which IT projects are evaluated. Thus the potential problems of high expectation, lack of awareness and varied perceptions can be managed to a certain extent and both sets of managers will be aware of their responsibilities in obtaining business value from their investments.

Although all these studies emphasise several techniques for selecting appropriate IS/IT projects to suit their business goals, some other studies highlight that organisations rarely adopt any of these techniques prior to investments (Lin, 2002; Ward & Peppard, 2002). These studies suggest that organisations often hesitate to adopt any kind of pre-implementation or post-implementation evaluation approaches presuming that these tasks are time consuming or inefficient or demand resources.

A popular press article (*Connecting IT investment to value,* 2003) instantiates a common problem faced in US organisations with regard to evaluating IS/IT investments. It is reported that not even 12 percent of the organisations are able to provide information on technological spending. Furthermore it reported that 72 percent of companies do not "effectively tie IT investments to business strategy and goals" (*Connecting IT investment to value,* 2003). Although the scope of the study is not described in full the outcomes cannot be totally ruled out, because it matches the findings of others. It is evident from Lin & Pervan (2003) and Ward & Peppard (2002) that there are many organisations in Australia and Europe irrespective of the industry sector who do not tie IT investments to business goals, which is the aim or intent of business-IT alignment.

In order to gain a greater degree of locally relevant knowledge about these issues, the current research intends to analyse the planning processes involved in IT investment decisions in New Zealand organisation. The survey addresses IT and business managers' views on their current practices and the changes they would suggest to improve their current practices. The next section describes the IT investment trends and management practices in New Zealand in order to provide a snapshot of the current understanding of these issues

2.4 New Zealand perspective

2.4.1 IT investment trends

New Zealand is no different from the rest of the world in terms of investing in IS/IT. It is evident from a list of "New Zealand's top 100 IT users" published by MIS in June 2003, that organisations' investments in IS/IT is growing in a variety of projects. The list included organisations from both the public and private sector over a variety of industry groups (MIS, 2003). This concurs with the Ministry of Economic Development's report by Butler (1996) that New Zealand is becoming a 'knowledge society'. Further, IDC's report predicted over 1000 large New Zealand businesses to invest in IT solutions costing more than $100,000 by April 2003 (Greenwood, 2002).

Bell, McMath, and Bland's (2003) report on New Zealand's top 100 IT users indicated that the total IT expenditure for the year 2003 among their respondents was about $2.035 billion. Statistics New Zealand's survey on total IT expenditure (sales of IT goods and services) in 2002 (financial year), excluding communication services listed it $4.274 billion. Growing advancement in technology, especially in relation to the internet has opened various avenues for IT investments in all industry sectors and sizes. In order to obtain an up-to-date understanding of the situation in New Zealand, the survey addresses NZ organisations' IT and business managers views on IS/IT investments in their organisations.

It appears that, both public and private sector organisations are increasingly investing in IT. The previously mentioned MIS report listed more than 50 organisations from the public sectors (22 government organisations, 23 educations and research, 9 healthcares) among the top 100 IT users in the country. According to a stocktake report of IS/IT investments in New Zealand's public sector, "Information technology has become, and will continue to be, a major vehicle for conducting Government business, particularly as departments pursue improvements in efficiency, effectiveness and business outcomes." (http://www.executive.govt.nz, 1999). It reports that new developments in IT and the trend of investing in IT in the private sector have encouraged public sector organisations to do the same. While most studies have focused only on private sector organisations, little has been researched to understand the IS/IT requirements and perspectives of public sector organisations. Therefore the current survey addresses organisations across all industry sectors (and sizes) in order to obtain a comprehensive picture of the trends

of investing in IT in these organisations and their approaches to managing these investments. This may be useful for organisations to benchmark themselves with respect to their practices and learn from the best practices of other organisations.

Similar to international organisations, the main drivers for IS/IT investments in NZ seem to be cost reduction, improved quality of service, competitive advantage, product efficiency, efficiency in information management and to improve decision making strategies. Reports (Greenwood, 2002) suggest that there are likely to be increased numbers of IT deployments in organisations including, e-commerce, e-business, mobile technology, multimedia applications, ERP, Supply chain management, CRM, storage systems, and data warehouses. Caunce (2004) states that due to rapid advancements in technology 'keeping up with the technology' has become the number one challenge for organisations these days.

There now follows a synopsis of a few New Zealand case studies demonstrating the application of technology and the drive for its investment to be at pace with the advancing technology.

"Increased competition, tougher regulatory standards and changing customer demands have put pressure on global banking and financial services companies to develop creative and cost-effective business strategies" (Murphy, 2003). In this discussion the author highlights Westpac's achievement of 376% ROI from deploying Oracle E-business applications, through cost reductions and productivity improvements.

The Inland Revenue Department (IRD) extended its on-line transaction capabilities through web based applications for improving service to tax payers, both individuals as well as businesses. This is a component of their strategy of e-enablement in order to improve their quality of service (Newman, 2003).

Similarly, TVNZ-owned Broadcast Communications (BCL) increased their transmission capability by replacing their analogue wireless system with a digital microwave radio network to improve quality of service. Through CRM applications, Amcor Kiwi packaging increased flexibility and effectiveness in reporting, enabling them to better understand customer needs and improve levels of service (*Amcor Kiwi packaging wraps up a CRM solution*, 2003).

Another example of technology innovation is reflected in the case of Griffin's Foods limited, which adopted Vodafone's GPRS network for efficient stock management (*Griffin's stock management made easy*, 2003). Pizza Hut is another example. It adopted an online order and delivery system through ZeroOne, leading to increased sales and reduced load on call centre operation (*Online orders delivering for Pizza Hut*, 2003).

These are just some of the instances of technology innovation in this country that have resulted in business transformation. It is evident from 1999's stocktake report (Archive, 1999) and the previously mentioned case study example of the IRD, that there is also a growing need for IS/IT applications in public sector organisation. Peppard & Ward (2004) suggested that the notion of e-government and the drive for better quality of service has encouraged public sector organisations to invest in IT. This is the case with NZ government organisations, which focus on increasing collaboration and improving quality of service by enabling ready access to the government information through the internet (*Electronic government*, 2004). Similar levels of investment are evident in the education sector, which includes some of the top 100 IT users in New Zealand. In this highly competitive sector, IT has been used among other things as a 'marketing tool' to attract more students (Bland, O'Neill, & Bell, 2003).

It is clear, then that levels of investment continue to grow. How these investments are managed is now considered (and is addressed in the survey described later in this thesis).

2.4.2 Management of IS/IT investments

It is evident from the above-mentioned synopses that the trend towards investing in IT is to utilise the most appropriate tool or IT innovation according to business strategy. Such investments are not without risks however. On a par with international evidence, there are some instances of failed projects locally. The failure of the National Library's NDIS project, problems with educational payroll systems, and heavy investments in the abandoned Police INCIS project are some of project evident in public sector organisations (Archive, 1999). Among the common causes and consequences of such project failures is that the expected benefits are not delivered as and when expected.

One sense of the scale of investment in the public sector can be gained from the previously mentioned 1999 stocktake report (Archive, 1999) on IT activities in 41 government departments - 455 applications were in use and more than 174 major IT projects had been running or started in the preceding few years. It showed that more than $369.5 million was invested in hardware and software prior to 1996; this amount however did not include change management, data migration and other project related costs. The report showed that in the main IS/IT investments were managed well and were held within budget. A few instances of budget overruns were recorded. On the other hand, there were also a few projects (2%) that were under-budget.

A more recent survey highlights the ongoing challenges related to the management of IS/IT projects. Questions were put to 200 CIOs and CFOs from New Zealand's top 400 businesses by Fuji Xerox (Caunce, 2004). On a par with the global environment it is evident from this report that some of the major causes for IS/IT project failures are unclear objectives, high expectations, lack of collaboration and failure to fulfil expectations. Around 50% of the respondents agreed on the above stated causes. Around one-third of the respondents suggested that investments fail if technology fails to increase competitive advantage. The same study added that misunderstanding of business objectives and changing expectations are the key factors in project failure. These aspects of IS/IT investment will be more fully investigated in the current survey.

As discussed previously, one of the key reasons for the IT evaluation paradox is ineffective IT management. In spite of this, very little in-depth research has been done in this area in terms of current practices in this country. An exception to this is the work reported by Davies, Munday, Thompson, and Young (1995) that identified critical issues of IT management in New Zealand organisations according to IT managers, consultants and academicians in an effort to benchmark them against international studies.

Table 2.1 depicts the overall findings of their study, the purpose of which was to inform the *IS community* of the key issues in the arena and to prepare themselves to handle them more efficiently and effectively. It also ranks the magnitude of the importance of these issues from the IS community's viewpoint.

Issues	Ratings
IS and Business alignment	6.40
IS staff skills	5.70
Competitive advantage	5.57
End User Computing	5.41
Telecommunications	5.39
Security and Control	5.16
Identifying Projects	4.99
Measuring IS Effectiveness	4.86
Open Systems	4.71
Application Proliferation	4.63

Table 2.1 Issues of IT management

[Source: Davies *et al*. (1995)]

The impact of some of the issues listed in Table 2.1 have been already discussed in this chapter, particularly the issues around IS and business alignment, competitive advantage and measuring IS effectiveness and identifying projects. This indicates the prominence of these issues in New Zealand just as in other countries. These issues are further discussed in Chapter 3 in order to establish a relationship between these issues and the current research. While their study identified the key issues of IT management, little was mentioned regarding how these should be dealt with. The authors themselves called for careful investigation of these issues. The current study is one effort at such an investigation.

Understanding the impact of the various factors identified by studies globally and in New Zealand in managing strategic information systems, the current study will focus on identifying the link between current IS/IT practice and organisations' perspectives in relation to these issues. It is evident that organisations internationally and locally are finding it difficult to achieve a positive correlation between IT investments and return on these investments using financial assessment techniques. Therefore in the next chapter non-financial techniques that fall under the label of 'benefit realisation methods' for effective IS/IT management are described and discussed.

2.5 Summary

This chapter provides a significant background for the intended study. Here the main issues around IS/IT investments and justifying those investments were highlighted from

both international and New Zealand perspectives. The key challenges in terms of justifying IS/IT investments are investment mismanagement, existence of unrealistic expectations and the mismatch in the perspectives of IT and business managers. The next chapter will describe and discuss alternative non-financial techniques for evaluating IT that are purported to addresses these challenges.

CHAPTER 3 AN OVERVIEW OF BUSINESS-IT BENEFIT REALISATION AND BENEFIT MANAGEMENT APPROACHES

3.1 Introduction

In the previous chapter recent IS/IT investment trends in organisations worldwide and in New Zealand were discussed. The chapter also highlighted issues related to evaluating and justifying IT investments in terms of IS/IT's contribution to business value and organisational performance, especially using traditional financial techniques. The purpose of this chapter is to convey an alternate, non-financial technique called benefit realisation (BR) which can be used to link IS/IT investments to organisational performance. This concept is the main theme of this research and a survey will further investigate whether New Zealand organisations have adopted any of these techniques.

In the first section the emphasis is on the need for BR techniques to enable effective IS/IT evaluation. The second section describes benefit frameworks and BR models, which are the instruments employed in BR. Discussions on published BR models, organisations' perspectives on the use of such BR models, and the problems and challenges that need to be addressed in this arena is then provided. The final section of this chapter focuses on the motivation for the current study.

3.2 What is benefit realisation?

Describing the issues of IS/IT evaluation in 1994, Farbey, Targett, and Land categorised IS/IT evaluation processes into three parts. The first is to evaluate in terms of cost, the second in terms of benefits, and the third and most important is to balance benefits against costs. The main focus of the current study is on the latter part. Various techniques have been suggested by several researchers to balance benefits against cost (Farbey et al., 1994; Shang & Seddon, 2002; Work, 2002). BR is one such effort, and will be discussed in detail throughout this chapter.

'Benefit realisation' or 'benefit management', also known as 'value management', is an approach that is used to identify, prioritise and optimise business benefits arising from IS/IT projects, which cannot be done effectively through traditional financial techniques. In order to pursue such an approach Thorp (1998; 1999; 2001) asserts that organisations' attitudes towards IS/IT need to be changed so that efforts are focused on business, rather than necessarily financial benefits. As discussed in the previous chapter

in order to understand IS/IT's true capabilities, support from both business *and* IT management is needed. BR will enable organisations to put these ideologies into practice.

Benefit realisation is also defined as "the process of organizing and managing such that potential benefits arising from the use of IT are actually realized." (Ward & Peppard, 2002, p. 439). Benefit realisation models basically encourage organisations to keep a track of processes involved in successful IS/IT management and increases their ability to identify not only the monetary returns of IT but also the business benefits.

The rationale for BR is discussed in chapter 2. Although competitive advantage, improved task efficiency, effective information management, and quality of service are among the major drivers that encourage organisations to invest in IT, identifying, managing and evaluating these business benefits seem to be equally complex, but important tasks (Lin & Pervan, 2003; Ward & Peppard, 2002).

The issues of obtaining business benefits from IS/IT and justifying investments have been widely discussed by many popular press articles and a couple of market research reports, something that may have escalated the paradox of IT evaluation among organisations. Anthes and Hoffman (2003) remarked that investments in IS/IT are increasing with little return on investment and more project failures. The same is reiterated in the widely publicised Chaos report by the Standish group (*The Standish Group Report - Chaos*, 1995), suggesting that only 16.2% of projects were successful while the majority of projects (52.7%) were over budget and the remaining 31.1% of the projects were cancelled. A Canadian study cited in Thorp (1998) highlighted that 87% of projects were completed late, 57% were over budget and 45% failed to deliver expected benefits. Similarly, Willcocks, Petherbridge & Olson (2002) found that more than 70% of IS/IT projects ran either over budget or beyond schedule. Such figures indicate that an executive solution is essential to improve project outcomes.

The Standish report (*The Standish Group Report - Chaos*, 1995) further highlights the root causes for such statistics. It is reported that besides lack of user input, management support and technological competence, unrealistic expectations, unclear objectives, lack of resources, and unrealistic timeframes were also among the top ten issues. This situation can be improved only if the organisations change their perspectives and

address these issues directly. The same issues were highlighted by most of the studies discussed in chapter 2. In this regard, Butler (2003) contends that although IT governance means aligning IT and business, it provides little guidance on how to achieve benefits from IT.

The Standish Group (*The Standish Group Report - Chaos*, 1995) emphasised that maintaining shorter timeframes, proper planning, building clear statements of requirements, strong executive support and user (stakeholder) involvement can increase the success rate of projects. The same notion has been conveyed by Remenyi and Sherwood-Smith (1998), Ward and Peppard (2002), Thorp (2001) and other researchers who insist that identifying and realising business benefits through a systematic approach is essential for effective IT management. Understanding business benefits of IS/IT through benefit realisation approaches has seemingly become important and both researchers and practitioners are encouraging organisations to understand the importance of these techniques and embed them in their current situation. In line with these concepts this study investigates the current practices of New Zealand organisations and their means of identifying benefits arising from IS/IT investments.

As discussed in the previous chapter, most organisations' perceive there to be a mix of intangible and tangible benefits. Furthermore, many of these benefits are long-term achievements, an aspect which should be considered at the time of evaluation. As discussed in chapter 2, although financial techniques hold good for other forms of investment, these techniques are not sufficient to evaluate IS/IT investments due to the nature of IS/IT benefits. Considering these issues, the current study examines the evaluation procedures followed in New Zealand organisations. The effectiveness of their current approaches and evaluation criteria will be analysed from both IT and business/finance managers' perspectives from various organisations.

While a range of research in the IS/IT evaluation arena discussed previously insisted on the use of an alternate technique to improve the current scenario, only a few actually came up with a suitable solution to this problem. Among them are (Farbey et al., 1994; Gunasekaran et al., 2001; Remenyi & Sherwood-Smith, 1998; Shang & Seddon, 2002; Thorp, 1999), who suggested techniques through which organisations can identify and assess perceived business benefits delivered by IS/IT projects.

In order to simplify the task of assessing and identifying business benefits Farbey *et al*.(1994), Shang & Seddon (2002) and Work (2002) suggested benefit frameworks or benefit maps to identify benefits delivered and to improve the likelihood of benefit delivery. Others (Gunasekaran et al., 2001; Remenyi & Sherwood-Smith, 1998; Thorp, 1999; Ward & Peppard, 2002) suggested more formalised approaches to track, harness, assess and maximise business benefits through benefit realisation models and to better analyse the effect of direct, indirect and long-term benefits on business value. The following sections describe and discuss such benefit frameworks and benefit realisation models in detail.

3.3 Benefit frameworks

After reviewing the literature in this arena it is understood that perceived business benefits from IS/IT applications can vary from application to application and from organisation to organisation, depending on management culture, experience, technological expertise and even the size of the organisation. Therefore in order to improve and maximise expected benefits, organisations should be aware of what to expect, and how and when to harness those benefits from their projects (Farbey et al., 1994; Shang & Seddon, 2002; Thorp, 2001; Work, 2002). This suggests a targeted rather than generic approach. Moreover in most cases benefits are not restricted to one particular department or group. Benefits can be distributed throughout the value chain and in different functional areas in the organisation (Mahajan & Vakharia, 2004). Therefore it is organisation's responsibility and capability to identify and measure relevant benefits in order to justify their investments in IS/IT projects. This can be performed using one or more benefit frameworks.

Farbey *et al.* (1994) suggested the use of three frameworks - strategic, organisational and technological – to visualise, recognise, prioritise and realise the benefits pertinent to each particular level. The frameworks also comply with the principles of aligning business and IT strategy. The authors suggest that organisations utilise these frameworks once at the time of project justification, which can enable them to enhance the scope of benefit discovery; and to use the frameworks once again after the completion of the project in order to extend the scope of obtaining unexpected benefits.

With the same objective Shang and Seddon (2002) developed a benefit framework that encompassed and extended the views of several researchers. Their framework (depicted

in Table 3.1) is a result of analysing a range of articles that explained various ways of identifying benefits and also by interviewing business managers from 34 organisations. Broader than the benefit frameworks suggested by Farbey *et al*. (1994), Shang and Seddon's framework (2002) focuses on five different dimensions that organisations need to target for development and benefits. Among these five areas the main drivers for investing in IS/IT can be identified and associated benefits targeted.

Dimensions	Sub dimensions
Operational	• Cost reduction • Cycle time reduction • Productivity improvement • Quality improvement • Customer service improvement
Managerial	• Better resource management • Improved decision making and planning • Performance improvement
Strategic	• Support business growth • Support for business alliance • Building business innovations • Building cost leadership • Generating product differentiation • Building external linkages
IT infrastructure	• Building business flexibility for current and future changes • IT cost reduction • Increased IT infrastructure capability
Organisational	• Changing work patterns • Facilitating organisational learning • Empowerment • Building common vision

Table 3.1 Benefit framework

[Source: Shang & Seddon (2002)]

The benefits identified in the frameworks above may not be definitive and organisations need not be limited to only these. In fact such frameworks can be beneficial to be used as indicators to guide the organisations where to look for benefits. These frameworks can also be indicative, enabling organisations to develop more appropriate and relevant

benefit charters with anticipated benefit delivery times and necessary actions to be taken when expected benefits are not delivered as per schedule. Another advantage of these frameworks is that they also highlight both tangible and intangible benefits, encouraging organisations to consider those intangible benefits that are less obvious when purely financial techniques are employed.

Although benefit frameworks have the above advantages, these frameworks do not suggest the *means* to quantify intangibles, which is one of the main challenges of evaluation (Gunasekaran et al., 2001). Moreover as stated by Thorp (2001), benefits will not be delivered automatically by simply identifying or estimating them. Therefore such frameworks do not provide a complete solution for IS/IT evaluation or benefit realisation.

Having said that, a benefit framework still can be an effective tool, essentially because it provides an opportunity for organisations to consider the value of IT from a non-financial perspective. Therefore management's awareness and experience of benefit management is important. Considering these aspects of benefit framework use, the current study addresses these issues in the survey, in order to investigate, practice in terms of benefit frameworks in New Zealand organisations and also to analyse their effort in realising business benefits of IT. An enhanced concept of benefit frameworks that can be utilised to manage these benefits is discussed in the following section.

3.4 Description of benefit realisation models

As just described, benefit frameworks provide a basis for benefit identification. However, managing the realization of these benefits requires a more structured approach. As discussed previously the ability to achieve benefits from an investment depends on the organisation's experience coupled with its knowledge of benefits and its awareness of associated potential risks of a particular IS/IT project (Kumar, 2002; Milis & Mercken, 2004; Thorp, 2001; Ward & Peppard, 2002). Therefore effective IS/IT management requires a series of activities to handle all these issues carefully and to manage perceived business benefit delivery effectively. A benefit management or benefit realisation (BR) model is a contribution to this effective IS/IT management that encompasses a series of activities and techniques based on the concepts of total quality management (Ward & Peppard, 2002). BR models provide a more descriptive approach for effectively handling and obtaining perceived business benefits.

As mentioned several IS/IT researchers (Gunasekaran et al., 2001; Remenyi & Sherwood-Smith, 1998; Thorp, 1999; Ward & Peppard, 2002) have developed different models encompassing important aspects for managing IS/IT that facilitate benefit delivery.

Here now follows a description of the functionalities of the most widely known BR models. These are:

- Cranfield process model of benefit management (Ward & Peppard, 2002)
- Active benefit realization (ABR) approach (Remenyi & Sherwood-Smith, 1998)
- A conceptual model for evaluation of IT projects (Gunasekaran et al., 2001)
- DMR (Thorp, 1999, 2001)
- Project Appraisal Model (PAM) (Serafeimidis & Smithson, 2003)

First the functionalities of these BR models are discussed followed by a summary of analysis. There may be several other models for BR apart from those mentioned here; however these are typical of the benefit realisation models which have been discussed in the literature. Therefore only these models are discussed here and the survey will investigate if there are any other models widely adopted in New Zealand.

3.4.1 Cranfield process model of benefit management

In order to address the issues of effective benefit management the IS Research centre at the Cranfield School of Management together with experts from major UK-based organisations developed the Cranfield process model of benefit management (Ward & Peppard, 2002) (illustrated in Figure 3.1). Studies (Lin & Pervan, 2003; Ward & Peppard, 2002) recommend that this model can be used as a basis for best practice which will enable organisations to analyse successes and failures in IS/IT projects and to determine the causes for failures and for non-delivery of expected benefits. The model emphasises identifying the benefits of projects, allocating responsibilities for managing the benefits, and the tools and techniques used in managing the project. This model has five stages. Given below is the description provided by Ward and Peppard (2002).

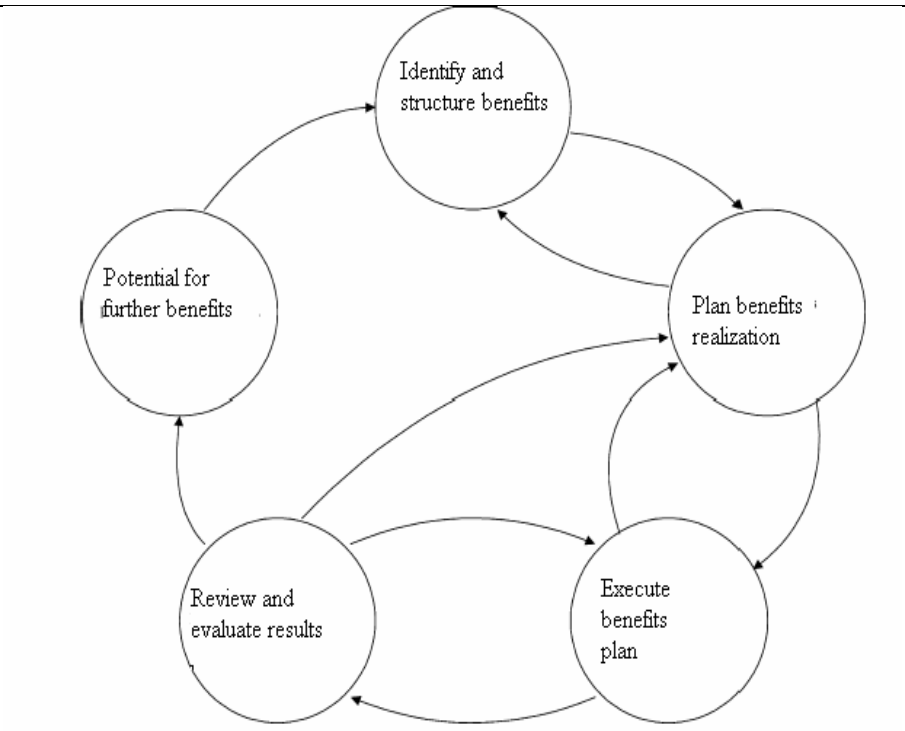


Figure 3.1 Cranfield process model of benefit management

[Source: Ward and Peppard (2002)]

1. Identification and structuring of benefits – In this stage, primarily strategic requirements from the IS/IT projects and related business processes are identified. Subsequently, required business process changes are planned and compared with the predetermined benefit drivers. A business or IT representative will be appointed to record and track benefit delivery in order to increase the awareness of benefits.

2. Planning Benefit Realisation – In this stage the necessary business processes involved in order to achieve those perceived benefits are planned and carried out. Stages 1 and 2 may have iteration and changes may be required in stage 1. The changes are of two types, *business changes* and *enabling changes*. Business changes are those that may be affected by the new technology in work practices of employees or changes in their roles in order to achieve any perceived benefit. Enabling changes are those caused by or resulting from the new technology. These changes may invoke particular business change, training, improving business skills which are essential for obtaining perceived benefits. Both business changes and enabling changes may well be interrelated. Any of these changes can also impact on stage one by further modifying business changes which may also be crucial to ongoing business strategy.

These first two stages can be considered as comprising a process of pre-implementation or change management with an in-depth knowledge of a project's capability to deliver expected benefits. Once these stages are finalised the relevant business cases are developed and presented to obtain senior management's approval for the project. Once the project is approved it moves on to stage three.

3. *Executing the benefits plan* –In this stage the plans are executed and monitored regularly, once the business processes and business benefits are planned. As described in chapter 2, monitoring the progress of each project is paramount. This has been emphasised in stage 3 of this model, to constantly regulate necessary actions to ensure benefit delivery, reviewed in order to be flexible for future changes. It includes monitoring the business processes, identifying, and measuring the benefits delivered. Stakeholders of the benefits and the necessary actions to be taken in each case are also defined at this stage. There is also scope to identify further benefits that may not have been realised previously, which may result in further changes in stage two. The financial situation of the organisation and other causal changes are also considered and may iterate with stage 2 leading to mandatory amendments to business processes and the benefits plan.

4. *Reviewing and evaluating results* – This stage involves both top-level management and stakeholders assessing the performance of the project under implementation. The objective of this stage is to evaluate and monitor the progress of the project. This task is performed with two objectives: first, to maximize the benefits of the particular investment, and second, to seek out opportunities for further improvement in benefit delivery and to identify scope for future investments.

This stage includes project management, systems development and change management methodologies. The results obtained from the reviews may be useful to assess whether the expected benefits are delivered or not. At this stage, user feedback and other individual interviews are undertaken to analyse the business value of the project. The opinion from stakeholders of the project will be analysed in order to obtain a picture of project performance and effectiveness. Benefit measurement also needs to be carried out. Benefits that are not delivered should be recorded and the reasons for not delivering the benefits should be identified. This stage may also iterate with stage 3 and 2,

resulting in further changes. Once the benefits are reviewed and evaluated the process moves to stage 5.

5. Potential for further benefits – At this stage with the results of reviews and evaluations all available, the organisation will have a thorough knowledge of the effectiveness of the project in satisfying strategic needs. Thus there is scope for identifying future business requirements and necessary or possible improvements in the current system. An outcome may open up further opportunities for investments or can avoid further unnecessary investments.

This model begins with aligning business objectives with IT objectives by analysing the business objectives and the business benefits that technology can bring. The stages are all iterative, constantly checking whether the expected benefits are delivered or not. This should help the organisation to determine any changes required to obtain perceived benefits. Most importantly the model encourages collaboration between IT and business management especially in first two stages. In stage 4, users' and other stakeholders' perspectives are taken into consideration, which can enable the organisation to assess the performance of the project and also to continue with further change management processes.

It is evident (Ward & Peppard, 2002) that organisations are beginning to adopt this model but only in the hundreds. A survey, the Wentworth Research report cited in Ward and Peppard (2002, p. 438), suggests that the approach is "one of the few that comprehensively addressed the range of management issues associated with maximizing actual benefits delivered." This rate of model adoption, however, indicates that organisations are either not confident about the performance of the model or are not aware of the model. The survey conducted here includes this model as one of those possibly adopted in New Zealand organisations.

3.4.2 Active benefit realisation (ABR) programme

The ABR programme for IS/IT projects aims to "increase business benefit delivery from information systems as well as reduce waste and reduce 'time to market' of appropriate information systems to support the business" (Remenyi & Sherwood-Smith, 1998, p. 81). The ABR model was designed by Remenyi and Sherwood-Smith (1998),

who have more than 20 years of experience in IS and business, both as academics and as practitioners.

The model emphasises active participation of stakeholders of the IS/IT projects in the evaluation processes, it focuses on identifying business benefits and making the stakeholders realise the business benefits of IS/IT. Remenyi and Sherwood-Smith (1998) claim that the model is easy to use, and less time consuming as far as managing and reviewing processes are concerned. They contend that that their BR technique can complement robust project management and financial management techniques, which are critical in order to encourage the top executives to invest in IS/IT projects and to obtain optimal results from the same.

The ABR programme includes seven major activities, illustrated in Figure 3.2. The processes included in each stage are described here.

1. *Initialisation of project* - This stage is similar to 'setting the course' for an IS/IT project, to decide whether to launch the project or not. Therefore this stage mainly focuses on aligning business objectives and IS/IT objectives, thereby identifying the purpose of the project and developing a clear understanding of what has to be achieved from the proposed project. This facilitates the organisation in obtaining a clear picture of all the benefits that the project could deliver. Further, these benefits are validated against the business objectives. If the project does not satisfy strategic requirements then the project can be postponed or potentially cancelled.

2. *Production of pictures* – In this stage the business requirements, financial situation and IS/IT project capabilities are scrutinised. Therefore an initial business picture (BP), an initial financial picture (FP) and an initial project picture (PP) are created. This should serve to highlight the purpose of the project and the financial impact on the organisation, facilitating top management in making an informed decision on the proposed IS/IT project

3. *Agreement to proceed where justification is crucial* – This involves decision-making and obtaining consent from stakeholders to participate in the evaluation process prior to launching the project.

4. *System development* – Once the decision on project implementation is finalised the system development phase will be initialised. Simultaneously the deliverables of the project are identified and documented, forming the basis for evaluation at a later stage.

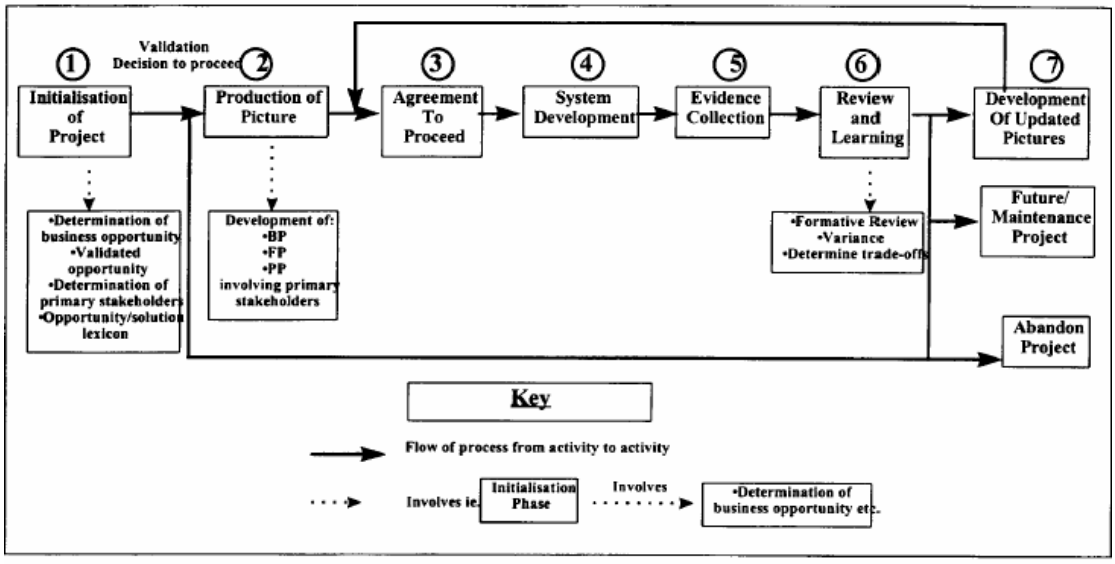


Figure 3.2 The process of Active Benefit Realisation programme

[Source: Remenyi & Sherwood-Smith (1998)]

5. *Evidence collection* – Stakeholders of the project will be made aware of the project deliverables and they will be constantly involved in the project, in order to analyse its progress and performance. This requires active participation from stakeholders to identify the benefits and their perspectives regarding the system from the very beginning of the project.

6. *Review and learning* – The purpose of this stage is to evaluate feedback from stakeholders and to assess it against the BP, FP and PP. This should enable management to take effective and informed decisions regarding project performance. They can decide whether the project should continue or not based on the benefits delivered, or they can take regulatory action to ensure benefit delivery can be improved. If the project fails to fulfil the perceived objectives, the project may be abandoned in order to avoid any further damage.

7. *Update of the pictures* - Similar to auditing, this process mainly involves assessing the benefits in monetary terms. If there are no benefits delivered or the delivered benefits do not satisfy business objectives, then the project may be terminated.

Moreover, this step should increase stakeholders' awareness of the project deliverables. If there are any discrepancies about the deliverables, this stage may iterate with stage 3 in order to confirm the agreement to proceed. So in effect these activities are carried out throughout the lifecycle of the IS/IT project to check the benefits delivered versus business objectives and strategic requirements.

This model is designed to enable organisations to record all activities from the beginning of project implementation and to make informed decisions about the implementation of the project, based on a complete understanding of what the system can deliver and what is required for the corporate strategy. The important feature of this model is that it emphasises consideration of the financial impact on the organisation, which is important. It enables the organisation to continually check the performance of a project and the delivery of promised benefits, so that in the worst case the project can be terminated to avoid any further damage. Although this model seems to be quite efficient and was developed by experienced practitioners and academics, evidence of adoption of this model is non-existent.

3.4.3 A conceptual model for evaluation of IT projects

A further model has been developed by Gunasekaran *et al*. (2001), a group of experienced academics in the IS/IT and management arena. Gunasekaran *et al*. (2001) claimed that the existing models developed for the evaluation of IS/IT projects were ineffective, because they lacked strategic integration, failed to consider intangible benefits and also lacked non-finance performance measures. Hence this model was developed to address such perceived limitations. The model comprises five dimensions of evaluation; utilising strategic, tactical, operational, financial and intangible investment appraisal techniques. This conceptual model, depicted in Figure 3.3, is described based on the study by (Gunasekaran et al., 2001).

1. *Strategic impact* – This stage emphasises business objectives, business needs, defines measurements for critical success factors (CSF) and provides a logical relationship to business success. Organisations are encouraged to increase their strategic awareness and to better grasp the strategic need for IS/IT. Measures are suggested to assess strategic needs and investment plans based on the organisation's objectives.

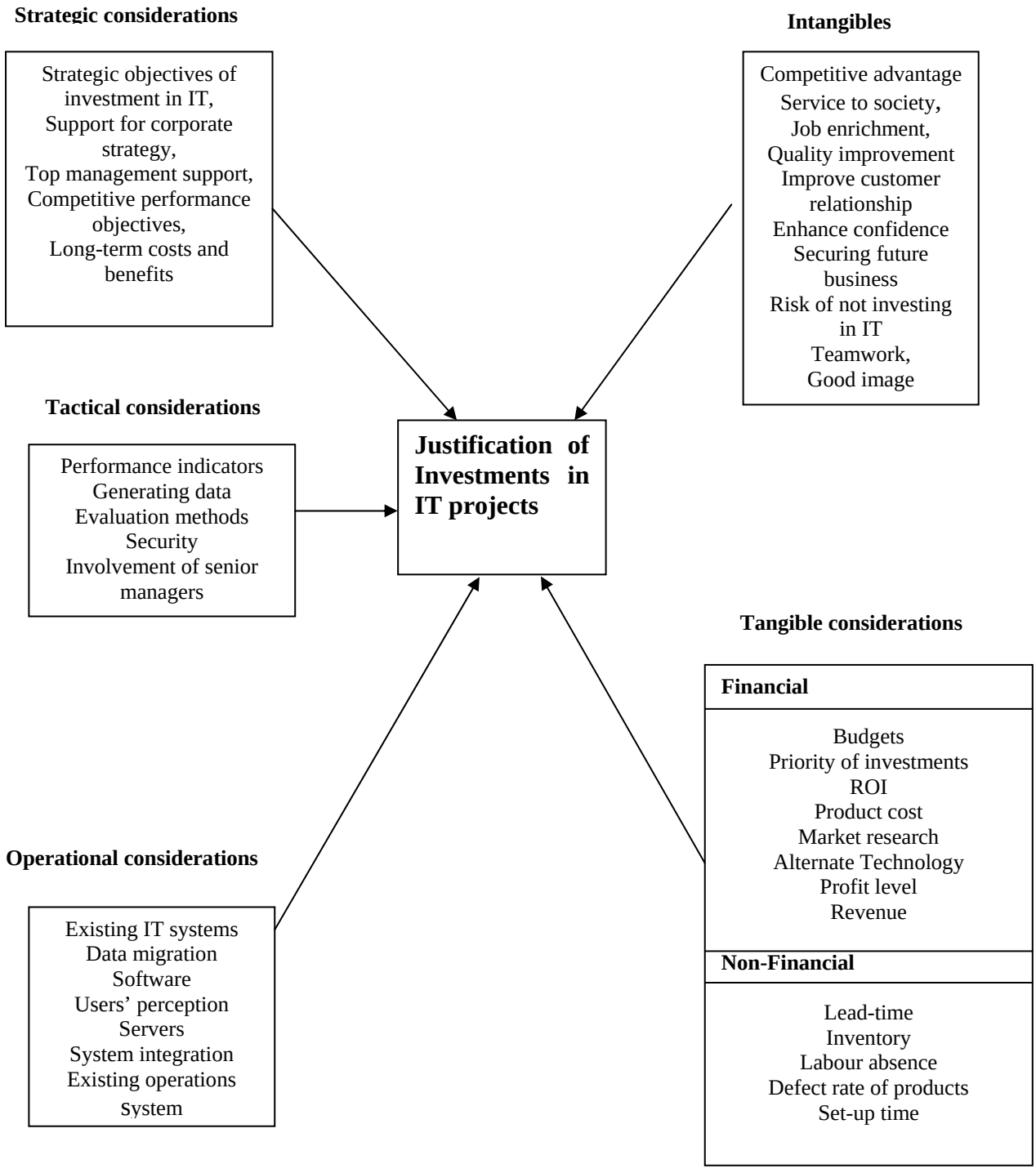


Figure 3.3 Conceptual model for evaluation of IT projects

[Source: Gunasekaran *et al*.(2001)]

2. *Tactical considerations* - This stage facilitates organisations to identify technical requirements of the projects, the resources needed and the critical success factors. This is intended to help organisations to identify the deliverables that will be

evaluated against business objectives. Gunasekaran *et al*. (2001) emphasise the need to develop an effective measurement tool to quantify both tangible and intangible benefits in order to be fully aware of the benefits that a project can deliver.

3. *Operational considerations* - This involves evaluating CSFs based on users' feedback, justification of IS/IT infrastructure operation and conducting change management.

4. *Financial considerations and justification* – While acknowledging the need to quantify intangibles, this model (similar to ABR model) also emphasises the importance of the financial situation of the organisation. Thus this stage facilitates the organisation in deciding whether or not to invest in a particular project. Further, the model also assists in identifying benefits at regular intervals, by taking users' perceptions and validating them against the corporate strategy.

5. *Intangible benefits* – Considering the issues of return on investment from the IS/IT project, the model emphasises the need to take account of the intangible deliverables from the project at the time of IS/IT evaluation, which are essential for the success of the organisation.

This model has been implemented in a European multinational organisation as a part of the authors' research. The most important aspect of this model is that it suggests specific benefit measures enabling the organisations to confirm (or refute) benefit delivery.

3.4.4 Project Appraisal Method (PAM)

Project Appraisal Method (PAM) is another set of tools and techniques used for benefit realisation of IS/IT investments. PAM considers three main dimensions of evaluation, (Coleman, 1994; Serafeimidis & Smithson, 2003) being-

- Financial costs benefits analysis
- Risk assessment and risk management
- Strategic and intangible benefit appraisal

Thus, the three main outputs of this approach are a *financial model of the costs and benefits*, a *risk management plan* and a *benefits profile*. These are incorporated into an

IS/IT project development lifecycle. The *financial model* consists of spreadsheets to model cash flows, automatically calculate measures such as the project payback period, the internal rate of return and the net present value in order to enable and encourage sensitivity analysis. The *risk management plan* is developed by getting project feedback from its users or stakeholders to identify the main risks in the project, to estimate the probability of them happening and to calculate their potential impact. The *benefit delivery plan* is developed by evaluating the most important intangible IS/IT project benefits against the main organisational objectives and assessing the initial business processes.

Coleman (1994) stated that PAM improves benefit delivery and that risks are clearly identified and managed. Moreover the method attempts to highlight the intangible benefits, which is one of the main issues of contention in benefit realisation.

3.4.5 The DMR model for benefit realisation

The DMR model for benefit realisation is a product of the DMR Consulting group. It was designed to address the issues of IS/IT benefit realisation and benefit management. Thorp (1998; 1999; 2001) emphasises that benefits from IT projects cannot be obtained unless organisations put in the necessary effort to retrieve expected business benefits and ensure that they are getting value from their investments. In order to accomplish this, business processes may have to undergo series of iterative changes and actions.

While to most managers a successful IS/IT project is one that completes ‘on time’ and ‘on budget’, Thorp (1998; 1999; 2001) argues that although these factors are important, a successful IS/IT project is one that demonstrates business results. Therefore he insists that organisations need a more robust approach to manage IS/IT besides project management tools which focus only on the end results. Based on these fundamentals the DMR model for benefit realisation was developed.

The main aspects of DMR’s BR approach as explained by Thorp (1999; 2001) is as follows (illustrated in Figure 3.4):

- There is a need to link all IS/IT projects and to understand how each one is related to the business objectives and can deliver business results. Therefore, under this approach all the projects are grouped under a single umbrella term called ‘business

program management'. This in turn demands stakeholders' participation and focus on business results.

- While grouping various projects, series of changes and processes may occur (for instance training, business process redesign). The model emphasises that these changes should be managed proactively rather than considering them as "implementation problems".
- In order to ensure that all IS/IT projects contribute to strategic goals, the DMR's BR approach focuses on grouping and managing individual projects in a single portfolio.
- Further, in order to manage each project, program and portfolio with an aim of obtaining business results from each one of these, a full-cycle governance approach is emphasised. Therefore this approach also requires benefit accountability and appropriate measurement systems to ensure benefit delivery.

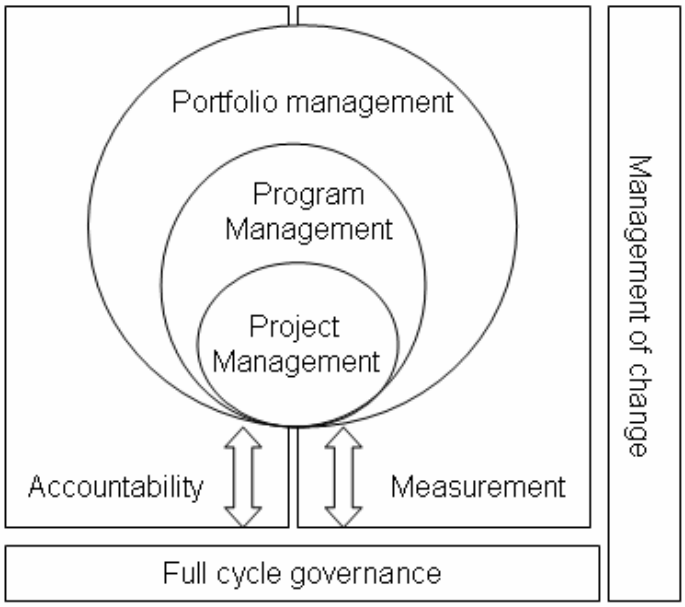


Figure 3.4 DMR's benefit realisation approach

[Source: Thorp (2001)]

According to Thorp (2001) business programs are more complex than technology projects. Business programs consist of various projects and involve various people within each project. Therefore it is important to identify the relationship between each project and the people involved in each. This may result in numerous changes which need to be handled carefully in order to obtain the expected benefits. He further insists that the changes should be considered at the organisational level and not just as technical problems. Therefore there needs to be a different 'mind-set' to view

technology changes as organisational changes. In addition to this, to realise benefits through these changes, organisations should be sure of what, when and how to measure the outcomes that are delivered. DMR's BR approach employs The DMR Result Chain^{TM} to implement these concepts into practice.

The DMR Result Chain^{TM} utilises four main elements - outcomes, initiatives, contributions and assumptions - that focus on the various aspects of benefit realisation. After understanding the business scenario and the perceived benefits, using these elements organisations can develop a road map of processes, changes that need to be managed to obtain those benefits. Figure 3.5 describes the purpose of these elements.

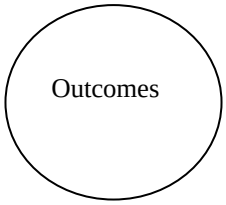
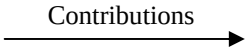
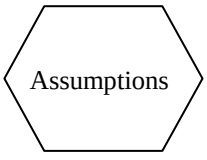
	Outcomes: the results sought, including either intermediate or final outcomes
	Initiatives: The actions that contribute to one or more outcomes
	Contributions: The roles played by the elements of the result chain
	Assumptions: Hypotheses regarding conditions necessary to realise the outcomes from initiatives.

Figure 3.5 The core elements of The Result chain

[Source: Thorp (1999; 2001)]

Using these core elements of the result chain the business program is developed, which enables the organisation to understand the flow of concepts, the relationship between the processes and the changes that need to be implemented in order to obtain the end results.

A business program developed using these core elements provides guidelines for managers to identify and locate benefits. Even in the case of long-term projects, short-term goals can be targeted to ensure intermediate results; this in turn may recur as initiatives for other outcomes. At the same time organisations should be aware of potential risks that may result due to business process changes. Such risks should be identified, mitigated and managed effectively. All these tasks encourage managers and concerned individuals to proactively think of different ways of obtaining benefits and decide whether they are doing "the right thing" in "the right way". This course of actions demands stakeholder collaboration and participation at all functional levels in the organisation.

In addition, in order to analyse the contribution of the project outcomes to the business strategy, measuring factors need to be identified. The model therefore emphasises business benefit ownership with relevant, accurate and consistent measures to record the performance of the whole business program and the projects within it (Thorp, 1999, 2001). Thus, the result chain is said to provide a blueprint of the business program facilitating organisations to track business processes and identify missing benefit links with appropriate measurement.

3.4.6 Evaluative summary of BR models

After reviewing the literature in this arena it is clear that benefit realisation or benefit management tends to be seen as an iterative process that requires clear understanding of the business needs, selection of appropriate technology to suit the business needs, identification of both tangible and intangible business benefits, managing the delivery of these benefits, finally to identify and exploit innovative business opportunities that technology can bring.

On the whole, benefit realisation and benefit management techniques can be considered to constitute a 'tool box', making up a collection of management tools that incorporates best practices generally observed under various IS/IT management approaches, such as portfolio management, program management, project management, change management, risk management and financial management. In addition, existing BR models also encompass some form of benefit framework to identify the benefits in a particular area and an approach to manage these benefits. The apparent advantage of BR techniques is that they logically link the processes associated with benefit identification,

prioritisation and so on to better optimise the outcomes from a particular IS/IT project by ensuring benefit delivery.

The models discussed in the previous sections provide a broad indication of how BR can be implemented. However concerns have been expressed asserting that the models are very complex (Lin & Pervan, 2003; Thorp, 2001). However, most IS/IT projects are inherently complex. It is simply necessary that organisations understand the importance of having a BR approach and focus on the main aspects of each of these models in order to adopt the processes or to adapt and incorporate them into their best practices.

It is clear that the models discussed above exhibit the same fundamental concepts. There are differences in the detail however. The most important feature of DMR's BR model is the Result chain, which enables organisations to depict a complete flow of benefit-focused tasks. At the same time it can also make the situation more complicated, because it does not provide an overview of the tasks. In contrast the Cranfield model provides a comprehensive overview of the phases in BR. Based on these negative and positive aspects a hybrid approach could be adopted. The Cranfield model can be used as a basis for all the events and it can be further enhanced by incorporating important aspects from other models.

In Chapter 2 the importance of pre-investment appraisal techniques was discussed. Both Cranfield and DMR do not emphasise pre-investment assessments. The ABR's initialisation of a project considers the financial, business and IT 'pictures', potentially enabling organisations to understand the need to invest in IT and their financial capabilities to plan the investment. Therefore, this is a very positive aspect of ABR and organisations should consider this process prior to any investments. This can be added to the Cranfield model prior to the "Identify and structure benefits" activity.

Further, the processes of allocating responsibilities and classifying the tasks in each stage of the Cranfield model can be explicitly defined utilising DMR's result chain concepts. In case of troubled and challenged projects, the result chain can be implemented to break down the tasks and identify appropriate business results. Only the DMR model and conceptual model of Gunasekaran *et al*. (2001) have emphasised benefit measurement from the early stage of benefit realisation. Embracing measurement should better enable organisations to recognise the intermediate benefits

and evaluate them accordingly. Use of the Result chain could be especially useful at this stage. Definition and agreed use of suitable performance indicators or critical success factors should be performed to evaluate benefit delivery.

One aspect that is common to all the models is the ongoing need to take stakeholders' perceptions into consideration, a clear indication of its importance. Done effectively, this can lead to increased communication among different functional levels in the organisation. People involved in projects can be made more aware of the changes and the intended deliverables of each project. Continuous reviews also enable managers to analyse and measure the benefits of the project through predetermined and agreed benefit measurement indicators. This will also help management to analyse whether the system is useful or not. If not, the regulatory actions that need to be taken to improve benefits from an implemented project can be analysed. The ABR model especially emphasises possible termination of projects based on these evaluations. However such a decision clearly needs careful stakeholder consideration. Furthermore, stakeholders' suggestions are also useful for the development of the projects and to identify further benefits or future business innovations. Therefore BR models can be an efficient tool that can address the issues of IS/IT evaluation in a non-financial way.

This analysis, also highlights that benefit realisation needs to be a part of an organisation's strategy if it is to be optimally effective. Therefore the previous concept of aligning IT strategy with business strategy needs to be extended. Benefit realisation has a major role to play in terms of effective IT management and contributing to improving organisational performance. Thorp (2001) termed BR approach as "Strategic governance". Benefits needs to managed strategically in order to obtain maximum value from IS/IT projects. Therefore any BR strategy should be framed as an integral part of the organisation's strategy, effectively linking IT and business strategy.

It is recognised that IS/IT innovations have resulted in business transformation (Thorp, 2001; Ward & Peppard, 2002). Therefore instead of IT being positioned entirely within the business domain, it needs to be extended outside the organisational boundary to be exposed to competitiveness and to technological advancement. This should better enable both IT and business managers to be aware of the external environment and to analyse their strategic needs in light of that. The BR strategy has an important role in fulfilling these needs; it can provide a link between business and IT. The collaboration

between IT and business management can be improved through active BR processes. Such an approach is illustrated in Figure 3.6.

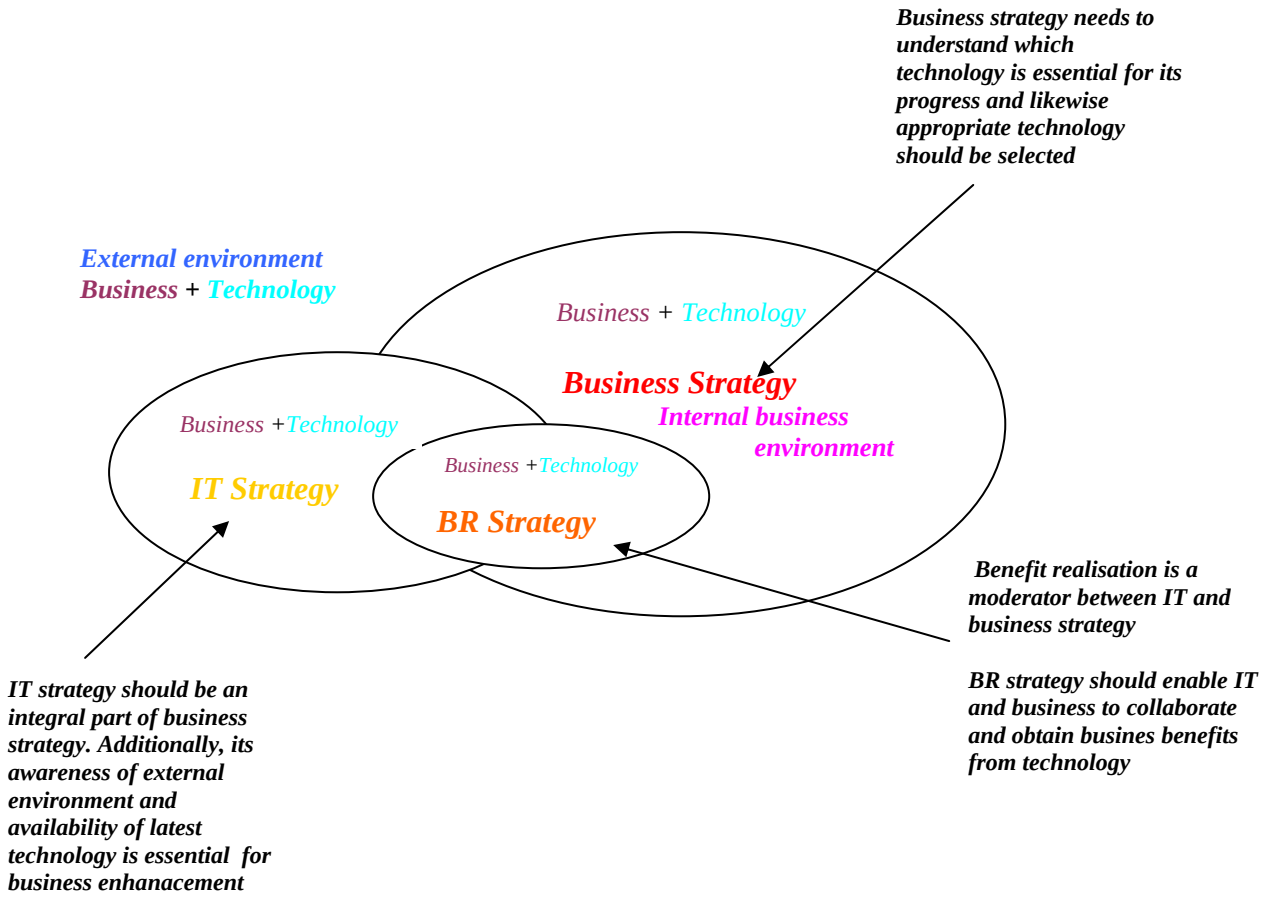


Figure 3.6 Position of BR strategy in the organisational strategy

Considering the potential value of benefit realisation approaches, the survey conducted as a part of this study investigates the adoption of these models as part of a wider strategy in New Zealand organisations.

3.5 Issues related to the adoption of BR models

In spite of these formal benefit appraisal techniques being available, a few recent studies (Gunasekaran et al., 2001; Lin & Pervan, 2003) affirmed that organisations are not very happy with the efficiency and effectiveness of existing models, and they consider BR processes to be very complicated. It is also evident from the surveys conducted in US, UK and Australian organisations (Lin & Pervan, 2003; Ward & Peppard, 2002) that organisations express mixed perspectives about BR in general. Some organisations believed that BR was simply a waste of time and resources, while a few others

considered it was against their organisational culture. However nearly one-third of responding organisations had pursued a BR approach and had realised a significant improvement in their IS/IT management. According to the users of BR, it has a significant role in effective IS/IT management

The situation regarding BR adoption in New Zealand is not known. A very recent survey conducted by Fuji Xerox (Caunce, 2004) did not cover this aspect of IT management while investigating the most challenging tasks for IT and finance managers. Yet evidence (from chapter 2) makes the importance of BR very clear. Therefore it is important to know whether NZ organisations are aware of BR approaches or are in line with international organisations taking into consideration the issues related to BR approaches. Even the previous government stocktake (Archive, 1999) report suggested that the government approach to IT management was through project management and risk management procedures similar to private sector organisations. There is no mention of benefit realisation and benefit management approaches.

However, similar to international studies (Pervan, 1997) acknowledgement of the existence of issues around IS/IT in NZ is evident from the list identified by Davies *et al*. (1995) (depicted in the Table 2.1 in chapter 2). Although there is nothing specifically called “Benefit realisation of IS/IT” among those issues, we can see that some of the issues are closely related to BR. For instance, IS and business alignment, measuring IS effectiveness, identifying projects, competitive advantage and application proliferation. As discussed previously, BR is a combination of several functions that need to be handled logically under a single entity rather than spreading it across a range of activities. Though BR is not specifically identified as a single issue, most of the above-mentioned issues are a part of benefit realisation, and are critical for IS/IT project success. This shows that the presence of the requirement for benefit realisation in IS/IT existed long before it was actually recognised as such.

Indeed ‘benefit realisation’ is a relatively recent phenomenon; investigating this area now should enable us to benchmark the awareness, importance and use of BR from NZ perspective against other IT management and evaluation tools. These perspectives may provide insight and guidelines to other organisations in the same sector or size class.

A small number of studies that have analysed the models have highlighted several factors that influence the adoption of benefit realisation methodologies in organisations and most of these factors relate to organisations' varied perceptions towards using any particular model. Thorp (2001) and Lin and Pervan (2003) have highlighted various problems that have contributed to this understanding of benefit realisation and management :

- Management's attitude towards IS/IT, that considers IT as a technical issue and therefore does not provide overall governance.
- Difficulty in identifying and failure to track business benefits of IS/IT projects.
- Failure to understand benefits in terms of the business objectives of organisations.
- Inability to measure predictable /unpredictable benefits delivery.
- Lack of benefit measurements and business benefit ownership.
- Organisations' resistance to change.

An empirical analysis of the influence of these and other issues in a NZ context should enable us to assess best practice with respect to BR in this country and enable us to make recommendations as to how other NZ organisations could address the BR challenge.

3.6 Motivations for the current study

The range of articles discussed so far in this chapter has conveyed the potential gains of benefit realisation. Several factors that influence the adoption of BR have been identified. The key issues related to BR adoption appear to be organisation's expectations from IT, lack of business/IT collaboration, minimum effort put in to realise the benefits of IT, organisational culture, awareness of BR models and organisations' perspectives regarding the effectiveness of existing BR models. Addressing and/or challenging these issues are the main motivations for the current study.

Rather than simply portraying a tarnished image of IT (Anthes & Hoffman, 2003) and reiterating the little understood IT productivity paradox: *"We see computers everywhere but not in the productivity statistics"-Robert Solow* (Yorukoglu, 1998), it seems more beneficial to put extra effort into identifying what IT really delivers to the business and what is really required for the business to improve. Understanding this may perhaps

help organisations to identify positive and negative aspects of their current IT practices. This may be possible by following a benefit realisation approach.

Based on these issues identified in the area of IS/IT evaluation and benefit realisation a conceptual framework has been developed. The framework is illustrated in Figure 3.7. This framework highlights at a high level the main BR challenges that need both IT and business management's attention. Such a framework could facilitate organisations to analyse their current practices and to identify areas for improvement in order to achieve perceived benefits from IT. This model will be used as the basis for the current study, to develop the survey instrument and to analyse the data and to determine the factors that have influenced the adoption or otherwise of BR in NZ.

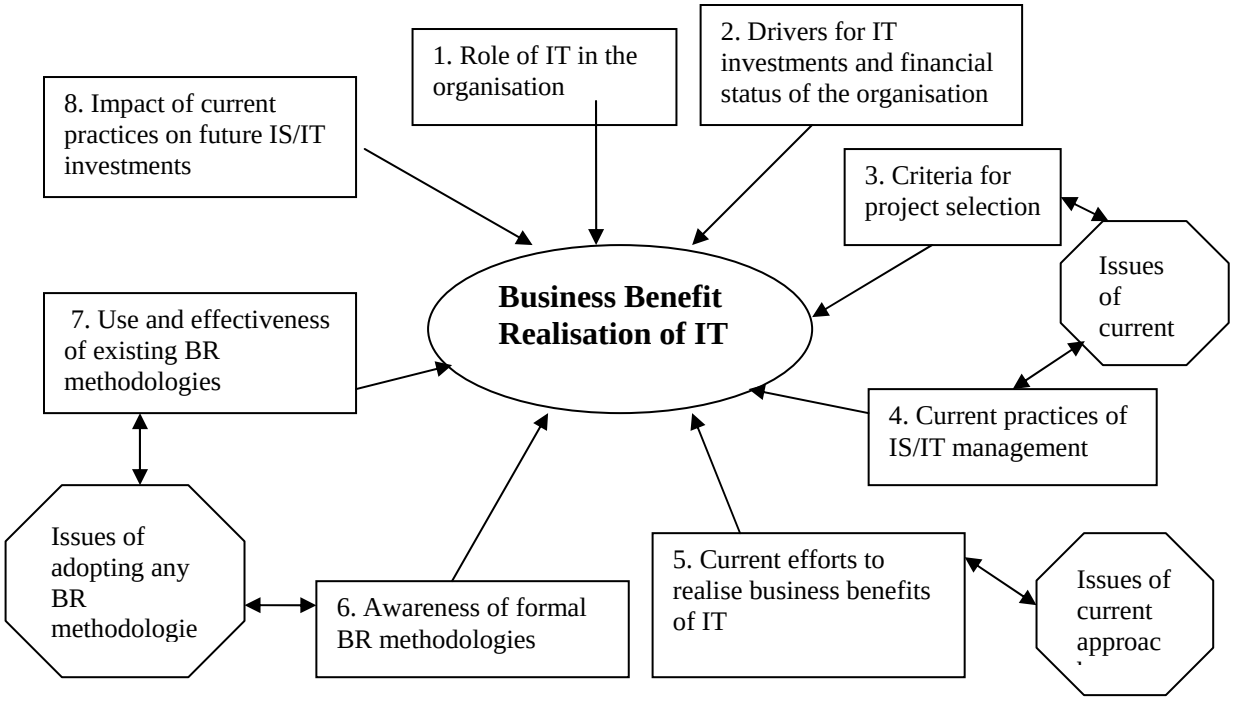


Figure 3.7 Concise framework for analysing business benefit realisation of IS/IT

Analysis of factors

Previous studies (Coleman, 1994; Gunasekaran et al., 2001; Lin & Pervan, 2003) have highlighted several factors that hamper the adoption of BR methodologies (and other similar practices) in organisations worldwide, of which, *awareness*, *use* and *effectiveness* of the models were key. The impacts of these factors on some aspects of BR are listed in Table 3.2.

Keeping these factors in view, this study will determine the influence of the same on the adoption of BR models in New Zealand organisations. The results of this investigation will contribute in determining the key factors that influence the adoption of IT-business benefit realisation methodologies in New Zealand over a variety of industries. These factors will be assessed in line with other international studies (Lin & Pervan, 2003; Ward & Peppard, 2002) to compare the New Zealand perspective to the international perspective.

Awareness	**Use**	**Effectiveness**
Awareness of business objectives	Experience of using (any kind of model) BR methodologies	Effectiveness of current methods that the organisations are using for realising and identifying the benefits of IT
Awareness of the benefits that IT can deliver (or Expectations from IT)	Perspectives about using (any kind of model) BR methodologies	Management support and effort in realising the business benefits of IS/IT
Awareness of the model	Organisational culture that influence the use of (any kind of model) BR methodologies.	Efficiency and effectiveness of the existing models of Benefit realisation

Table 3.2 Factors that influence the current IS/IT practices

The rationale for the work is reasonably straightforward. As discussed earlier, work undertaken in this area has occurred in a number of international settings. There are no prior studies available that reflect New Zealand's practice relating to benefit realisation in IT. This is in spite of the fact that New Zealand is among those countries who heavily invest in IT (Archive, 1999; Greenwood, 2002). Further it is evident that NZ organisations sparingly use project management, system management and risk management tools on some projects (Archive, 1999; Greenwood, 2002). However there is no indication of BR techniques or any equivalent techniques in any of these reports. This lack of availability of relevant information has encouraged us to explore this arena to find out whether a lack of awareness of BR may have hampered the use of BR techniques in New Zealand or a lack of efficient and effective BR models have affected their use.

Chikofsky & Rubin (1999) have suggested that effective management is a "continuous process" and not a "one-time operation". They suggest that if organisations compare themselves across various industry and size categories they can gain knowledge and can improve their current practice. Considering this fact, this study intends to compare IS/IT practices pertaining to BR approach across a variety of industries, sizes and sectors throughout NZ. This should enable us to determine the influence of these three key factors: *awareness, use* and *effectiveness* in the adoption of BR methodologies in New Zealand organisations and to identify any other commonly encountered factors.

Most of the studies discussed above have either considered business managers' views regarding IT practices or IT managers' views in relation to their practices and business collaboration. Very few studies have combined the views of both groups in the same study, in order to compare and contrast their views and to obtain valuable insight from their perhaps differing practices. Such an approach should enable the individuals from both IT and business to identify the ambiguity in their practices and identify areas to improve. Therefore, the survey conducted in this study will analyse the views of both groups.

3.7 Summary

In this chapter the non-financial evaluation approach known as 'benefit realisation' (BR) was discussed. The BR techniques facilitate organisations to identify, realise, optimise and manage business benefits of IT investments and thus enable them to justify their investments in IS/IT. Various known BR models that facilitate organisations to carry out this process have been described and discussed. Analysing the advantages of BR in justifying IS/IT investments, this chapter concludes that organisations must integrate BR strategy into their IT and business strategy in order to effectively manage and obtain business value from their IS/IT investments. This concept has been the motivation of this study and the next chapter will discuss the research methodology pursued to accomplish the objective of this study.

CHAPTER 4 SELECTION AND EXECUTION OF RESEARCH METHOD

4.1 Introduction

The previous chapters have provided the context for the current study, highlighting in particular the potential significance of the work proposed here. This chapter describes the research approach undertaken to accomplish the objectives of this study. The first section describes the methodology undertaken to investigate the research area. This is followed by more detailed sections addressing the survey design, the survey structure, the survey instrument, sample selection and the execution of research.

4.2 Research methodology

The objective of this study is to assess New Zealand organisations' perspectives regarding the adoption of *business-IT benefit realisation methodologies.* The value and significance of employing benefit realisation techniques for effective IT management have been described and discussed in chapters 2 and 3. Relevant literature (Coleman, 1994; Gunasekaran et al., 2001; Lin & Pervan, 2003; Ward & Peppard, 2002) has highlighted a range of factors that have influenced the adoption of BR models worldwide. Among them *awareness*, *use* and *effectiveness* of benefit realisation models seem to be the key factors. Therefore the current study focuses on investigating the impact of these three key factors in the NZ context by analysing IT and business managers' perspectives in New Zealand organisations over a variety of industry sectors and sizes. The following sections describe the construction and execution of this research in detail.

4.3 Methodology and method

The research paradigm chosen for this study is *positivist* utilising a *cross-sectional survey.* This approach has been selected for this study because the work is *exploratory* - it will give an overview of the present situation pertaining to IS/IT practices in New Zealand. As per the research objective, it is necessary to first understand the present situation and obtain organisational perspectives on BR methodologies. This will enable us to determine the factors or variables involved and to speculate on the relationships between these variables. Such relationships could then be explored, confirmed or refuted in further studies.

Survey or case studies are commonly utilised in IS research; some studies use both. The choice depends primarily on the goals of the study. For instance several studies used mail survey methods to understand organisational perspectives, their current IT practices and to gauge the amount of IT usage in the organisations (Cragg, King, & Hussin, 2002; Davies et al., 1995; Fink, 1998; Igbaria, Zinatelli, & Cavaye, 1998; Premkumar & King, 1994; Teo & Ang, 1999a). Ward & Peppard (2002) also report several IS evaluation studies internationally that have utilised the survey approach.

On the other hand, other researchers have employed case studies to evaluate organisational IS practice by implementing a particular benefit realisation model (Gunasekaran et al., 2001; Lee, 2001; Serafeimidis & Smithson, 2003). Similarly Lee (2001) followed a case study approach to evaluate the issue of finding business value of information technology by studying seven mortgage firms. Lin & Pervan (Lin, 2002; 2003) have used both case studies and surveys to understand the views of organisations and to evaluate the use of IS/IT benefit management in organisations. There are no previous studies available that reflect the BR situation in New Zealand. Therefore this first exploratory study considers a *cross-sectional survey* as the primary and the most appropriate approach to understand the scenario in this country and achieve the objectives of this research.

A cross-sectional study, as described by Hussey & Hussey (1997) is one that gives a "snapshot of an ongoing situation". This exactly corresponds to our research goal. Hence this approach is considered appropriate for this research. A survey should enable us to identify the key factors involved in the adoption of BR techniques in New Zealand and will give some insight into the relationship between these variables to provide directions for in-depth analysis.

This research originally planned to replicate Lin and Pervan's (2003) study of *IS/IT practices in Australian large organisations* in New Zealand by using their research instrument. However, our intent to use the same survey instrument needed to be reconsidered because the Australian survey targeted only large organisations. Considering the fact that New Zealand business is dominated by small and medium scale enterprises (SMEs), the original plan was modified. Having said that, this study still extends Lin and Pervan's (2003) work, but with some amendments to the research instrument to suit New Zealand organisations' structure and our research objectives.

While it is not surprising that many international studies consider the IS/IT practices of large organisations only, there is a growing need to consider the views and practices of SMEs. It is evident from several studies that small and medium organisations are investing significantly in IT and are contributing to the national economy. For instance, studies by Fink (1998) and Knight (2001) indicate that SMEs create proportionally higher rates of employment opportunities than large firms. A further study by Igbaria *et al*. (1998) that analysed IT usage in New Zealand small firms also expressed that SMEs are important as a source of employment or self-employment.

Kelly (2001) suggested that SME's do not make the maximum use of IT due to inappropriate business planning and limited knowledge of what IT can do to enhance their business. If they fail to use IT as effectively as larger organisations they might lose on market share (Igbaria et al., 1998) and take longer to develop. Ballantine, Levy, & Powell (1998) affirmed that the rate of project failure among SMEs is six times higher than in large organisations. Therefore increasing SME awareness of best practice in benefit realisation may have positive downstream impacts for organisations in this sector. These and other studies (Cragg et al., 2002) emphasise that the investigation of IT practices in smaller firms is useful not only for the growth of the organisation but also for the benefit of the country's development.

It is simply a function of scale that in New Zealand the proportion of SMEs is considerably large. A focus on SMEs together with the cross-sector analysis should provide significant insight into the practices of IS/IT in such organisations and their perspective on benefit realisation methodologies. Therefore, the Australian research instrument required a reasonable amount of modification to suit our research needs in collecting the required information, particularly that regarding the awareness use and effectiveness of BR methodologies in New Zealand organisations. The following sections describe the survey design, sampling and execution activities.

4.3.1 Survey design

In chapter 3, a conceptual framework was developed after reviewing extant literature related to IS/IT evaluation and benefit realisation (depicted in Figure 3.6). Based on this framework several questions related to each of these objects were developed (*see* Figure 4.2). This enabled different questions to be grouped under similar titles. As a result a

refined model highlighting the issues under the five main headings was developed (illustrated in Figure 4.1). This facilitated the development of a simplified and specific survey instrument. The survey instrument was developed focusing on the information required to analyse the current situation of BR in NZ organisations related to these five main sections. The description of the survey design is explained in the following sub-section.

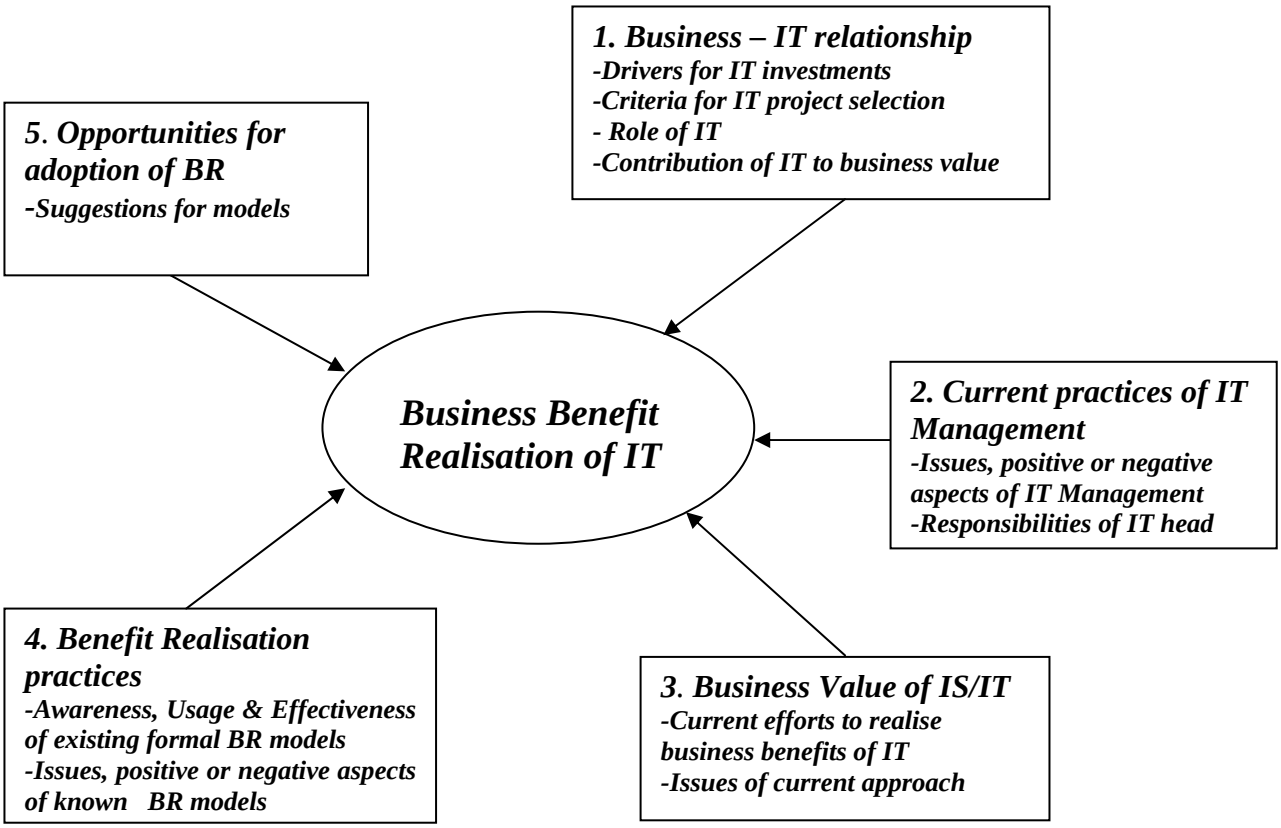


Figure 4.1 A concise framework for the analysis of current IS/IT practices

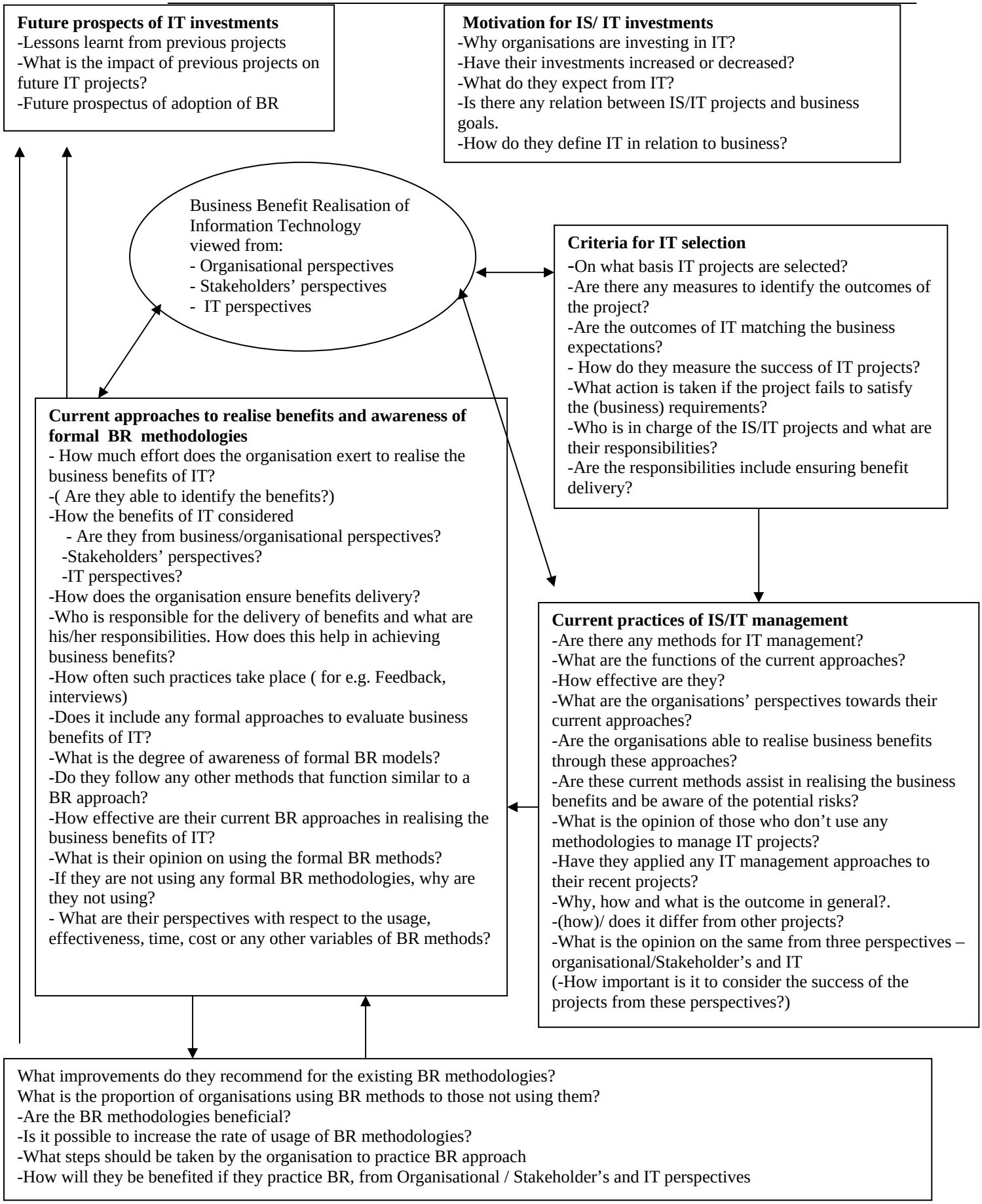


Figure 4.2 Questions derived from the concise framework

Development of the survey instrument

The research instrument includes both closed and open questions to maximise the level of analysis. The questionnaire also includes multiple-choice questions to provide possible options for the respondents and likert scales to enable them to rate the level of their agreement with statements put to them. The questionnaire comprises four main sections that each contribute to achieving the research objectives. Table 4.1 depicts the structure of the survey.

Corporate Background Information • Sector/size/structure

IS/IT Background
• Size
• Nature of IT spending in the current year
• Overall IT expenditure
  - Past two years
  - Next two years
• Role of IT in the organisation
• Responsibilities of IT manager
• IT management and IT decision making

Business Value of IS/IT • Relationship between business and IT • Contribution of IS/IT to business value • Perceived benefits of IS/IT projects prior to investment • Procedure for identifying business benefits delivered by IS/IT • Procedure involved in planning IS/IT projects • Current practices for managing IS/IT projects • Advantages and limitations of the current practices
Benefit Realisation Practices • Success of current approach with regard to identifying and realising business benefits delivered from IS/IT projects • Use, awareness and effectiveness of formal benefit realisation techniques • Extent of use of benefit realisation techniques in the organisation through current practice • Shortcomings of their current approach whether formal or informal • Knowledge about other known formal benefit realisation models • Anticipated use of benefit realisation models • Organisational knowledge regarding benefit realisation techniques

Table 4.1 Structure of the survey

As depicted in the Table 4.1 the first section enables us to collect basic information about the organisation. The second section is designed so that we might understand the nature of IT spending and management of IS/IT functions in each organisation.

The third section focuses on information regarding the importance of *business value* to the organisation and how is it achieved from IS/IT projects. Respondents are asked to specify the IS/IT projects that have delivered business value to the organisations.

Respondents are also asked to identify the perceived benefits delivered by IS/IT. This section also includes questions regarding organisations' current IT practices and its efforts in ensuring delivery of business value from IT investments.

Information gathered in this section is intended to give us an overview of methods involved in IS/IT project selection, the importance of business objectives when selecting IS/IT projects, and to evaluate how well organisational business strategy is aligned with IS/IT strategy. Several studies both long-standing and more recent (Baets, 1992; Hayward, 1987; Lin & Pervan, 2003) claim that most organisations fail to consider business value at the time of IS/IT project selection. This survey will enable us to analyse the nature of IS/IT selection in New Zealand organisations.

The final section, *benefit realisation practices*, concentrates on the three prime factors or variables that are expected to influence the adoption of benefit realisation techniques considered in this study. This section includes questions related to the awareness, use and effectiveness of formal or informal benefit realisation methodologies.

This section also informs us regarding organisational effort to realise benefits of IT and the organisation's level of understanding in this particular arena. This information will give us an insight into organisational perspectives regarding published benefit realisation models or any other techniques they use to identify the benefits delivered by IS/IT projects. This is to obtain a general opinion on the whole concept of 'IT-business benefit realisation methodologies'. Respondents are also requested to suggest improvements to existing BR techniques to suit their business needs or that would facilitate their adoption. This should enable practitioners and academics to design models to fit particular businesses as per organisations' expectations from benefit realisation methodologies.

4.3.2 Survey procedure

The survey was conducted in two streams. One version of the survey instrument comprising 38 questions was developed and distributed to the IT managers of the selected sample (see the next sub-section and appendix B) and another to the finance managers of a subset of the same sample (comprising 34 questions , *see* appendix C). The results of the former survey were expected to provide insight into an IT view on *business, IT* and *business-IT benefits*. The second, shorter instrument (with some IT-

specific questions removed) was distributed among Finance managers to obtain business perceptions regarding *business, IT and business-IT benefits*.

This approach was taken to consider the perhaps differing viewpoints of IT and business on the same issues. Various studies (Baets, 1992; Caunce, 2004; Lin & Pervan, 2003; Santos & Sussman, 2000; Stratopoulos & Dehning, 2000; Teo & Ang, 1999b; Ward & Peppard, 2002) often claim a difference of opinion between IT and business. The results of this survey will be used to compare and contrast the views of the two groups.

4.3.3 Selection of participants

The set of organisations to be surveyed was determined by *natural sampling* (Hussey & Hussey, 1997). The population was IT-enabled businesses in New Zealand with variance in size and industry sector. Care was taken to identify organisations whose businesses are supported by IT rather than organisations whose main business is IT, for example software development or infrastructure or solution providers, whose responses could be different to those non-IT specialist organisations.

In the corresponding Australian survey (Lin & Pervan, 2003), the main sectors selected for investigating IS/IT management practices were large organisations from the manufacturing, retail and mining sectors only. The current survey considers organisations from more than 12 industrial sectors from all over New Zealand who use IT for their business, since use of IT is not restricted to particular sectors and its management may vary from sector to sector. It is evident from the MIS magazine (MIS, 2003), for instance, that the top IT users are distributed across various sectors including transport, education and research, financial services, manufacturing and processing, government and healthcare. MIS magazine's top IT users are selected based on the number of IT users under a single senior management structure and on the number of screens in the organisation.

MIS magazine reports that several educational institutions are listed within the top twenty-five. This indicates that in this country education providers are also using IT significantly and at all levels similar to that of organisations in other sectors. The University of Auckland and University of Otago are in the second and third positions respectively. The screen total of the former is 10,053 and the latter 9500. Education

institutes generally invest in IT projects for research, teaching and to support administrative functions.

Similarly, dairy and meat processing companies need to be considered as they represent an industry sector that contributes a major share to the national economy and are significant users of IT, for instance Fonterra, NZ Dairy and AFFCO New Zealand Limited. Considering the significance of these businesses in New Zealand they should be considered alongside other types of organisation.

Distribution of organisations across twelve sectors is also needed in order to closely align with the Australia and New Zealand Standard Industry Classification (ANSIC) used by Statistics NZ (Table 4.3 depicts the industry sectors selected for this study). Such an approach should help to ensure that the results are generalisable to the wider NZ business population.

The New Zealand Business Who's Who (NZBWW) directory and the June 2003 issue of *Managing Information Strategies* (MIS) magazine (that listed New *Zealand's top 100 biggest IT users),* are the two major sources used to select sample organisations. A few previous studies in New Zealand by Igbaria *et al*. (1998) and Davies *et al*.(1995) have also used the same resource as a sampling frame. We can find some international studies (Cragg et al., 2002; Premkumar & King, 1994; Teo & Ang, 1999a) that have used such business directories for sampling. Since the NZBWW comprises more than 100,000 organisations from different business sectors from all over New Zealand this is considered as a reliable source for company information.

Subsequently a set of approximately 530 organisations conforming to the above-mentioned sectors was chosen based on the number of full time employees and/or annual capital turnover. Twenty organisations were selected for a pilot survey (*see* Appendix G1) leaving close to 500 organisations for the primary survey (*see* Appendix G2). Companies were categorised as small, medium or large enterprises based on the number of permanent full-time employees or based on their capital turnover. It is evident from studies (Fink, 1998; Knight, 2001) that have conducted research on SMEs, that indicated organisations having fewer than 500 FTEs are considered as SMEs. Igbaria *et al*. (1998) stated that organisations employing fewer than 100 FTEs were considered as small firms. Therefore organisations with fewer than 100 employees were

considered as small organisations, organisations with 100 to 500 FTEs were considered as medium enterprises and organisations with more than 500 FTEs were categorised as large organisations. Care was taken to select almost equal numbers of organisations from each category. Table 4.2 shows the number of organisations selected from each size class.

In some cases where number of employees was not specified, capital turnover was used as an alternate criterion for sample selection. Company with turnover less than NZ$ 100 million were considered small scale enterprises, companies with turnover between NZ$ 100 million and 500 million were considered medium scale and companies with more than NZ$ 500 million turnover were considered as large organisations. Perhaps this type of categorisation may not be appropriate for NZ standards, but this was only used as an alternate option. Some international reports such as The Standish Group's, CHAOS report (*The Standish Group Report - Chaos*, 1995) also demonstrated a similar categorisation of organisations.

Organisation size	Frequency	Percent
Large	151	30.2
Medium	147	29.4
Small	158	31.6
Others	44	8.8
Total	500	100.0

Table 4.2 Number of organisations selected from each category

Among the selected sample, the size of around 44 organisations was not known. In spite of this these organisations were included in the survey because they were listed among the top 100 IT users in New Zealand (MIS, 2003). They were also included in view of the distribution of organisations across various sectors as specified by Statistics New Zealand. The proportion of the organisations selected from each sector and the distribution of organisation in these sectors in New Zealand is tabulated in Table 4.3. Figure 4.3 illustrates the organisations selected for the IT managers' survey from these twelve industry sectors.

As depicted in Table 4.3, the proportions of organisations do not exactly match the distribution of the organisations in a particular sector. As mentioned previously the objective of this research is to target the population who mainly use and need IT to

support their business and therefore we have not used IT-specialist organisations. As a result, we can see a significant difference in the selection of organisations from IT, business, legal and property services. Further differences are evident in the wholesale and retail trade sector and the manufacturing and processing sector when compared to their distribution in NZ as per Statistics NZ. This difference is primarily due to the protocol of our selection criteria. In these cases organisations whose employment level or capital turnover did not match our selection criteria have not been included.

Industry Sectors	**Our List**	**Stats NZ**
Communications and Media	6%	1%
Construction and Engineering	10%	12%
Distribution, Transportation and Storage	4%	4%
Education, Health and Community Services	8%	7%
Electricity, Gas and Water Utilities	7%	0%
Finance, Insurance and Banking	9%	4%
Government and Local Government	7%	0%
IT, Business, Legal and Property Services	7%	33%
Manufacturing and Processing	16%	7%
Primary Industries	5%	4%
Tourism, Accommodation & Food Services	9%	11%
Wholesale and Retail Trade	11%	17%

Table 4.3 Sample selection when compared with statistics NZ

In contrast, our sample includes a higher proportion of organisations from the electricity, gas, utilities and manufacturing and processing sectors. Our sample also includes substantial representation from the finance, banking and insurance, and government sectors. As discussed in chapter 2 these sectors are highly supported by IS/IT although the distribution of these organisations in NZ is less compared to other IT, business and legal organisations. Again this is evident from the MIS, June 2003 issue that lists at least 22 government organisations among the biggest IT users of the country (MIS, 2003). Moreover, they naturally do not appear in the Stats NZ figures which represent business enterprises.

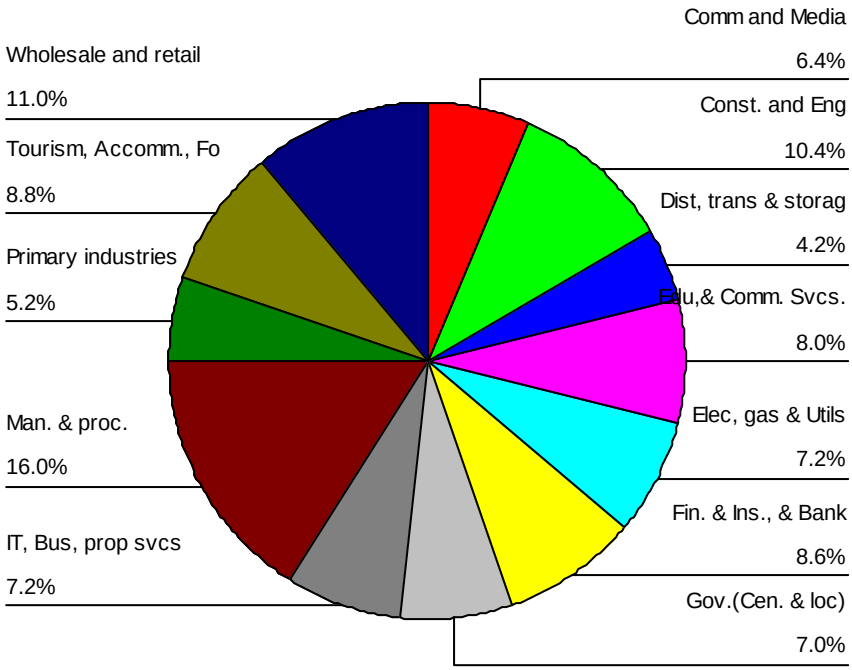


Figure 4.3 Sample selected for primary IT Managers survey

4.3.4 Survey plan and distribution

Some consideration was given to running the survey over the Internet since Web/e-mail surveys are now quite common (Bachmann, Elfrink, & Vazzana, 1996; Friedman, Clusen, & Hartzell, 2004; Remenyi, Williams, Money, & Swartz, 1998). According to Yun & Trumbo (2000) and others (Friedman et al., 2004; Griffis, Goldby, & Cooper, 2003; Kaplowitz, Hadlock, & Levine, 2004) email surveys increase response rate and reduce cost and time involved in conducting the survey.

However for the current research a postal survey was selected to be the most suitable mode of data collection, mainly because in the case of Web/e-mail surveys it is quite common for a recipient to delete messages from unknown recipients without even reading them, considering them as junk mail (Dillman, 2000). There are other challenges, such as finding the correct email address of the intended individual survey recipient in an organisation, which would also consume time. Previous studies that highlighted the advantages of conducting web/e-mail surveys have ignored such prevalent problems that can also affect the response rate. Yun & Trumbo (2000) have also highlighted ethical concerns and technical problems generally involved in web/email surveys. Remenyi *et al*. (1998) stated that cost and time involved in

designing and programming the questionnaire can be another disadvantage of web based surveys. In contrast to other studies, Kittleson (1995) and Truell and Goss (1999) affirmed that regular mail surveys can in fact obtain increased response rates when compared to email. Schaefer and Dillman (1998) cite several studies that have not found any significant difference in response rates that used both email and mail surveys as a part of mixed mode survey strategy.

This suggests that every mode of survey has its own advantages and disadvantages. As discussed previously postal surveys have been utilised in most IS research. Moreover the Australian survey (Lin & Pervan, 2003) which this work intended partly to mirror also utilised a postal survey. Therefore postal survey was considered appropriate to our research approach and research objective. Therefore mail-outs were to be sent to all the organisations in the sample comprising a request letter assuring confidentiality, a blank questionnaire and a prepaid reply envelope.

4.3.5 Questionnaire refining strategy

Prior to the primary survey it was considered important to validate the content of the survey instrument and to avoid any ambiguous or interpretational errors (Remenyi et al., 1998). This first took the form of pre-pilot testing which was an informal approach (Cragg et al., 2002; Premkumar & King, 1994; Remenyi et al., 1998; Teo & Ang, 1999a). Eight questionnaires (both IT and Finance managers) were distributed among IS/IT and business faculty members, friends and fellow Masters' students in order to test content validity, and to obtain opinion on the structure, clarity and relevance of the questions. This elicited a small number of comments on the nature of questions and others on the understandability of the questions. This pre-pilot testing strategy added value to the survey process and a few amendments were made accordingly to make the instrument more understandable.

Subsequently, the second step of the refining strategy was formal. A pilot study was conducted in the last week of February 2004, which was a replication of the main study on a small scale. For the pilot survey twenty organisations were selected from the previously described twelve industry sectors (*see* Appendix G1). Care was also taken to select organisations from different size classes across the twelve sectors. The break-down of organisations selected for the pilot survey is depicted in Table 4.4. This break-

down was based on the distribution of organisations in New Zealand as stated by Statistics NZ.

Mail-outs were sent to the IT manager and Finance manager of each of twenty organisations accompanied by a prepaid return envelope (considered as one of the techniques for improving response rate (Dennis, 2003)) and a covering request letter highlighting the importance of the research (*see* appendix D for a copy of the covering letter sent to pilot survey recipients). In the request letter the respondents were advised that it was a pilot survey and were assured integrity and confidentiality of their response. The pilot survey respondents were also asked to provide additional comments regarding any difficulties faced while answering the questionnaire, any irrelevant or ambiguous questions and also the time taken to complete the survey. It was important to make sure that the length of the questionnaire was reasonably short. It is evident (R. Smith, Ola, Hansen, & Cumbo, 2003) that shorter survey questionnaires result in higher response rates.

Industry Sector	No of Organisations
Communications and Media	1
Construction and Engineering	2
Distribution, Transportation and Storage	1
Education, Health and Community Services	2
Electricity, Gas and Water Utilities	2
Finance, Insurance and Banking	2
Government and Local Government	1
IT, Business, Legal and Property Services	1
Manufacturing and Processing	4
Primary Industries	1
Tourism, Accommodation & Food Services	2
Wholesale and Retail Trade	1
TOTAL	20

Table 4.4 Organisations selected for Pilot survey

Three weeks after the pilot survey was distributed we had received four completed surveys from IT managers and one completed survey from Finance managers. Eight mail-outs were returned with incorrect addresses (these were subsequently sent to the correct addresses) and two were not completed due to company policies against participating in surveys. As the pilot respondents did not suggest any changes to the questions or content, no amendments were made to the survey instrument. Two

respondents indicated the time taken to complete the questionnaire was 10 minutes. Remenyi *et al.* (1998) suggested that a questionnaire should not take more that twenty minutes to complete, in which case may result in low response rate. In that respect, the time taken to complete our questionnaire was considered reasonable. Therefore the length of the questionnaire remained without any modifications.

In order to verify the structure and avoid possibility of analytic error, the pilot survey data were entered into SPSS. Using SPSS a few descriptive statistics and graphs were developed in order to evaluate the findings against the research objective, and to ensure that the questionnaire needed no further changes of any sort.

The instrument development and refining process itself lasted for several months from October 2003 to February 2004 and consisted of three distinct questionnaire refinement cycles. Finally the primary survey was distributed in the last week of March 2004. As per the research objective two sets of questionnaires, one addressed to the IT manager and the other to the finance manager were sent to the entire sample excluding those included in the pilot study (*see* appendix E for a copy of the covering letter sent to primary survey recipients).

There was a variation with respect to the number of questionnaires distributed to each group. For the IT managers' survey a total of five hundred mail-outs were sent and for the finance managers' survey 200 mail-outs were distributed. As described previously the purpose of conducting the finance managers' survey was to obtain a business perspective on IS/IT current practices and benefit realisation techniques. Assuming that in smaller organisations there may not be separate IT and finance managers' positions we included here only organisations with more than 200 FTEs. This view is complemented by studies (Riemenschneider, Harrison, & Jr., 2003) that suggest that "IT adoption decisions in small businesses are typically *made by a single executive*". Therefore for the finance managers' survey we considered only 200 organisations which employed more than 200 FTEs (*see* Appendix G3).

4.3.6 Survey process

The first mail-out was sent in the last week of March 2004. Thirty-seven responses were received by the third week of April 2004. More than 50 were returned due to incorrect address, change of address, mergers and companies no longer in business. This is a

common scenario in most postal surveys (Fink, 1998; Laitinen, 2002; Lin & Pervan, 2003). For those returned mails with incorrect addresses correct addresses were found using other e-directory resources such as UBDirectory and company websites. Similarly, for merged companies which were not included in the primary survey list another questionnaire was sent. This process was carried out as and when any returned mails were received.

This survey achieved low response, 7.4% from IT managers and 5.0% from the finance managers. It is evident from the studies of Lin & Pervan (2003), Griffis, Goldby, & Cooper (2003), Dennis (2003) and many other studies that low response rate is quite a common scenario in postal surveys and is inevitable in spite of the time and care taken to prepare the survey. Even in this research area there is evidence of this. Lin and Pervan (2003) received 34 responses from 500 requests in the first mail-out. Other similar studies that received low responses were Laitinen (2002) who received 10.8%, Flynn & Goleniewska (1993) who received 12.8%, Pervan (1997) who received 7.3%, and Wu (2003) who received 10.5%. This indicates that it is not unusual to receive low responses through postal surveys.

In addition to this, as this research included two different versions of the same survey distributed simultaneously, organisations that received both might have considered these to be the same but (in advertently) addressed to two different individuals. Moreover as most of the questions in the two surveys were similar it may be that an organisation decided to complete only one survey. Another reason for the low response rate may relate to the size of the organisation, in that smaller organisations may not have the position of IT manager. This is compounded by the inadvertent fact that these surveys went to the organisation during the Easter holidays. Considering all these factors, and to improve the rate of response, it was decided to send reminders to the organisations that had not responded. Most similar studies (Griffis et al., 2003; Lin & Pervan, 2003; Teo & Ang, 1999a) suggest such a follow-up strategy in order to increase response rate. In the case of Lin and Pervan (2003) the response increased by 8%.

Therefore a second set of mail-outs was sent as reminders in the last week of April 2004 to those organisations who had not replied to the primary survey. To each of those organisations, a copy of the original survey and a covering letter emphasising "*we are still keen* to know their view to add value to our research" was sent again (*see* Appendix

F). Care was taken to send the reminders only to those who had not replied. This was made easy by a strategy that this research employed to identify the responding organisations in order to keep a track of the replies. [A number corresponding to the serial number in the database was printed on the label of the reply envelope. This technique was used only to record the responding organisations and not to identify the content or response. Therefore as soon as any reply was received the number was noted down in the database and the survey to which they replied (IT or Finance managers' survey). It was important to note whether the organisation replied to the IT managers' survey or the Finance managers' survey in order to avoid sending them reminders. This process had nothing to do with identifying specific respondents.] This technique although simple had an additional benefit to the research process by saving cost and time by identifying the organisations that had replied to at least one of the surveys and to send them the other one.

The follow-up survey increased the response level by 4.0% in the case of the IT managers' survey and by 11.0% in the case of the finance managers' survey. In this round we received twenty completed responses to the IT managers' survey and twenty-two to the finance managers' survey. At the end of the second survey , that is, the last week of May 2004, a total of 54 completed IT managers' and 32 finance managers' responses had been received. In addition to this, nearly 2% of the organisations did not complete the survey due to their company policy prohibiting them from doing so. Once again this is a common problem in most surveys (Lin & Pervan, 2003).

Overall, responses from 58 IT managers represented 11.6% of the sample. The finance managers' response rate was 16.5%. In spite of the reasonably low rates of response, this exploratory study will still be useful in providing insight into the current IS/IT practices of New Zealand organisations although it would inappropriate to generalise its outcomes to all organisations in New Zealand.

The data analysis and discussion of the findings of this research are provided in chapter 5 and chapter 6.

4.4 Summary

This chapter described and discussed the research methodology, survey design and survey process pursued in order to investigate the research objectives of this study. In the next chapter the survey findings are described in detail.

CHAPTER 5 RESEARCH FINDINGS

5.1 Introduction

The previous chapters described the background for this research and the approach underlying the practical investigation. In this chapter the results of this research are presented.

As described in the previous chapter, the surveys are intended to satisfy the research objective of identifying the factors that influence the adoption of benefit realisation (BR) models in New Zealand organisations, by assessing their current IS/IT *practices* and *perspectives*. In order to understand each organisation's approach towards benefit realisation, their IS/IT *practices* are analysed using three different classifications on the basis of their sizes, sectors and localities as stated below:

1. Evaluation of current IS/IT and BR practices in SMEs and large New Zealand organisations.
2. Comparison of IS/IT and BR practices in public and private sector organisations in New Zealand.
3. Analysis of IS/IT and BR practices in national and multinational organisations.

Further data are analysed from two *perspectives*, analysis and comparison of both IT managers' and business/finance managers' views on their organisation's current IS/IT practices and their BR awareness, effort and interest in obtaining the business benefits from IS/IT projects and to justify IS/IT investments.

In this chapter the results of both surveys are described in two sections. Section 5.2 reports the IT managers' survey results and section 5.3 describe the finance managers' survey results. At the same time organisations' IS/IT and BR practices across organisations' sizes, sectors and localities are tabulated, compared and analysed. Chapter 6 reports a detailed discussion of the research findings by comparing and contrasting current practices and perspectives of IT and finance managers towards benefit realisation.

5.2 Data analysis

Standard statistical techniques that are appropriate for this study were used to analyse the survey data and to cross tabulate characteristics of survey samples. Due to the

exploratory nature of this study, *exploratory data analysis* (EDA) employing primarily *descriptive statistics* (Cooper & Schindler, 1998; Hussey & Hussey, 1997) is suitable to report the current survey results. Cooper & Schindler (1998) described "Exploratory data analysis is the first step in the search of evidence, without which confirmatory analysis has nothing to evaluate". Moreover as these surveys received relatively low response rates data are not sufficient to generalise to the target population. Therefore confirmatory data analysis techniques could not be used.

Further, Cooper & Schindler (1998) also suggested that for an exploratory study visual representation of data is more appropriate than summary statistics. Considering these points, all the responses received from both the IT and Finance managers' surveys were entered into a statistical package, SPSS (Statistical package for Social Sciences) for data analysis and graphical presentation of the results (*see* Appendix H1 and H2 for snap shots of data and variable sets of IT managers' survey, and Appendix I1 and I2 for finance managers' data and variable sets). As mentioned previously, this study utilises descriptive statistics mainly employing bar graphs, pie charts and frequency tables to describe the data and to study the trends in different organisations' sizes, sectors and localities.

In addition to this, to obtain further inferences and to assess the existence and strengths of relationships between variables, cross tabs, Phi/Cramer's V test, Somers'd and Kendall's tau-b, tau-c measures are applied. These techniques are used rather than other parametric equivalents as the data are either nominal or ordinal. Chi square analysis was not used as the responses were insufficient in order to produce valid analyses. Much of these analyses are reported in chapter 6. The next two sections describe the findings from the two surveys.

5.3 Data analysis of IT managers' survey

Altogether there were 58 responses received for the IT managers' survey resulting in an 11.6% response rate. This includes four responses to the pilot and 54 to the primary survey. In order to analyse the data in a logical sequence and to identify influential factors, it was carried out as per the sections in the survey that in turn reflect the key issues identified in the literature (see Table 4.1 Structure of the survey).

CORPORATE BACKGROUND INFORMATION

In this section of the survey, the respondents were asked to provide basic information about their organisation's industry sector, its size and structure.

The 58 responses to the IT managers' survey came from all industry sectors listed in the survey except tourism, accommodation and food services. As evident from Figure 5.3.1, responses came mainly from four sectors. Coincidently the responses from sectors education, health, community svcs., and wholesale & retail trade each comprised 17.5% of the total response set. Similarly the proportion of responses from electricity, gas & water utilities, and manufacturing & processing was 15.5% in both cases. The response from the government sector was 10.5%, which can be considered relatively high compared to the number of surveys sent to this sector. Table 5.3.1a depicts the sector-wise breakdown of this information.

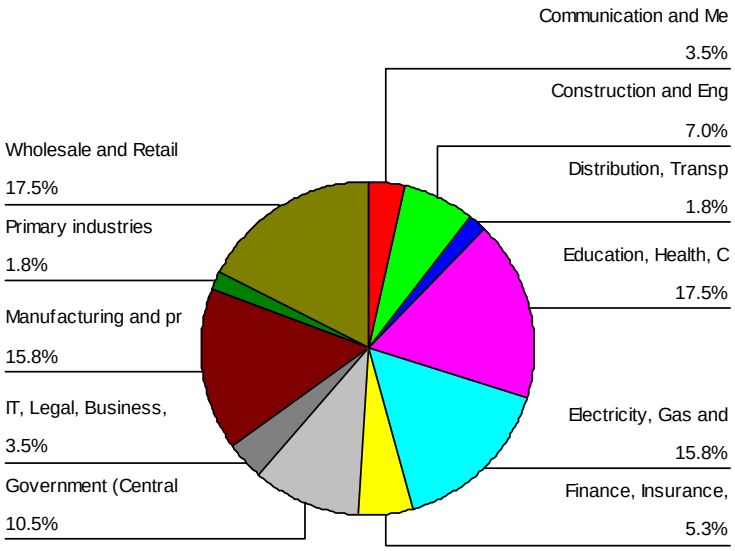


Figure 5.3.1 58 responses to IT managers' survey

Industry Category	Frequency	Percent
Communication and Media	2	3.4
Construction and Engineering	4	6.9
Distribution, Transport, Storage	1	1.7
Education, Health, Community Svcs	10	17.2
Electricity, Gas and Water Utilities	9	15.5
Finance, Insurance, Banking	3	5.2
Government (Central and Local)	6	10.3
IT, Legal, Business, Property Svcs	2	3.4
Manufacturing and processing	9	15.5
Primary industries	1	1.7
Wholesale and Retail trade	10	17.2
Total	57	98.3
System	1	1.7
Total	58	100.0

Table 5.3.1a IT managers' responses from various industry sectors

The proportion of responses from all other industry sectors compared to the number of surveys sent and to the Statistics NZ distribution of organisations in New Zealand is illustrated in Table 5.3.1b., indicating the relationship between the survey responses and the target population.

Industry Category	Stats NZ	Surveys sent	Responses Frequency	Responses Percent
Communication and Media	1%	6%	2	3.4%
Construction and Engineering	12%	10%	4	6.9%
Distribution, Transport, Storage	4%	4%	1	1.7%
Education, Health, Community Svcs	7%	8%	10	17.2%
Electricity, Gas and Water Utilities	0%	7%	9	15.5%
Finance, Insurance, Banking	4%	9%	3	5.2%
Government (Central and Local)	0%	7%	6	10.3%
IT, Legal, Business, Property Svcs	33%	7%	2	3.4%
Manufacturing and processing	7%	16%	9	15.5%
Primary industries	4%	5%	1	1.7%
Tourism, Accommodation & Food Services	9%	11%	0	0.0%
Wholesale and Retail trade	17%	11%	10	17.2%
Total		500	57	98.3
No response			1	1.7
Total			58	100

Table 5.3.1b 58 Responses IT managers' survey when compared to Stats NZ and surveys sent

SME's vs. large organisations

As explained in the previous chapter although organisations were selected proportionately from small, medium and large organisations, the response rate was not proportionate to categorise them respectively on the same basis. Therefore for the purpose of our analysis both small and medium organisations were combined based on the total number of FTEs. Generally in most countries, organisations with fewer than five hundred employees are considered as SMEs (Fink, 1998; Knight, 2001; Riemenschneider et al., 2003). Similarly in this case, all those organisations with fewer than 500 FTEs were considered as 'SMEs' and those with more than 500 FTEs as 'large' organisations.

On the basis of this categorisation, the responses from SMEs and large organisations were almost proportionate to each other. That is, almost 52% of the total responses were from SMEs and 47% from large organisations. Table 5.3.2 illustrates this split.

Organisations	Frequency	Percent
SME	30	51.7
Large	27	46.6
No response	1	1.7
Total	58	100.0

Table 5.3.2 IT responses from SMEs and large organisations

Public vs. Private sector organisations

In order to understand and compare the IS/IT practices in public and private sector organisations, all government organisations and those involved in education, health & community services were grouped together as 'public' sector and all others were considered to be 'private' sector. The numbers of responses on the basis of this categorisation are illustrated in Table 5.3.3.

Sectors	Frequency	Percent
Public	17	29.3
Private	40	69.0
No response	1	1.7
Total	58	100.0

Table 5.3.3 IT responses from private and public sector organisations

Although not an even split, investigation on this basis was still considered useful in order to compare and contrast the IS/IT practices in these two sector classes.

National vs. Multinational organisations

Respondents were asked to describe their organisation as being either 'National' or 'Multinational'. This would enable a comparative study between these two groupings in terms of IS/IT practices and to analyse any trends in the use of benefit realisation frameworks in these two categories. The numbers of responses on the basis of this categorisation are illustrated in Table 5.3.4.

Organisations	Frequency	Percent
National	40	69.0
Multinational	17	29.3
No response	1	1.7
Total	58	100.0

Table 5.3.4 IT responses received from national and multinational organisations

IS BACKGROUND INFORMATION

This section of the survey was designed to gather information regarding organisations' current IS/IT practices, their IS/IT investment trends and procedures to manage IS/IT investments.

Respondents were asked to indicate the size of their IS/IT function in terms of FTEs. Their answers are represented in Figure 5.3.2a. Just over 57% of respondents indicated that the size of their IS/IT group was less than 20 FTEs. As expected a significant difference is evident when size of IS/IT is checked against organisational size. Almost 83% of SMEs reported having fewer than 20 employees while less than one third (27%) of large organisations reported having the similar number of FTEs in their IS/IT functions. This is illustrated in Figure 5.3.2b.

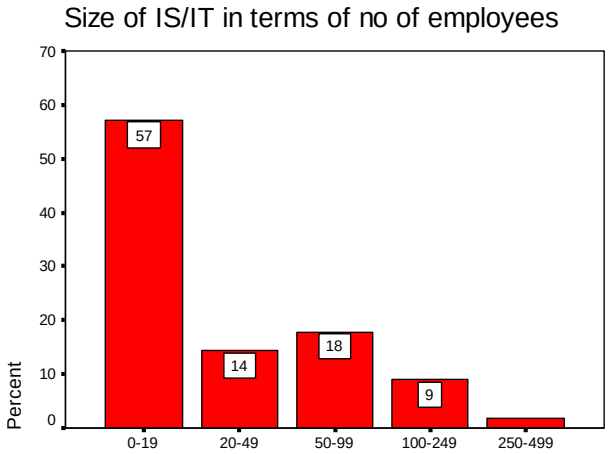


Figure 5.3.2a Size of IS/IT (FTEs) in all organisations

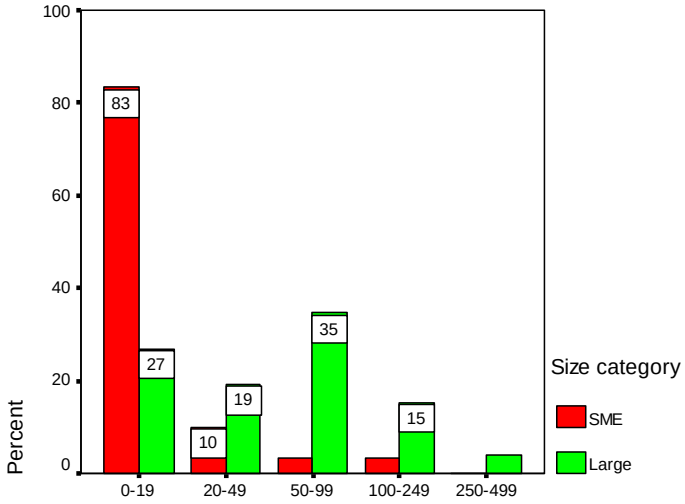


Figure 5.3.2b Size of IS/IT (FTEs) in SMEs and Large organisations

When the size of the IS/IT function was analysed across public and private sector groupings a difference was also noticed (*see* Figure 5.3.2c). Almost three-quarters (74%) of private organisations had fewer than 20 FTEs dedicated to IS/IT functions while only 18% of public organisations reported to have fewer than 20 FTEs. In the case of public organisations, 41% of these reported having FTEs between 50 and 99. Although no public sector organisations had more than 250 FTEs in IS/IT, 18% reported having more than one hundred FTEs. This aligns with the fact that 76% of public organisations were large and therefore as expected larger organisations tend to have more numbers of IS/IT employees than in smaller organisations.

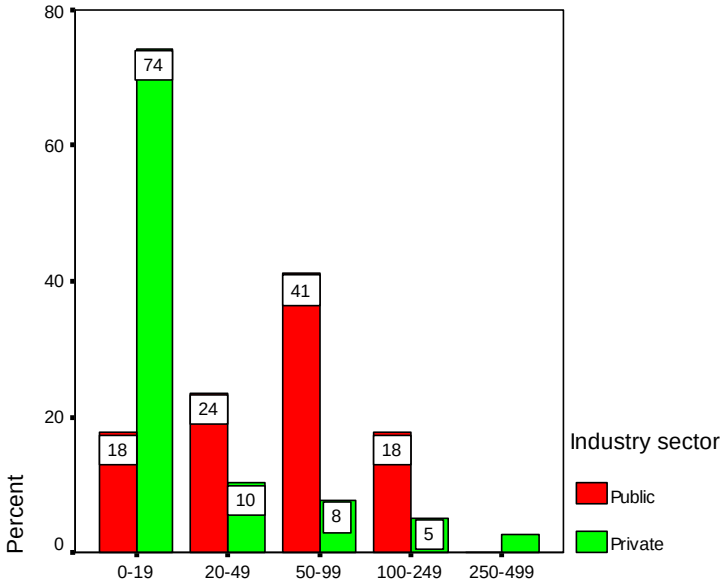


Figure 5.3.2c Size of IS/IT (FTEs) in public and private organisations

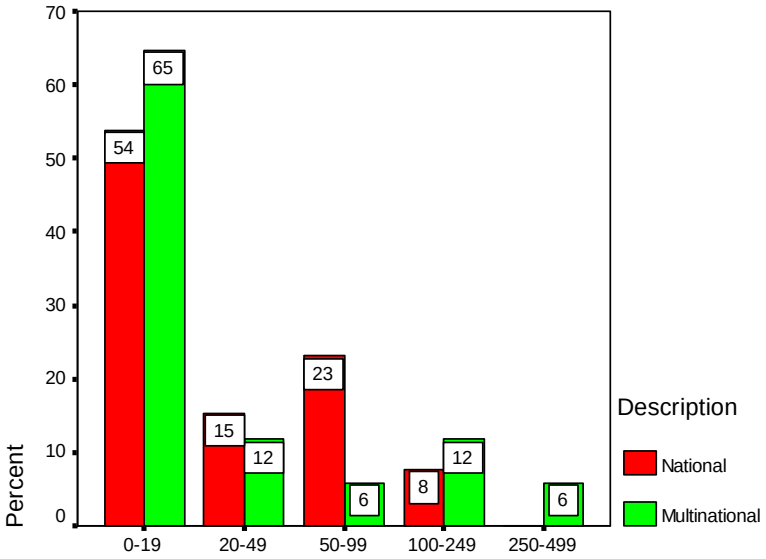


Figure 5.3.2d Size of IS/IT (FTEs) in national and multinational organisations

The size of IS/IT functions in national and multinational organisations (*see* Figure 5.3.2d) showed little variation. More than 50% of the responding organisations in both the categories had fewer than 20 FTEs dedicated to IS/IT and only large multinational organisations reported having more than 250 FTEs. This further indicates that the size of IS/IT functions in an organisation depends primarily on its overall size. Very few organisations had more than 250 IS/IT employees and these were all large, private, multinational organisations.

IS/IT investment trends

Capital Budget

Nearly thirty organisations (almost 50%) indicated that their capital budget for IS/IT was less than 20% of their total budget (*see* Figure 5.3.3). Five organisations indicated their capital budget to be more than 70%. Out of these five organisations three were large organisations and two were SMEs with more than 100 employees - one government, two from financial services, and one each from electricity & utilities and business property services. As expected, this implies that capital budget committed to IS/IT functions do not depend entirely on organisational size or sector.

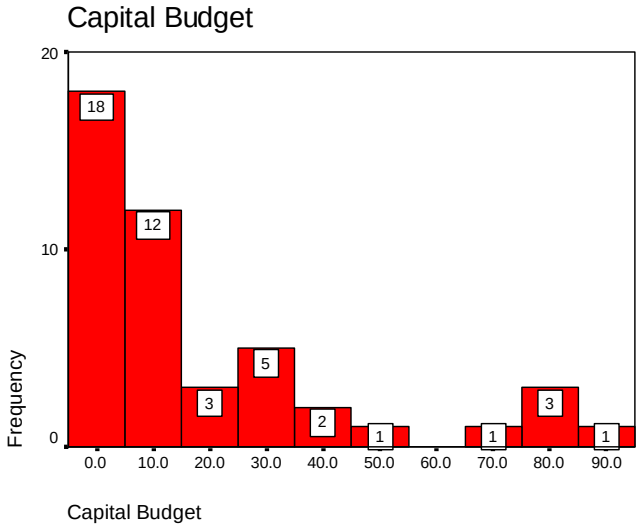


Figure 5.3.3 Capital budgets committed to IS/IT functions

Operations Budget

Almost all the responding organisations had an operations budget less than 30% for IS/IT while only one organisation indicated a budget of 40%. Almost thirty-five organisations (almost 60%) specified that their operations budget for IS/IT function was less than 10% of their overall budget (*see* Figure 5.3.4). The organisation that stated that their operations budget was 40% was SME - a construction and engineering firm with fewer than 100 FTEs.

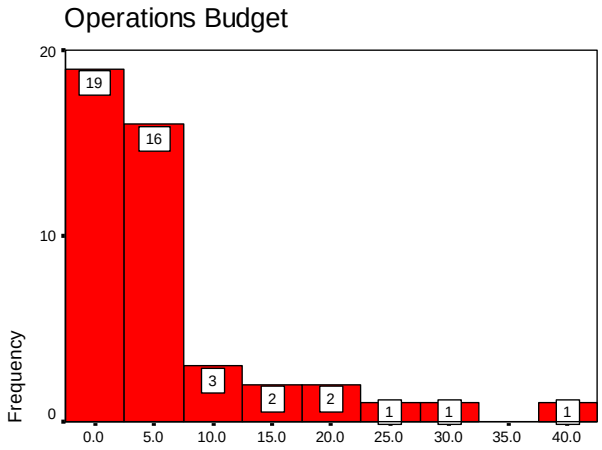


Figure 5.3.4 Operations budget committed for IS/IT functions

Those organisations that reported having a capital budget of more than 70% of their overall budget in the previous section had operations budgets varying from 5% to 20%. The organisation that specified its operations budget as 40% also had its capital budget as 40%. The extent of use and need for IS/IT in an organisation's strategic operations might be behind this variation. This certainly signifies that operations budget and capital budget do not necessarily depend on each other. In general, this data provides an understanding as to how much organisations are ready to spend on IS/IT presumably expecting to gain some actual benefit from the technology in which they have invested.

Overall IS/IT expenditure

Respondents were asked to indicate their IS/IT expenditure in the last two years and how it may change in the next two years.

In the last two years:

Almost 43% of respondents indicated their IS/IT expenditure in the past two years had increased and 38% thought their IS/IT spending had remained the same. Close to one in five organisations believed that their IS/IT spending had decreased (*see* Figure 5.3.5).

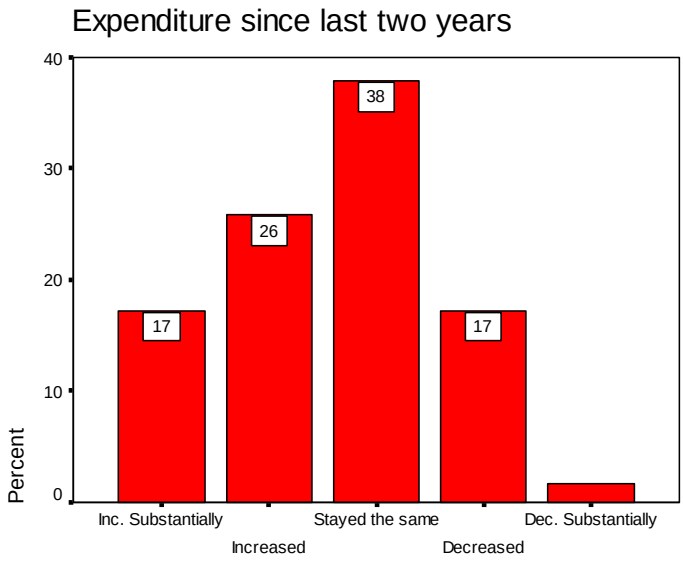


Figure 5.3.5 Overall IS/IT expenditure in the last two years

In the next two years:

Similarly, when respondents were asked to indicate how their IS/IT spending would change in the coming two years, 57% of responding organisations thought it would increase and 15% thought it likely to decrease. Another 28% of the organisations thought it would remain the same. Of the organisations who thought their IT spending would decrease in the next two years, 73% were large organisations and 27% were SMEs having more than 100 FTEs. Nearly three-quarters (73%) of these were private organisations.

On the whole 63% of large organisations and 53% of SMEs indicated that their IS/IT expenditure may increase in the next two years. In considering the intentions of national and multinational organisations, around 53% of multinational firms and 61% of the national organisations believed their IS/IT spending was going to increase (*see* Figure 5.3.6).

When this was checked across private and public organisations, 71% of the public sector respondents indicated IS/IT spending would increase and 24% thought it might remain the same. In the case of private sector respondents although there was a mixed perception, more than 50% thought IS/IT spending would increase and 30% felt their technological spending would remain the same. So in general, fewer than 15% in all categories thought that their IS/IT spending would actually decrease in the next two

years. If organisations are to make best use of this increased spending it would seem vital that they have and use methods that tie business benefits to that expenditure. Further analysis on this compared to Finance managers' perspectives is discussed in chapter 6.

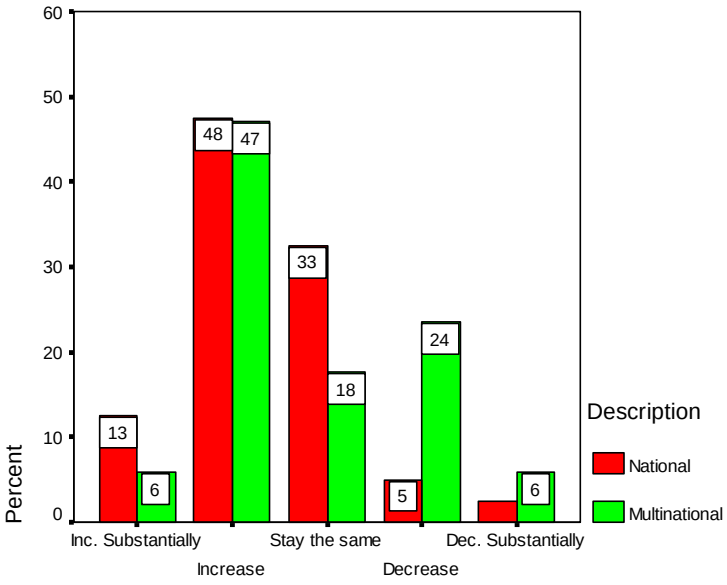


Figure 5.3.6 Expenditure in the next two years

Role of IT

Respondents were asked to indicate the purpose of IS/IT in their organisation, whether *essential, strategic* or *not critical* to the daily functions of the organisation.

Nearly 55% of the respondents considered IS/IT enabled key operational processes that are *essential* to the organisation's functions. Another 37% believed IS/IT had *strategic* importance to the organisation. Another 5% of the respondents considered IS/IT was *both* essential and strategic to the organisation. In contrast, 4% of the respondents thought IS/IT was *not critical* to their organisation's every day operations (*see* Figure 5.3.7).

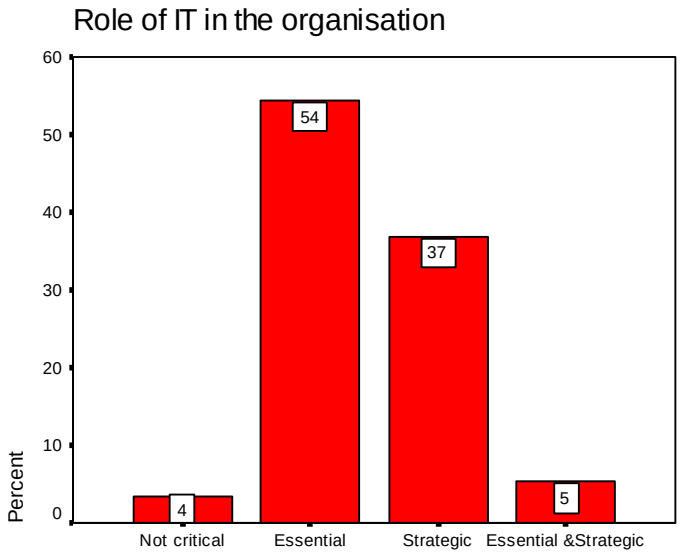


Figure 5.3.7 Role of IS/IT in the organisation

Responsibility for IS/IT operation in the organisations

Most responding organisations (76%) had a person responsible for their IS/IT operations within the organisation. This is in line with the assertion of Peppard and Ward (1999) that most organisations have an individual responsible to manage IS/IT services.

Nearly 38% of the respondents had CIOs and another equal proportion of respondents specified their IS/IT function was headed by an IS/IT manager. The remaining one-quarter of the respondents specified that their organisation's IS/IT function was headed by personnel with various other titles as follows. Around 10% of the respondents specified that their IS/IT operations were headed by CFOs, nearly 2% by Chief Accountant and another 7% by CEOs. A small percentage of respondents (5%) stated that their IS/IT function was headed by Facilities Managers or Systems Administrators (*see* Figure.5.3.8).

When this analysis was considered across the SMEs and large organisations it showed that most large organisations (93%) had CIO/IS/IT manager titles. In the SMEs nearly 65% of respondents indicated their IS/IT functions were headed by CIOs or IS/IT managers, the remaining 35% of organisations being headed by personnel with other titles.

A similar breakdown was evident in the case of public and private sector organisations. Almost 94% of the responding public sector organisations were headed by CIOs or IS/IT managers with the remaining 6% being headed by CFOs. Among private sector respondents we can see a variety of titles, although nearly three-quarters were headed by CIOs or IS/IT managers, and around 8-10% were headed by Systems Administrators, Chief Accountant or Facility Managers.

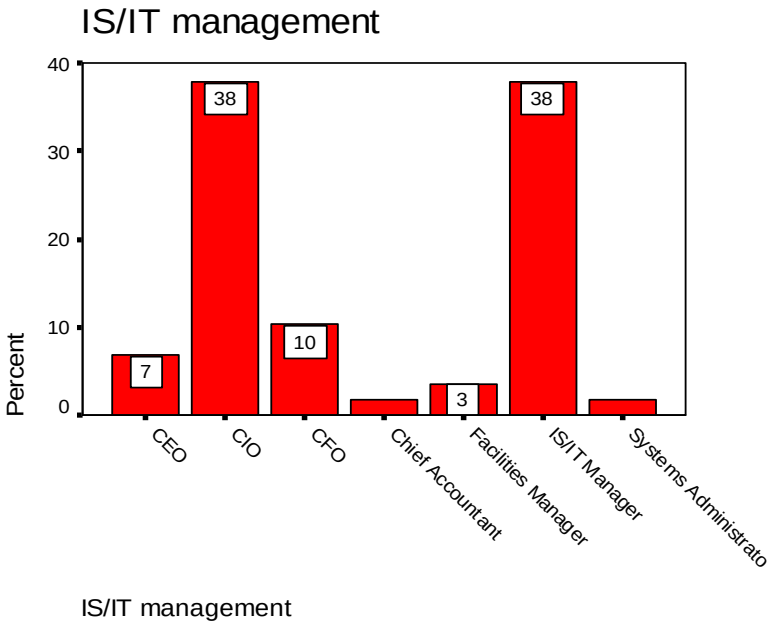


Figure 5.3.8 Responsible for IS/IT management

Responsibility for IS/IT investment

Respondents were then asked to indicate the people/teams involved in determining and managing IS/IT investment tasks in their organisations.

Preparing proposals for IS/IT investment

Overall 64% of the responding organisations indicated that preparing proposals for IS/IT investment was generally done by IS/IT management (*see* Figure 5.3.9a). Of these, 53% were SMEs and 47% were large organisations. Just over one-quarter (26%) of the respondents indicated that this task was handled by business management. Again of these, 53% were SMEs and 47% were large. Among the remaining 10% who said their IS/IT investment proposals were prepared by both IS/IT and business management, 50% were SMEs and 50% were large.

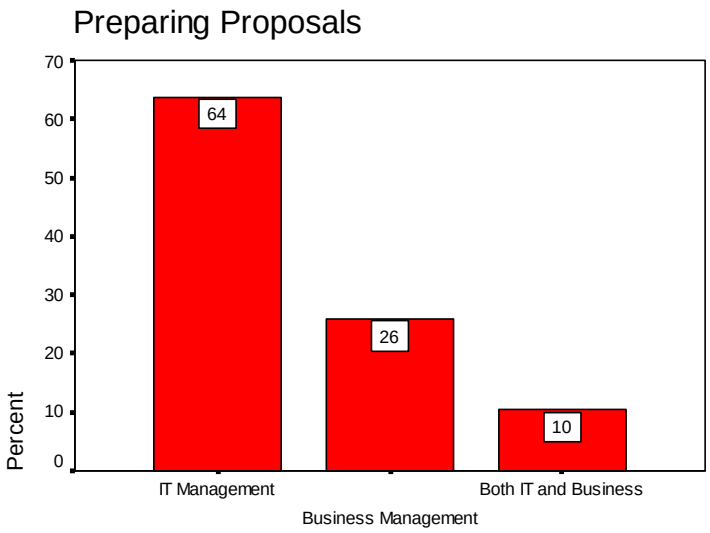


Figure 5.3.9a Preparing proposals for IS/IT investment

In considering the impact of sector and 'home' (national and multinational), there was a similarity of practice between public sector and multinational organisations, and also between private sector and national organisations (illustrated in Table 5.3.5). Nearly one-quarter of respondents from both public sector organisations and multinational organisations indicated that the proposals were prepared by both IS/IT and business management. (This could imply a greater degree of business and IT collaboration within public and multinational organisations).

Organisations	Preparing IS/IT proposals		
	IT	Business	Both
Overall	64%	26%	10%
SMEs	63%	27%	10%
Large	63%	26%	11%
National	63%	33%	5%
Multinational	65%	18%	18%
Public	65%	18%	18%
Private	63%	30%	8%

Table 5.3.5 Data on preparing proposals for IS/IT investments

Justifying proposals for IS/IT investment

In contrast to those preparing IS/IT proposals, almost 48% of the respondents indicated that justifying proposals for IS/IT investment was done by business management. A further 39% indicated this was done by IS/IT management (*see* Figure 5.3.9b). A lesser proportion (13%) indicated the involvement of both IT and business management. A few respondents specified that an IT governance board also participated in justifying IS/IT investments.

Analysis across the two responding organisational size categories indicated that in 37% of SMEs and 44% of large organisations, this task was performed by IS/IT management. Another 53% of responding SMEs and 40% of responding large organisations indicated that business management justified IS/IT proposals. Around 15% of responding large organisations indicated that both IS/IT and business management collaboratively performed this task.

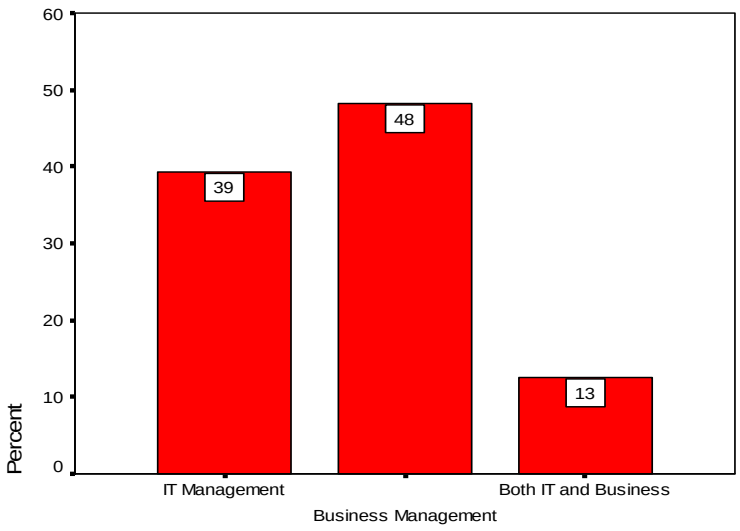


Figure 5.3.9b Justifying proposals for IS/IT investment

In comparing IS/IT practices between the responding private and public sector organisations a significant difference was observed. Almost 53% of the public sector respondents indicated that their IS/IT investment proposals were justified by the IS/IT department. In contrast more than half of the private sector respondents (53%) indicated that business management performed this task. However, in both cases more than 10% indicated that this task was performed in collaboration between both IT and business

management or through other personnel, such as an IT governance committee. This information is depicted in Table 5.3.6.

Just over 31% of responding multinational organisations indicated that IS/IT investments were justified by IS/IT management and a further 56% indicated this as a business management activity. In the case of responding national organisations, 44% indicated that IS/IT management undertook this task and 44% by business management.

In general, comparatively higher proportions of respondents (around 50%) indicated that justifying IS/IT investment proposals was handled by business management. We can notice that higher numbers of large organisations indicated the involvement of both IT and business management in justifying IS/IT investments, which is considered as an important practice from the perspective of aligning IS/IT investment with corporate goals (Baets, 1992; Ogilvie, 2003; Peppard & Ward, 2004; Teo & Ang, 1999b) (*see* Table 5.3.6).

Organisations	Justifying IS/IT proposals		
	IT	Business	Both
Overall	39%	48%	13%
SMEs	37%	53%	10%
Large	44%	40%	16%
National	44%	44%	13%
Multinational	31%	56%	13%
Public	53%	33%	13%
Private	35%	53%	13%

Table 5.3.6 Comparison of IS/IT practice among the organisations

Unlike proposal preparation, in the case of justifying IS/IT investment proposals a similar practice is observed among multinational and private sector organisations. This suggests that responsibility for this activity does not depend on industry sector or locality but that size of the organisation has some level of influence. All those organisations with fewer than 50 FTEs stated that justification of IS/IT investment

proposals was done by business management with the implication that in smaller organisations IS/IT may be limited and therefore IS/IT decisions may have to be taken by business managers. Among the larger group no significant variation was observed.

Reviewing whether IS/IT investments have been worthwhile

Similar to the previous tasks, a higher proportions of respondents (55%) indicated that reviewing IS/IT investments was performed by business management, while 27% indicated that this task was performed by IS/IT management (*see* Figure 5.3.9c). A further 11% specified this as being done by both IT and business management. Among the remaining 7% of the organisations, a few indicated that this activity was not performed formally, and around 2% among them indicated that, depending on the size of the project, reviewing was done either by the CFO or by other IT board members, indicating dominance of business management. Similar trends were evident in comparing SMEs vs. large, private vs. public and national vs. multinational organisations. Table 5.3.7 illustrates this information.

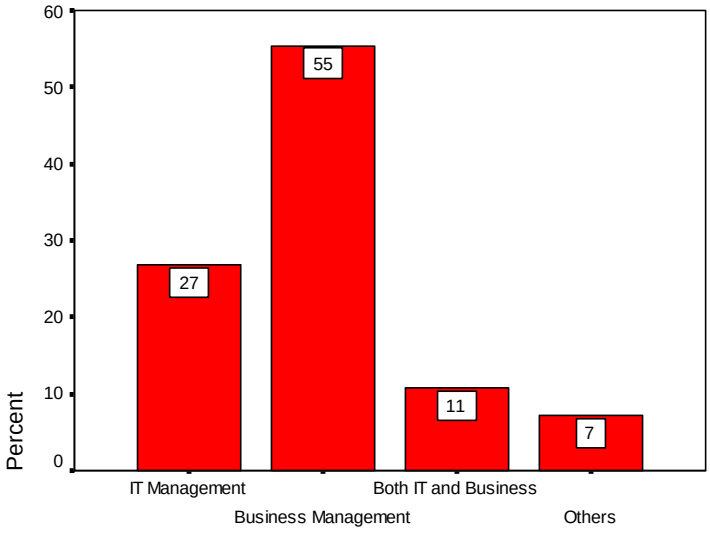


Figure 5.3.9c Reviewing IS/IT investment whether worthwhile

Organisations	Reviewing IS/IT proposals		
	IT	Business	Both
Overall	27%	55%	11% (7%)
SMEs	27%	60%	10% (3%)*
Large	24%	52%	12% (12%)*
National	24%	58%	11% (8%)*
Multinational	29%	53%	12% (6%)*
Public	20%	47%	20% (13%)*
Private	28%	60%	8% (5%)*

Table 5.3.7 To compare IS/IT practices among organisations

Organisations	Preparing IS/IT proposals			Justifying IS/IT proposals			Reviewing IS/IT proposals		
	IT	Business	Both	IT	Business	Both	IT	Business	Both
Overall	64%	26%	10%	39%	48%	13%	27%	55%	11% (7%)*
SMEs	63%	27%	10%	37%	53%	10%	27%	60%	10% (3%)*
Large	63%	26%	11%	44%	40%	16%	24%	52%	12% (12%)*
National	63%	33%	5%	44%	44%	13%	24%	58%	11% (8%)*
Multinational	65%	18%	18%	31%	56%	13%	29%	53%	12% (6%)*
Public	65%	18%	18%	53%	33%	13%	20%	47%	20% (13%)*
Private	63%	30%	8%	35%	53%	13%	28%	60%	8% (5%)*

*** indicates involvement of other personnel**

Table 5.3.8 To compare IS/IT practices among organisations

In Table 5.3.8 the findings for all three IS/IT investment proposal tasks are depicted. It is observed that nearly 65% of the responding organisations from all categories stated that IS/IT proposals were prepared by IS/IT management. As far as justifying IS/IT proposals are concerned, we can notice that depending on the size of the organisation it is either done by IS/IT management or by business management. It is evident that a higher number of SMEs have indicated that this is a business management activity, compared to large organisations or any other categories.

In contrast to the above, in the case of reviewing IS/IT proposals, more than 50% of the responding organisations have indicated that the proposals were reviewed by the business management group. In this case it is quite evident that in higher numbers of organisations reviewing IS/IT proposals was performed by both IT and business management, sometimes with the collaboration of other groups. However a small proportion of organisations in this case have mentioned that this activity was not done in their organisations.

Use of formal appraisal techniques

Respondents were asked to indicate whether they were using any formal IS/IT investment appraisal techniques.

Nearly one-quarter (26%) of the respondents indicated that they did not use any investment appraisal techniques, prior to investing in IS/IT. Out of the remaining, over 65% indicated that they used formal appraisal techniques. Not all responding organisations used investment appraisal techniques on all projects. A few (26%) stated that they used it on most of their projects and others on some of their projects. A few organisations specified that they used investment appraisal techniques on all *high value* projects and sparingly on other projects (*see* Figure 5.3.10). More or less similar trends were evident among national vs. multinational organisations and public vs. private sector organisations (*see* Table 5.3.9).

When this issue was considered in relation to organisational size (*see* Figure 5.3.10a), it was clearly evident that investment appraisal techniques were generally used in large organisations and rarely in SMEs. This is evident from the fact that almost 40% of the responding SMEs indicated that formal IS/IT appraisal was ‘not done’ in their organisation whereas almost 35% of the large organisations said they performed

investment appraisal 'on all projects'. Nearly 50% of the respondents indicated they formally appraised some of their projects. Among the responding large organisations only 12% indicated that they did not undertake this activity.

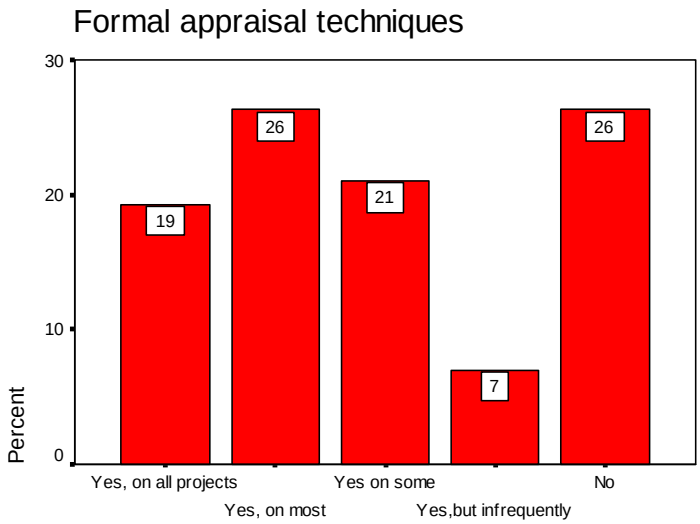


Figure 5.3.10 Use of formal IS/IT investment techniques

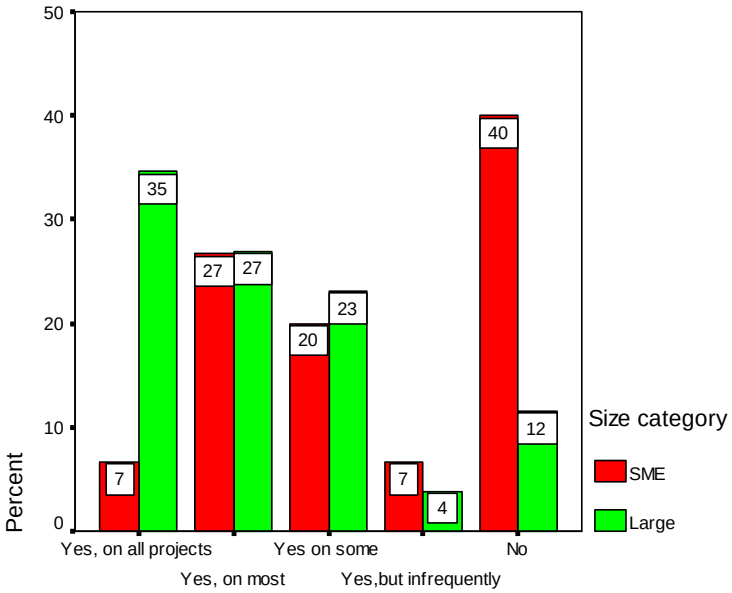


Figure 5.3.10a Use of formal appraisal techniques in SMEs and large organisations

Organisations	Organisations using investment appraisal techniques				
	Yes, on all projects	**Yes, on most**	**Yes, on some**	**Yes, but infrequently**	**No**
Overall	19%	26%	21%	7%	26%
SMEs	7%	27%	20%	7%	40%
Large	35%	27%	23%	4%	12%
National	15%	26%	23%	5%	31%
Multinational	29%	29%	18%	6%	18%
Public	13%	25%	38%	-	25%
Private	23%	28%	15%	8%	28%

Table 5.3.9 Use of formal investment appraisal techniques among organisations

BUSINESS VALUE OF IS/IT

This section of the survey identified organisations' approaches to realising business value through their current IS/IT practices. Respondents were asked to specify their senior managers' perceived business benefits of IT and their efforts to achieve such benefits.

Relationship between IS/IT and other functional areas of the organisation

Just under 80% of the respondents indicated that IS/IT was at the same level as other functional areas in the organisation (see Figure 5.3.11).

A small percentage (9%) of respondents considered IS/IT was at a higher level in the organisation, in contrast 14% of the respondents stated that IS/IT was at a lower level. Of these 14%, 63% were SMEs and 75% were private sector organisations. Of the 9% who considered IS/IT was at a higher level, 75% of the organisations were large, public and national organisations. An organisation's placement of IT may depend on the contribution IT is rendering, which is strategic to the organisation's objectives. If we refer to Figure 5.3.7 almost 95% of the responding organisations considered IS/IT was either essential or strategic. Similarly we have nearly 80% of respondents saying that IT

is at the same level as other functional areas. This relationship is illustrated in Figure 5.3.11a.

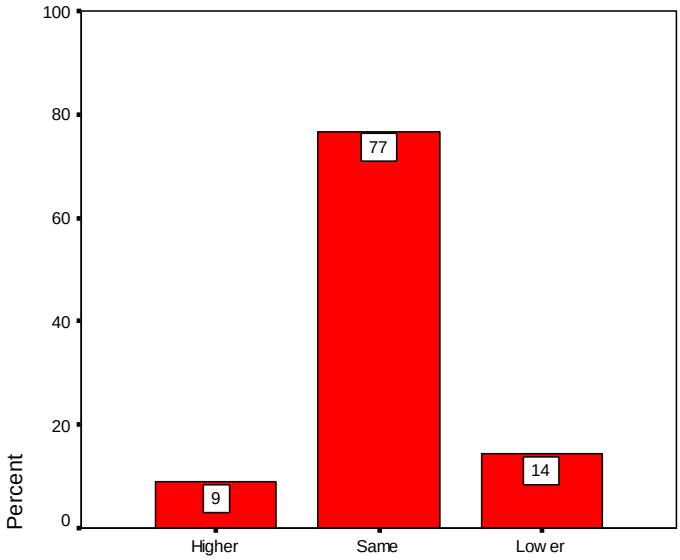


Figure 5.3.11 IS/IT relationship in the organisation

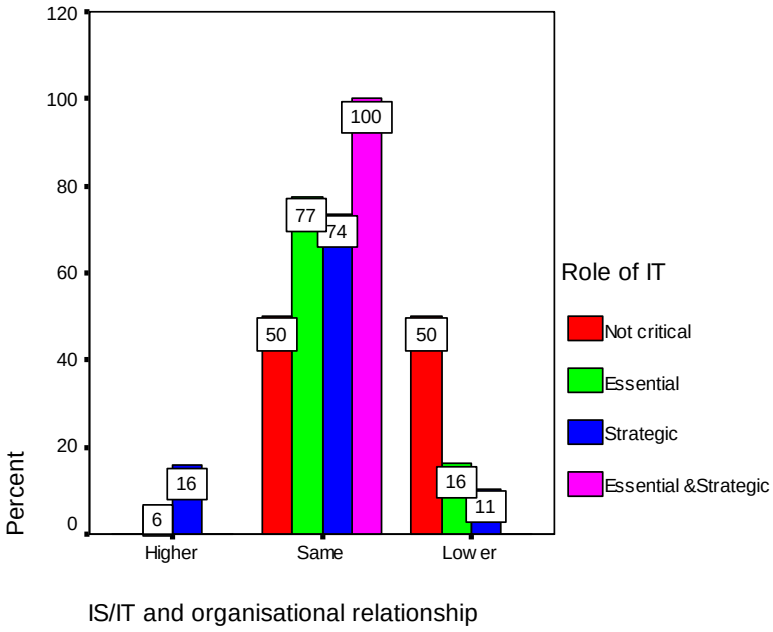


Figure 5.3.11a IS/IT relationship in the organisations when plotted against Role of IT in the organisation.

IS/IT contribution to the organisation's objectives

When the respondents were asked to indicate how IT contributed to their organisation's objectives, the general opinion was that IS/IT had contributed to almost all areas of

business. For instance, supply chain management, customer service, EDI, finance, ecommerce and others (*see* Appendix J question no 15 for more details).

Perceived benefits of IS/IT

Respondents were asked to indicate the perceived business benefits of IS/IT projects from senior managements' perspective.

Most frequently organisations expected to achieve *process efficiency* and to *satisfy information needs* through IS/IT. Almost 95% of the responding organisations believed 'process efficiency' to be one of their perceived benefits and 87% believed that IS/IT enabled them to satisfy information needs. Only 40% perceived gaining the business benefit of *competitive advantage*. Half of the respondents invested in IS/IT to improve *service quality* and *cost savings*. This is illustrated Figure 5.3.12.

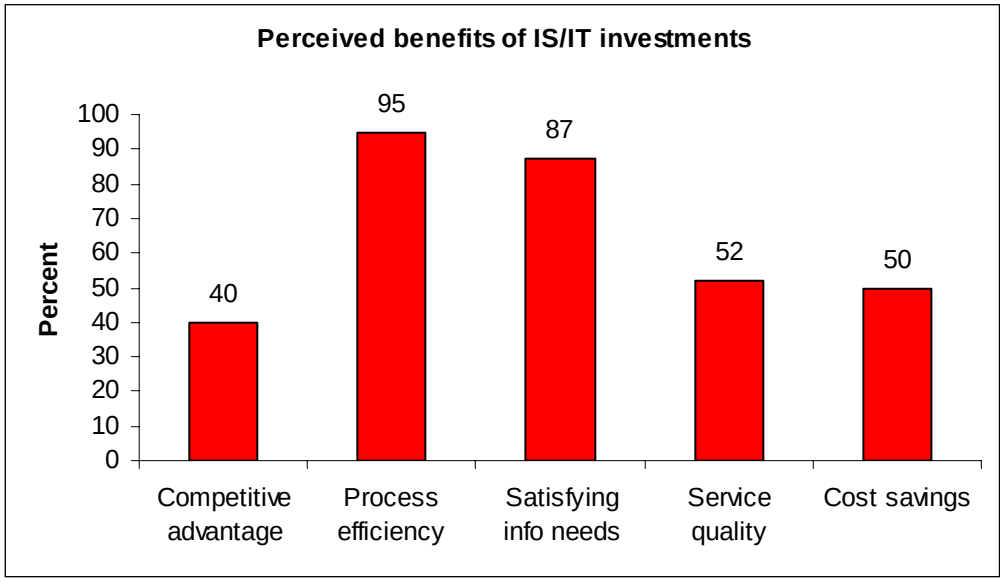


Figure 5.3.12 Perceived business benefits of IS/IT investments

Confidence level

Respondents were asked to indicate their level of confidence regarding IS/IT's contribution in actually delivering those perceived benefits.

Almost 67% of the responding organisations were 'quite' confident that IS/IT was actually delivering perceived business benefits. Almost 25% were 'very' confident. Just 4% indicated they were 'not at all' confident and the remaining 4% were 'not sure' (*see*

Figure 5.3.13). The 8% of respondents in these last two response categories were from private sector organisations. Overall it appears that there is a high degree of confidence in business benefit delivery.

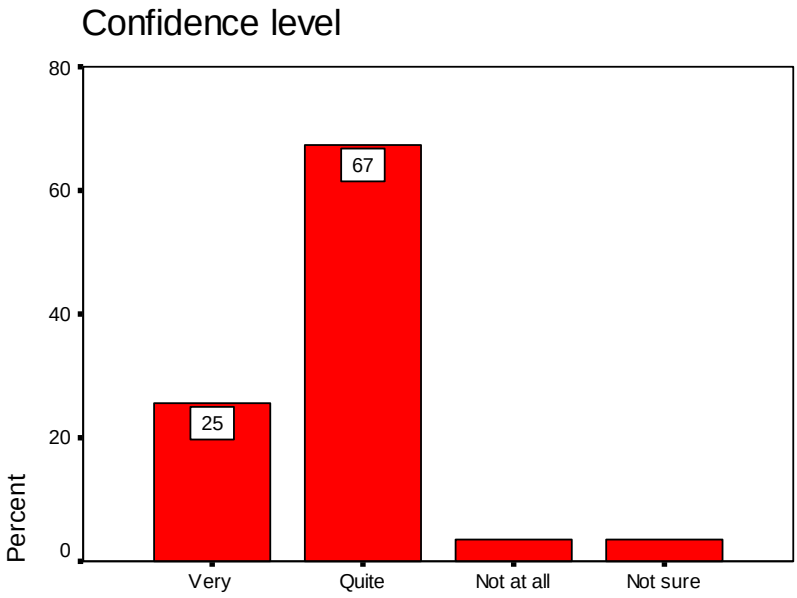


Figure 5.3.13 Whether IS/IT is actually delivering business benefits

Business benefit delivery plan

In order to analyse organisations' *effort* in obtaining perceived business benefits from IS/IT projects, respondents were asked to indicate whether they used any business benefit delivery plans.

The analysis depicted in Figure 5.3.14 indicates that close to one-quarter of respondents did not use any benefit delivery plan while around 20% indicated they used such a plan infrequently and only on some projects. Just over 20% of respondents indicated that they used a business benefit plan for all projects, while 35% said they used a plan on most of the projects, especially high valued projects (costing more than $10000).

No significant differences were observed in public vs. private sector organisation and national vs. multinational organisation responses (*see* Table 5.3.10). When this issue was considered over organisational size, however a significant difference in practice was noted. Only 7% of responding SMEs used a benefit delivery plan on all projects compared to 42% of responding large organisations, with a further 33% of large organisations and 37% of SMEs indicating that they planned benefit delivery on most of

their projects. In contrast, 30% of the SMEs against 12% of responding large organisations indicated they did not use any benefit delivery plans. This information is illustrated in Figure 5.3.14a and Table 5.3.10

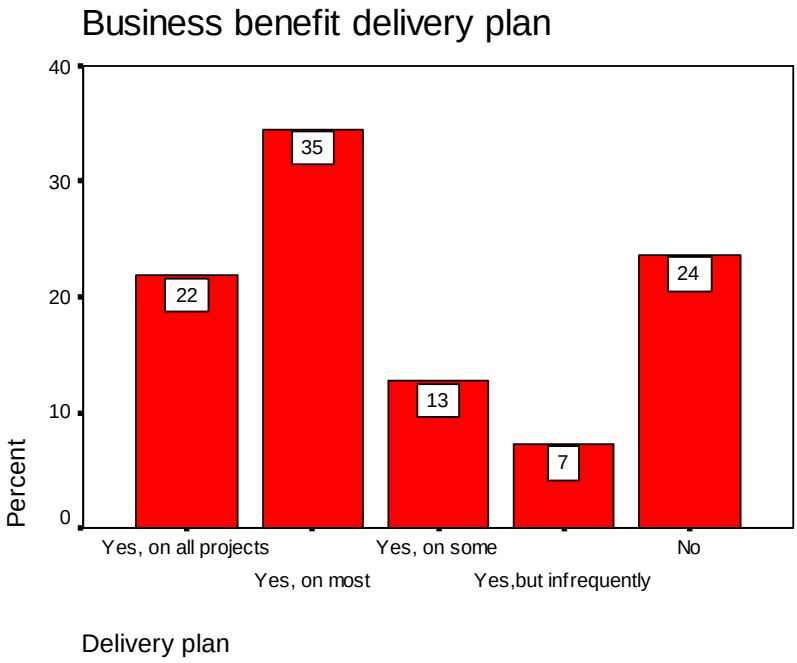


Figure 5.3.14 Use of business benefit delivery plan

Overall it is evident that organisational size plays a significant role in adopting benefit delivery plans. Even those responding SMEs that employed benefit delivery plans on all of their projects or on most of their projects all had more than 100 FTEs. Other findings on the practice of benefit delivery plans across organisational size, sector and locality are illustrated in Table 5.3.10.

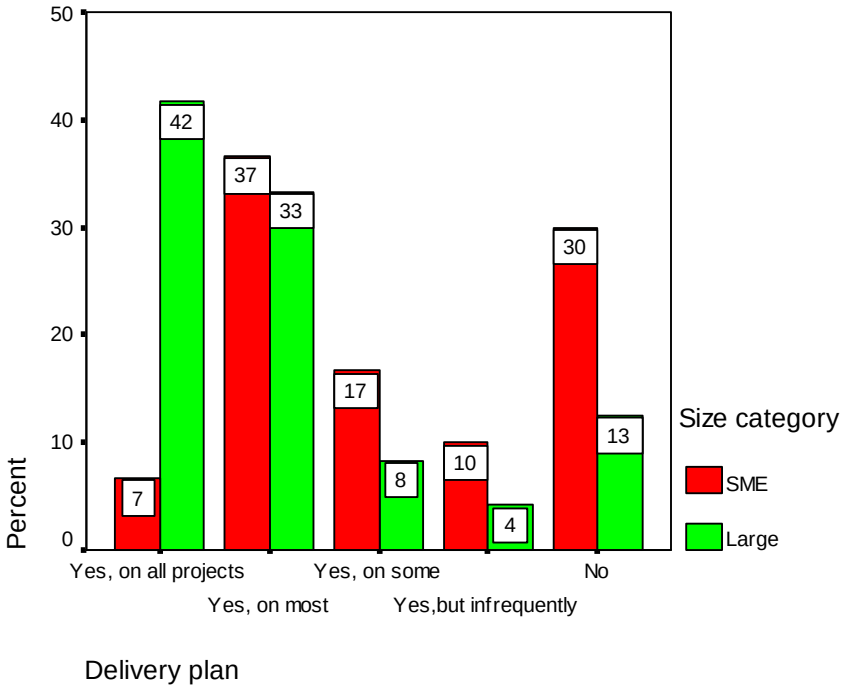


Figure 5.3.14a Use of benefit delivery plans in SMEs and large organisations

Organisations	Organisations using benefit delivery plan				
	Yes, on all projects	Yes, on most	Yes, on some	Yes, but infrequently	No
Overall	22%	35%	13%	7%	24%
SMEs	7%	37%	17%	10%	30%
Large	42%	33%	8%	4%	13%
National	24%	29%	18%	5%	24%
Multinational	19%	50%	-	13%	19%
Public	20%	33%	27%	-	20%
Private	23%	36%	8%	10%	23%

Table 5.3.10 Use of benefit delivery plan across various organisations

In order to check how the organisations carried out this practice, respondents were asked to indicate when the benefit delivery plan was revisited - whether during project

execution and/or on completion of the project. This information is illustrated in Figure 5.3.14b and Figure 5.3.14c.

Only 4% of respondents indicated that they 'always' revisited the plan during project execution, whereas another 4% said they 'never' did so. Others used it sparingly depending on the *value* of the projects. Table 5.3.10a illustrates this information across organisational size, sector and locality.

When the respondents were asked whether they revisited the plan after the completion of the project, not one answered 'never' (*see* Figure 5.3.14c and Table 5.3.10b). In comparison to practice during project execution, a higher number of respondents indicated that they 'Always' revisited the plan on project completion. Table 5.3.10b illustrates this information across organisational size, sector and locality.

Figure 5.3.14b Delivery plan revisited– during project execution

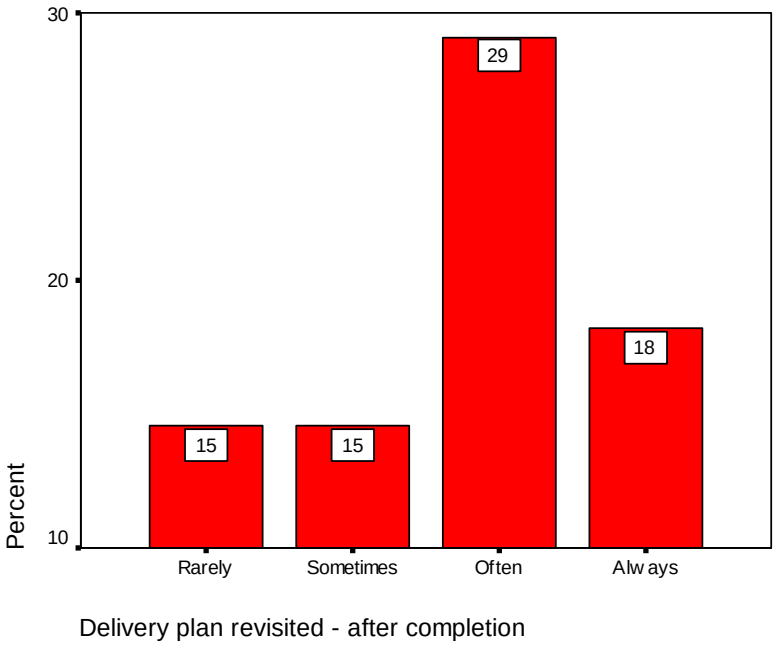


Figure 5.3.14c Delivery plan revisited – on completion of the project

[Note: These questions were also used as a survey reliability check to see if respondents were answering the survey questions consistently. If they answered 'yes' to the first part of this question (Question no.18), and then said 'Never' to both sub questions (*see* appendix B Question no 18a and 18b), then we could assume that the respondents were not answering the survey consistently. We did not find any such answers, giving us a level of confidence in the internal reliability of the survey outcomes.]

Organisations	Organisations using benefit delivery plan – during project execution				
	Never	Rarely	Sometimes	Often	Always
Overall	4%	15%	16%	35%	4%
SMEs	-	17%	20%	30%	-
Large	8%	13%	13%	42%	8%
National	5%	11%	16%	37%	3%
Multinational	-	25%	19%	31%	6%
Public	7%	7%	7%	53%	7%
Private	-	18%	21%	28%	-

Table 5.3.10a Use of benefit delivery plan– during project execution

Organisations	Organisations using benefit delivery plan – on completion of the project				
	Never	Rarely	Sometimes	Often	Always
Overall	-	15%	15%	29%	18%
SMEs	-	17%	17%	30%	7%
Large	-	13%	13%	29%	33%
National	-	16%	16%	26%	18%
Multinational	-	13%	13%	38%	19%
Public	-	13%	27%	27%	13%
Private	-	15%	10%	31%	21%

Table 5.3.10b Use of benefit delivery plan– after completion of the project

Importance of business value in prioritising IS/IT projects

All but 8% of respondents considered the importance of business value while prioritising IS/IT projects. Surprisingly, of this 8%, half indicated they were 'not sure', and the other half stated that business value was thought to be 'not at all' important when prioritising IS/IT projects (*see* Figure 5.3.15). Among those 8% of organisations, 75% were SMEs with fewer than 50 FTEs and all were national organisations. Though large education institutes were investing in IS/IT, they did not consider business value to be important to them with respect to prioritisation. One of the reasons for this could be that education institutes are generally not profit making organisations but are knowledge providing bodies. In contrast to this, 88% of responding multinational organisations considered business value as very important to them when prioritising IS/IT projects whereas only 45% of responding national organisations believed the same.

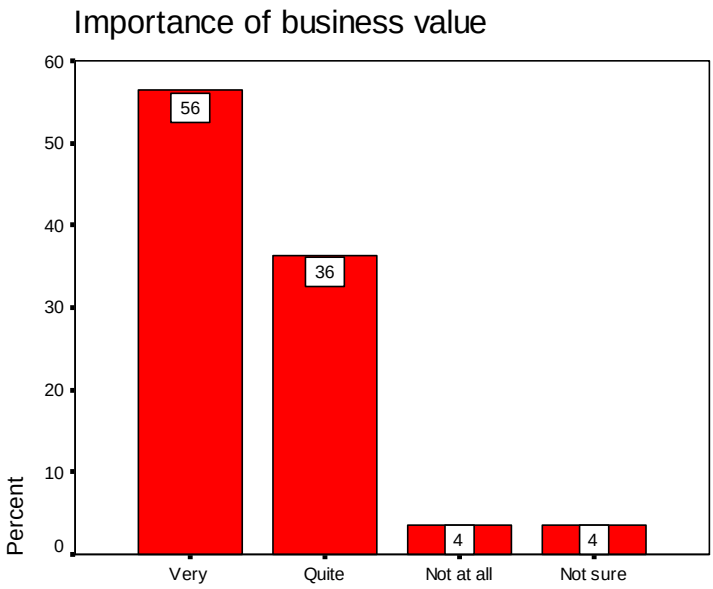


Figure 5.3.15 Importance of business value while prioritising IS/IT projects

Management processes used to link business value to IS/IT initiatives

One in five respondents did not answer this question. In addition to this, 10% indicated they did not follow any processes to link IT initiatives to business. The remaining 70% of the respondents indicated various techniques that were generally used to link IT and business activities. This gave an indication as to how organisations' objectives were aligned and coordinated with IT activities. Furthermore, this enabled us to better understand organisations' approaches to obtaining business benefits from IS/IT and justifying their investments in IS/IT.

Most of the multinational organisations used models that were suggested by their parent company to link business processes and IS/IT initiatives. Nearly 20% of the organisations indicated use of financial measures such as ROI, NPV or cost benefit analysis as their primary techniques. A few others indicated more general processes such as business strategy, IT strategy or business cases aligned with the organisation's strategic objectives and so on. Others indicated their use of business benefit delivery plans and comparing perceived business benefits against project outcomes using benefit review plans.

Business value as a measure of success of IS/IT projects

Close to all respondents, at 90%, considered *business value* as an important measure for the success of IS/IT projects (*see* Figure 5.3.16). The respondents answered this question similarly to question no.19 – 'Importance of business value while prioritising IS/IT projects' (*see* Figure 5.3.15.). The remaining 10% considered success of IS/IT projects was not measured by business value. All responding private sector organisations and multinational organisations indicated business value was an important measure for the success of IS/IT projects.

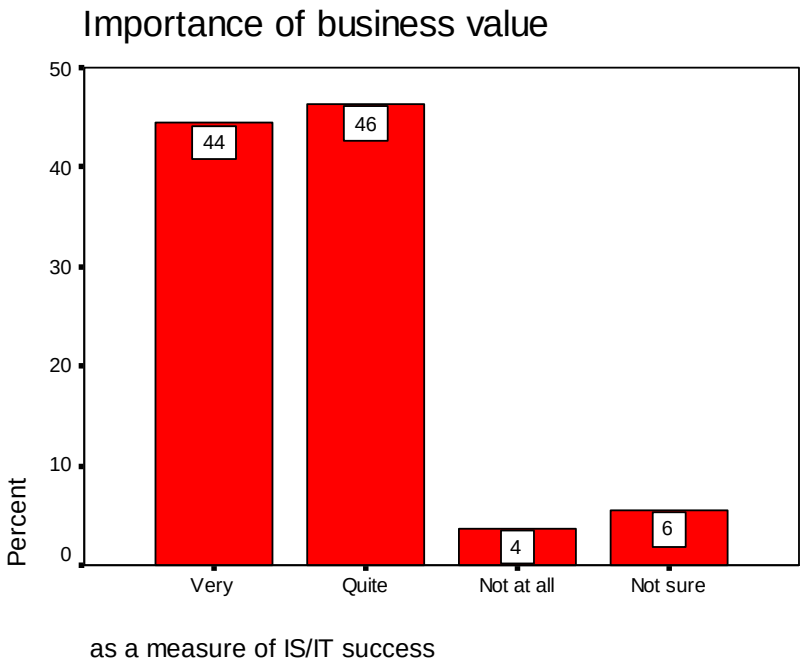


Figure 5.3.16 Importance of business value as a measure of IS/IT success

Measurement of business value of IS/IT projects

Almost 89% of the respondents indicated that business value of IS/IT was measured in terms of *dollars*. This is illustrated in Figure 5.3.17. Nearly 60% of the respondents indicated that *time* and *effort* were also important as units of measurement for obtaining business value from IS/IT projects. Ultimately effort is a determinant of time and time is a determinant of dollars. A few organisations also indicated that business value of IS/IT was measured in terms of quality, customer satisfaction, customer experience, company image and benefits delivered, which include both tangible and intangible benefits.

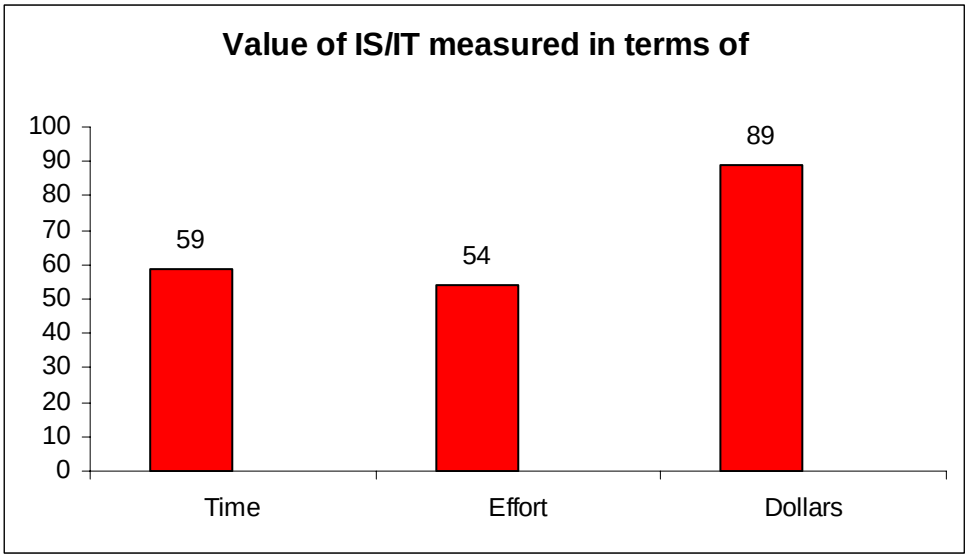


Figure 5.3.17 Business value of IS/IT measured

Business value estimated or measured

Organisations were asked to indicate when the perceived business value of IS/IT was measured.

Almost 45% of the respondents indicated that they 'often' measured business value during project planning, 35% indicating they 'always' did so. There was no organisation that indicated 'Never' at this stage. This means organisations generally performed a business value check prior to the project selection. This is illustrated in Figure 5.3.18.

Fewer than 10% indicated that they 'Never' undertook a business value check after the completion of the project. Almost 88% of those who conducted a business value check during project planning also did so sometime after the completion of the project to ensure that business value was actually delivered. A difference in IS/IT practice in public and private organisations was quite evident. Most of the private sector organisations followed both of these approaches, while only 20% of the public sector organisations checked for business value both during project planning and project execution. Other respondents indicated inconsistency in their approach for checking business value of IS/IT projects.

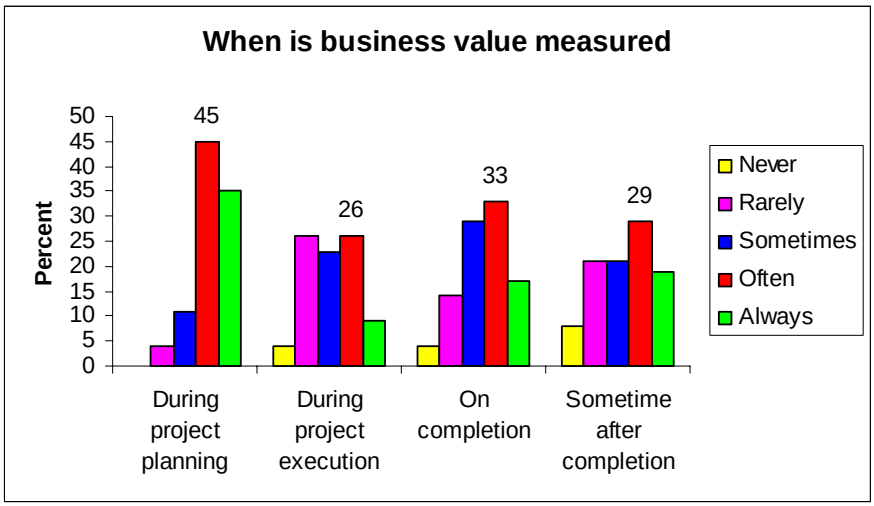


Figure 5.3.18 Business value estimated or measured

Effectiveness of current business value management process

This question intended to investigate the effectiveness of current business value management practices in the organisations and also to understand the effectiveness of those practices from the respondent's point of view.

Around 60% of the respondents were 'quite' satisfied with their current IS/IT value management practices. Around 20% indicated that they were 'very' satisfied with their current approaches. In contrast, another 20% of the respondents were 'not sure' of what they did and what value they received (*see* Figure 5.3.19).

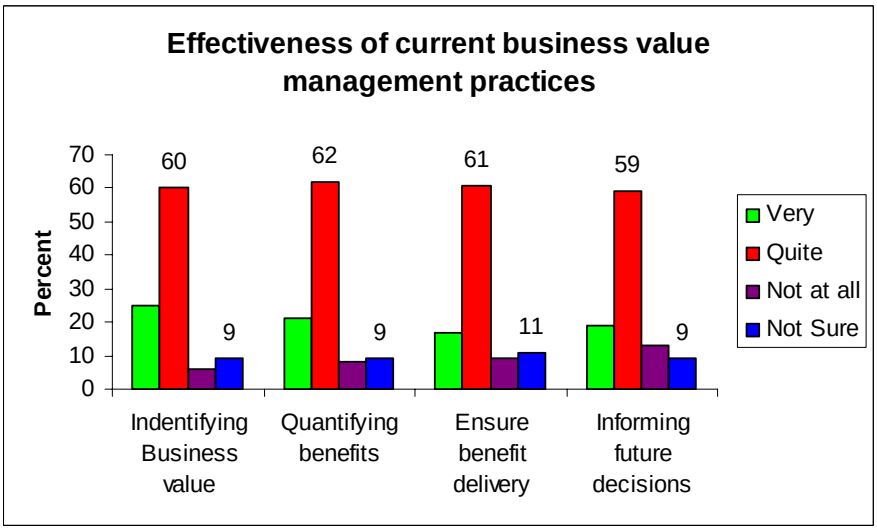


Figure 5.3.19 Effectiveness of current IS/IT practices

Changes required to current processes in order to ensure that IS/IT projects delivered business value

Although nearly 80% of respondents (*see* Figure 5.3.19) indicated that they were quite satisfied with their current practices, almost all of them indicated intended improvements. For example, modifications to the business plan, to make current practices more rigid, formal audits for IT projects, to include cost/benefit analysis before and after the project implementation and so on. Some of them also emphasised "*Area that needs strengthening is in ensuring that all project(s) completed, benefits delivered and what can learn from project to inform future"*.

Several others specified the need to ensure that business benefit delivery was added in to their current process. Furthermore, some respondents expressed the need for a "*dedicated person*" who could understand how the business worked and to ensure business benefit delivery. A few organisations (who are already using some in-house developed models) added there was a need for *"more training for those persons who will be involved to ensure it is used correctly"*. There were also suggestions regarding more cooperation and coordination between all functional areas and across business units. One respondent pointed to "*creative business involvement in extracting 'value' through process change"*. These were the overall opinions regarding the required changes to the current process. It is interesting to note that some of the organisations were considering some important factors that would commonly be included in formal benefit realisation approaches (*see* Appendix J Question no.25).

BENEFIT REALISATION PRACTICES

The purpose of this section is to understand the approaches generally practiced in the responding organisations to *identify* and *realise* business value from IS/IT projects. This section focused on use, awareness and effectiveness of benefit realisation frameworks. Therefore respondents were asked to indicate whether they were using any frameworks to ensure business benefit delivery and how effective those frameworks were.

Current approaches to realising the business benefits of IS/IT projects

Nearly 14% of the respondents mentioned that they neither followed nor were they aware of any formal processes that could be used to achieve business benefits. However the remaining 86% indicated a variety of practices followed to identify or realise

business benefits. These included post-implementation review process, formal feedback, change management, customer satisfaction, ROI, KPIs, monthly meetings and others. It should be noted that some of these processes are frequently incorporated in formal benefit realisation frameworks.

To understand how the organisations viewed the contribution of IS/IT projects, respondents were asked to indicate the areas of the organisation to which they considered business benefits were delivered by IS/IT (*see* Figure 5.3.20).

Just over 80% of the respondents indicated that they considered benefits were delivered to the organisation as a whole. Among them, nearly 60% indicated contributions to specific business areas. Just under 50% considered that benefits accrued to the IT group and to the user group.

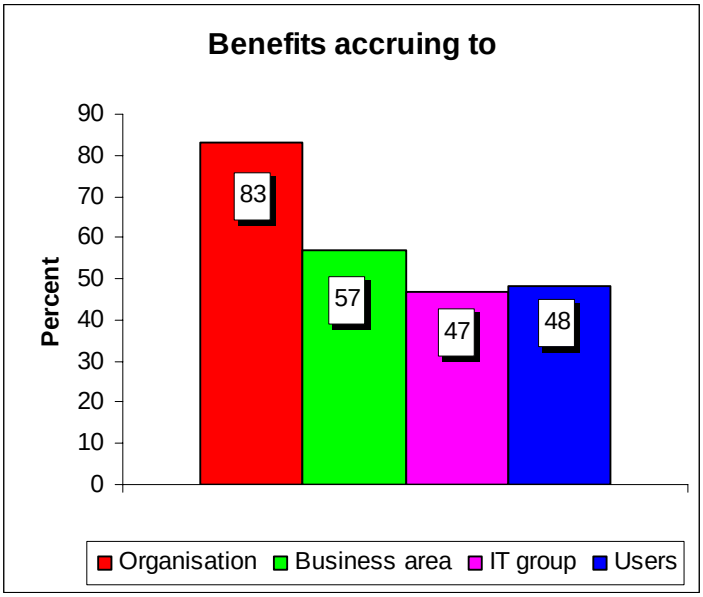


Figure 5.3.20 Benefits accruing various functional areas

Formal benefit realisation frameworks used

Around 60% of respondents indicated that they did not use any benefit realisation frameworks. Nearly 30% used a model developed in-house or a model suggested by their parent company (particularly multinationals). None of the organisations employed *formal published benefit realisation frameworks*. This is illustrated in Table 5.3.11.

In comparing national and multinational organisations, half of the multinational organisations used a benefit realisation framework - mostly in-house developed or suggested by their parent company. Among national organisations only 29% used any models.

Use of formal BR technique

	Frequency	Percent
Yes, consultant provided model	2	3.4
Yes, method developed in house	17	29.3
No	35	60.3
Total	54	93.1
No response	4	6.9
Total	58	100.0

Table 5.3.11 Use of benefit realisation frameworks

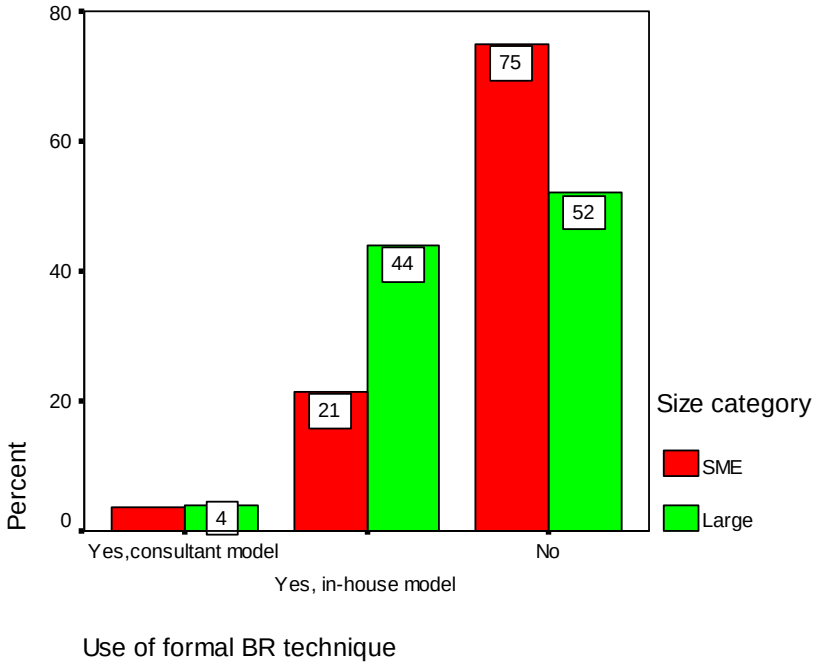


Figure 5.3.21 Use of BR techniques in SMEs vs. large organisations

Compared to SMEs, large organisations emerged as more likely users of benefit realisation frameworks. It is observed that 75% of SMEs did not use any frameworks while 48% of the large organisations indicated the use of at least one benefit framework

(mostly in-house developed frameworks) (*see* Figure 5.3.21). Of the SMEs that followed a benefit realisation approach, 20% had more than 100 FTEs and 70% had more than 250 FTEs. This suggests that BR practice most likely depends on the size of the organisation (irrespective of the industry sector).

Reasons for choosing a particular BR framework

Over 60% of respondents who used a BR framework indicated that the framework matched their organisational culture, around 18% (mostly multinational) indicated that the framework was used because it has been suggested by their head office, and only 5% believed it was the most cost-effective (*see* Figure 5.3.22).

A few organisations included other reasons for choosing a framework, such as *'practical and not time consuming'*, *'suits best practices';* also enabling them to link benefits and business objectives.

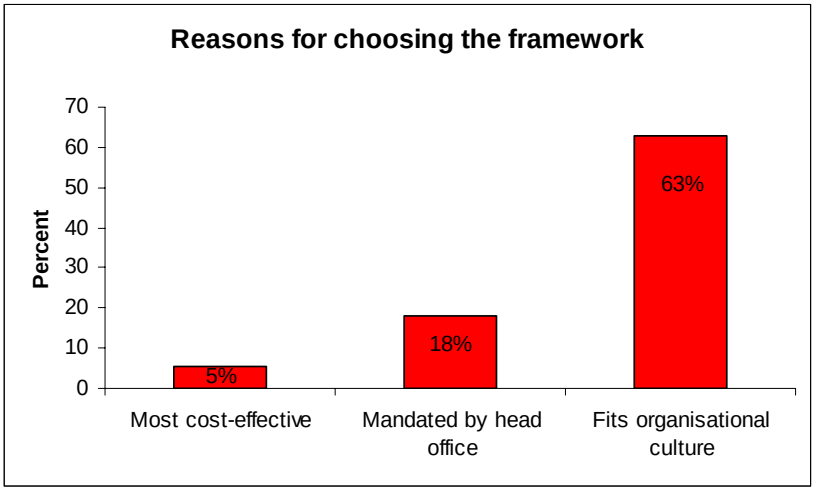


Figure 5.3.22 Reasons for choosing BR frameworks

***Use* of published benefit realisation frameworks**

Respondents were asked to indicate whether they were using any formal benefit realisation models, such as Cranfield, DMR, ABR or any other published models. Since we have already noted that no organisation was actually using any published BR model (*see* Figure 5.3.21) the response to this was obvious. Moreover, 97% of those who responded to the prior question answered 'No' to the use of any of these models. Among the remaining respondents, one (a large public organisation) was using a model that was based on DMR. The other was again a large multinational organisation that

specified use of IPA, Independent project analysis (USA). [This gives further evidence of validity and consistency in the information provided by the respondents (*refer* to Appendix B question no. 28 & Figure 5.3.21)]

***Effectiveness* of the framework used**

Almost 85% of the respondents believed that their current framework was quite effective in delivering business benefits (*see* Figure 5.3.23) whereas around 10% specified that they were 'not sure' about the effectiveness of the model.

Overall 80% of the private sector respondents believed their approach was effective. All public sector organisations believed their approach to be effective.

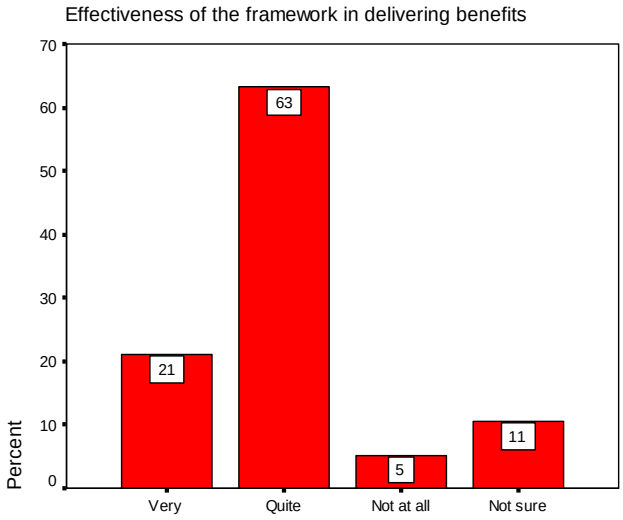


Figure 5.3.23 Effectiveness of the framework in delivering business benefits

Experiences with the BR framework used

Among the respondents who used any BR model (*see* Table 5.3.11), 65% considered their model to be an effective tool to ensure business benefit delivery and to link benefits to business objectives. One of them indicated it as a "*great tool*". Other respondents added their model "*captures business value aligned to IT*" and lets them know the current status of the project immaterial of the project size or value. Furthermore, it enabled them to assess risk or allocate resource to the areas of greater benefit return (s*ee* Appendix J question no. 32a).

On the negative side, almost 66% expressed difficulties with their model. Overall they felt that the framework they were using was "*too restrictive and can be laborious"* and needed modifications to suit different circumstances and different projects. One or two multinationals indicated that their parent organisations were not giving any consideration to local factors. This indicates that they were perhaps forced to use this tool. Secondly even if they wished to include any changes to suit the local scenario they may not have had the authority to do so. Others saw BR as complex and unsuitable for smaller projects. In addition to this, there were concerns about lack of experienced and responsible people to manage the benefits and the relevant processes (s*ee* Appendix J Question no 32b).

Changes required for the framework

Around 30% of respondents to this question suggested that no changes were required to the existing approach. However, others suggested that educating the users regarding value analysis was essential to making the approach more structured to suit their requirements. A few others wanted BR to tie with future budgets.

Extensiveness of benefit realisation framework used

Among the organisations that used a BR framework almost 75% employed the framework on either most or all projects (*see* Figure 5.3.24). Half of the responding public sector organisations specified that they used a framework on 'all' their projects while the remaining half used this on some projects. On the other hand only 20% of the private sector respondents indicated that they used a framework on 'all' projects and 60% indicated the use of a framework on 'most' projects.

In the case of responding SMEs and large organisations approximately 75% indicated that they used the framework on most or all projects. Among national respondents almost 81% employed a framework on all or most of their projects while 63% of multinational respondents used a framework to the same extent. On the whole public sector and national respondents tended to use a framework extensively compared to their counterparts.

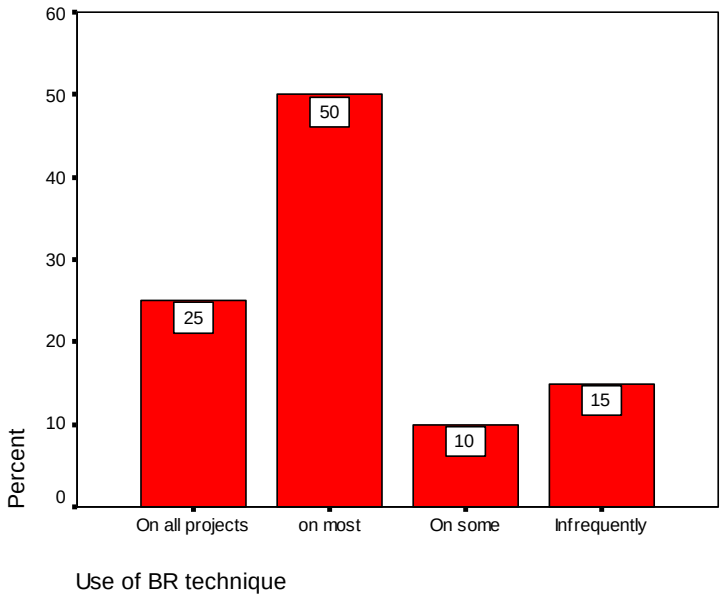


Figure 5.3.24 Use of benefit realisation framework

Awareness of published models

Respondents were asked to indicate whether they were *aware* of published models such as Cranfield, DMR, ABR or any other models (*see* Figure 5.3.25)

Awareness of existing models was very low among responding organisations. As mentioned earlier in this section the organisations were using either in-house developed models or models suggested by their parent companies. Figure 5.3.25 depicts less than 5% awareness of any of these published models.

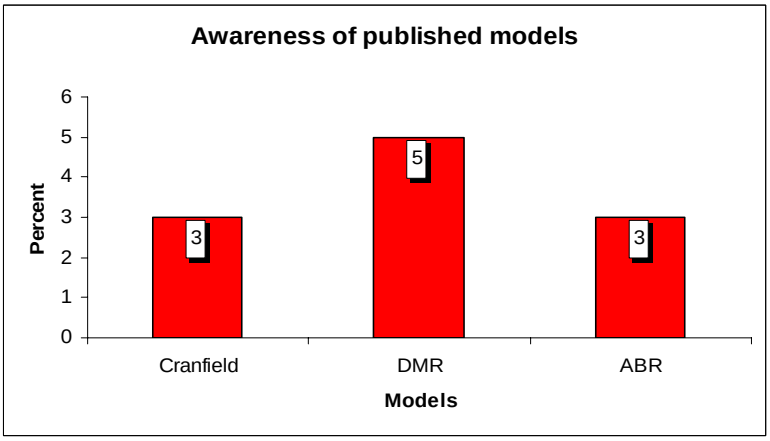


Figure 5.3.25 Awareness of published models

Aware, still not using frameworks - Reasons

Overall there were only 20% responses to this question (*see* Figure 5.3.26). Based on these responses, 2% of the respondents considered such frameworks to be 'too expensive', and 5% of the sample indicated they 'do not see any need' for such frameworks.

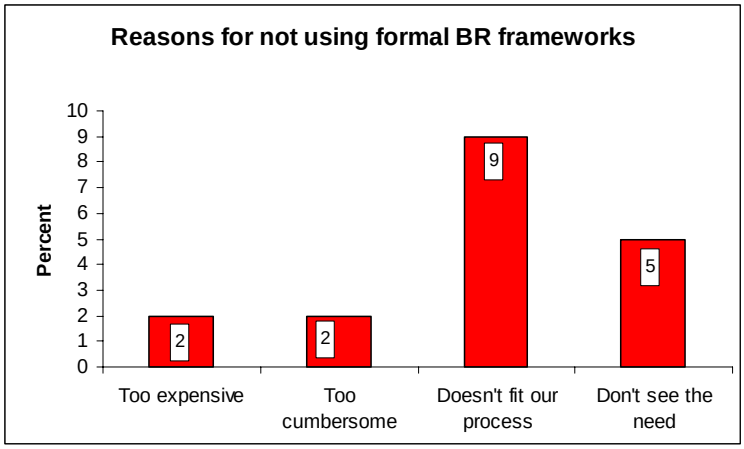


Figure 5.3.26 Reasons for not using any published frameworks

A few organisations felt that they were already using an appropriate framework that suited their specific needs and therefore there was no need to choose any other framework. For smaller organisations improving or growing their business was their primary objective rather than focusing on benefit realisation from IT, and therefore they were currently not interested in such models. Other organisations did not choose any approaches because they were bound by their company culture and business resistance.

Changes required in the current situation to adopt a benefit realisation framework

Only 50% of respondents answered this question. Half of these expressed a lack of awareness of existing models and therefore were interested in learning more about the same in order to decide whether to use one or not. The remaining half suggested various changes needed in relation to company policies, senior managers' approval, and availability of resources. Some respondents mentioned organisational dissatisfaction with the existing methods. Others wanted to be convinced that the use of BR frameworks would deliver increased benefits. They wanted to be assured of the reliability of a particular model before deciding whether to use it or not.

Organisational awareness about benefit realisation techniques

Nearly 50% of respondents specified that their organisation was 'not at all' aware of benefit realisation techniques, and fewer than 2% believed their organisation was 'very' much aware (*see* Figure 5.3.27).

Awareness of benefit realisation was higher (72%) among large organisations when compared to SMEs (38%) (*see* Figure 5.3.27a). Similar differences in awareness relate to locality being, higher in multinational respondents (71%) than in national respondents (42%). However there was no significant difference in awareness between public vs. private organisations.

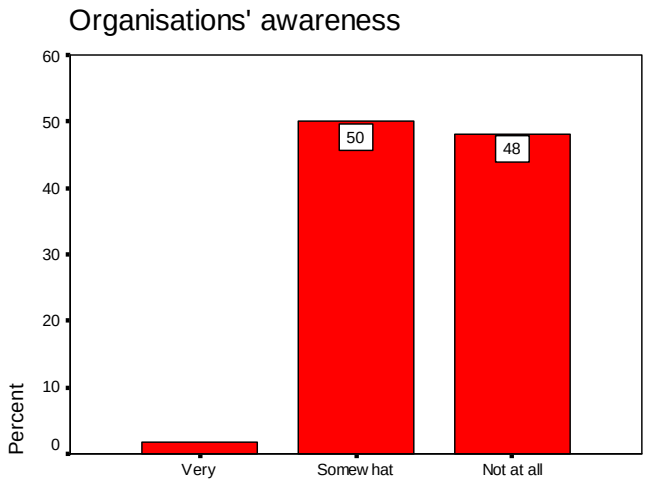


Figure 5.3.27 Organisations' awareness about benefit realisation techniques

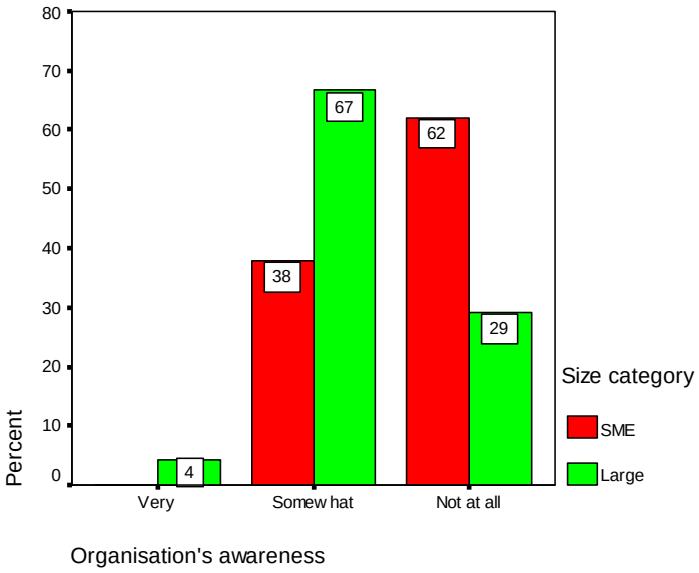


Figure 5.3.27a Awareness of BR techniques among SMEs Vs. large organisations

In this section survey results from IT managers' survey is presented in detail. The next section describes and presents finance managers' survey results. Discussion on these results comparing the perspectives of IT and finance a manager is then discussed in chapter 6.

5.4 Data analysis of business managers' or finance managers' survey

Altogether there were 33 responses received to the Finance managers' survey, a response rate of 16.5%. This includes one response to the pilot and 32 to the main survey. As explained in the discussion of the responses to the IT managers' survey, categorisation by organisational size, public and private sectors was done to enable more fine-grained analysis. This section reports the finance managers' survey results and is analysed as per the sections in the survey (*see* Appendix C Finance managers' survey instrument)

CORPORATE BACKGROUND INFORMATION

The 33 responses to the finance managers' survey came from all sectors except two, namely, the construction & engineering sector and the tourism, accommodation & food services sector.

Industry Sectors	Surveys sent (%)	Surveys received (%)
Communications and Media	6	3
Construction and Engineering	8	0
Distribution, Transport, Storage	5	3
Education, Health, Community Svcs	8	12
Electricity, Gas and Water Utilities	8	9
Finance, Insurance, Banking	8	3
Government (Central and local)	10	24
IT, Legal, Business, Property Svcs	7	9
Manufacturing and processing	11	21
Primary industries	8	3
Tourism, Accomm., Food Services	13	0
Wholesale and retail trade	13	9
Others (Food safety and Bio security)	0	3
Total	100	100

Table 5.4.1 Finance managers' survey sent and received

The breakdown of respondents to this survey is illustrated in Figure 5.4.1. More than 20% of the responses were from the government and manufacturing & processing sectors. Table 5.4.1 depicts the breakdown of responses compared to the surveys sent.

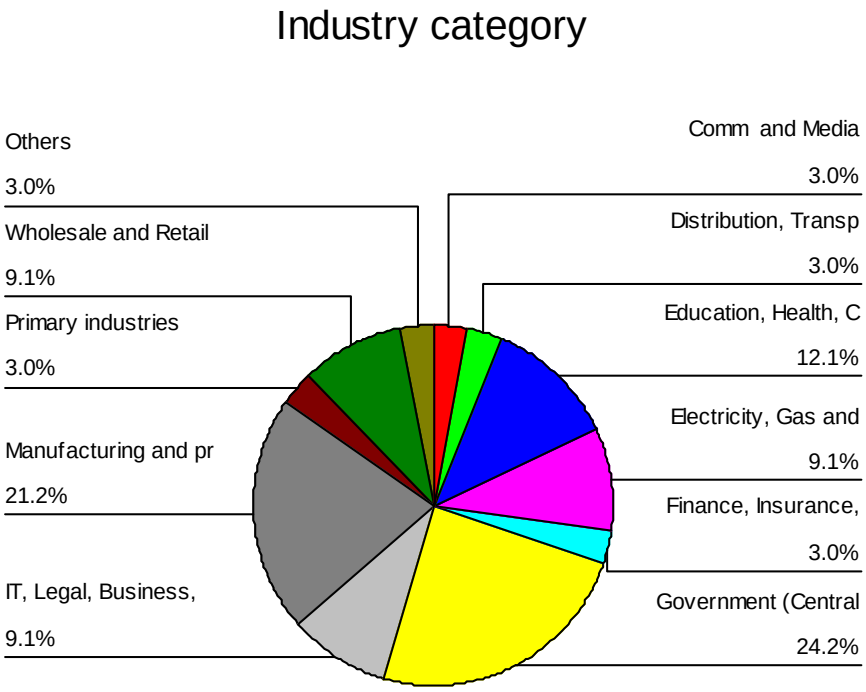


Figure 5.4.1 33 Responses to the finance managers' survey

SMEs vs. large organisations

As described in the previous chapter the purpose of conducting the finance managers' survey was to obtain a business perspective on IS/IT current practices and benefit realisation techniques. Assuming that in smaller organisations there may not be separate IT and finance managers' positions we included here only organisations with more than 200 FTEs. This view is complemented by studies (Riemenschneider et al., 2003) that suggest that "IT adoption decisions in small businesses are typically *made by a single executive*". Therefore for the finance managers' survey we considered only 200 organisations which employed more than 200 FTEs. As a result, when the organisations were grouped, the proportion of responses from SMEs was half that of large organisations. Table 5.4.2 illustrates this information.

Organisational Size	Frequency	Percent
SME	11	33.3
Large	22	66.7
Total	33	100.0

Table 5.4.2 Responses from SMEs vs. large organisations

Public vs. Private sector organisations

Around 36% of respondents were from public sector organisations and 64% were from the private sector (*see* Table 5.4.3). The proportion of responses from the public sector was slightly higher when compared to the IT managers' survey.

Organisations	Frequency	Percent
Public	12	36.4
Private	21	63.6
Total	33	100.0

Table 5.4.3 Responses from public and private sector organisations

Among the responding organisations 83% of public sector organisations and 57% of private sector organisations were large.

National vs. Multinational organisations

The proportion of response from national and multinational organisations is almost the same as was found in the IT managers' survey (*see* Table 5.4.4). More than 77% of national organisations and 40% of multinational organisations were large.

Organisations	Frequency	Percent
National	22	66.7
Multinational	10	30.3
Total	32	97.0
No response	1	3.0
Total	33	100.0

Table 5.4.4 Responses from national and multinational organisations

IS BACKGROUND INFORMATION

IS/IT expenditure in the last two years

Almost 64% of the respondents believed that IS/IT expenditure had increased in the last two years and 9% thought that it had decreased (see Figure 5.4.2). All these latter respondents (9%) were large, national organisations.

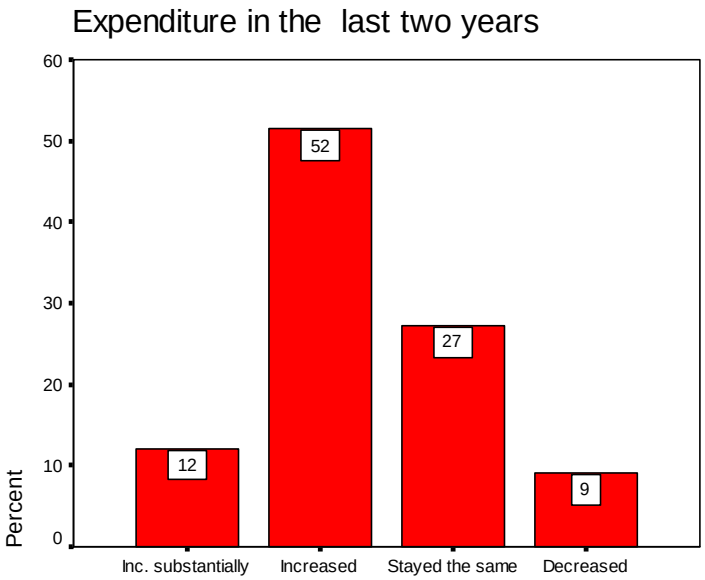


Figure 5.4.2 IS/IT expenditure in the last two years

IS/IT expenditure in the next two years

Similarly, 63% of respondents believed that IS/IT expenditure was going to increase in the next two years, whereas 12% of respondents thought it would decrease (*see* Figure 5.4.3). As above, approximately 25% of the respondents thought that IS/IT expenditure was going to remain the same. Once again the organisations that believed IS/IT expenditure would decrease were mostly large, private sector organisations with the majority being multinational organisations (30%). Only 5% of national organisations thought that IT expenditure would decrease, while 68% of them thought it likely to increase.

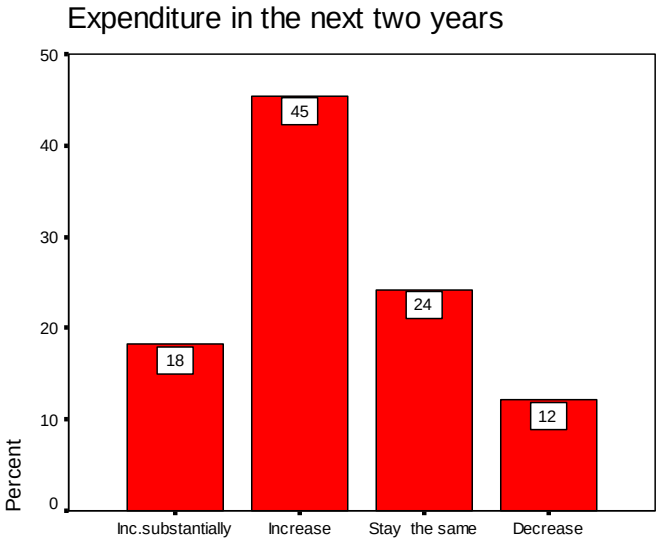


Figure 5.4.3 Expenditure in the next two years

In comparing the two groups around 60% of IT and finance managers believed that IS/IT expenditure would increase in the next two years and 12% from both the groups believed it likely to decrease.

Role of IT

More than 55% of the responding organisations considered IT as *strategic* and 30% viewed it as *essential*. Nearly 6% of the respondents considered IT was *both* essential and strategic, while 9% believed that IT was *not critical* to the day to day operations. Of these, 66% were large, public sector organisations.

Responsibility for IS/IT investments

Preparing proposals for IS/IT investments

Almost 45% of the respondents stated that IS/IT investment proposals were prepared by IT management, while 33% stated that this was done by business management (*see* Figure 5.4.4a). A small percentage (3%) of the organisations indicated that they did not prepare investment proposals at all. Around 15% of the respondents performed this task collaboratively with both IT and business management. This opinion was expressed by 27% of SMEs and 9% of large organisations, 18% of national and 10% multinational organisations, and nearly 20% of private and 8% of public sector organisations. As evident from Figure 5.4.4a, a small number indicated the involvement of a *business process improvement* department in this task.

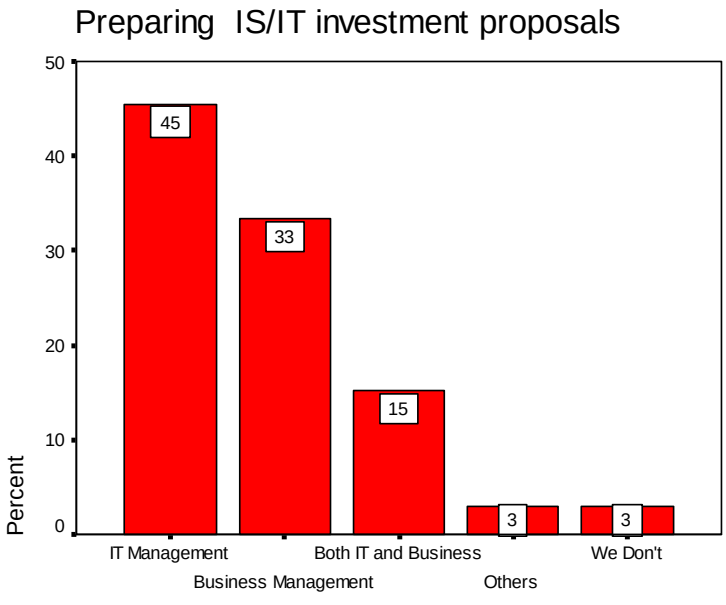


Figure 5.4.4a Responsible for preparing proposals for IS/IT investment

A small percentage (3%) of organisations indicated outsourcing of all IS/IT operations and therefore they were not able to answer to any of these questions. Table 5.4.7 illustrates the findings across organisational size and sectors.

Justifying proposals for IS/IT investments

Almost 52% of respondents specified that IS/IT investment proposals were justified by business management (*see* Figure 5.4.4b). Similar to the IT managers' survey a lesser number of respondents (24%) indicated that this task was handled by IT management. Figure 5.4.4b illustrates this information across all organisational sizes and sectors.

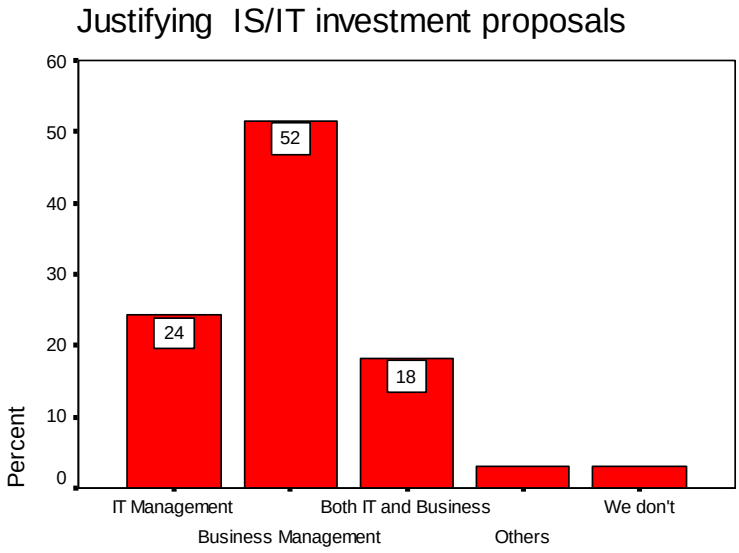


Figure 5.4.4b Justifying IS/IT proposals

Reviewing proposals for IS/IT investments

As in the IT managers' survey, nearly 50% of the responding organisations indicated that reviewing IS/IT investment proposals was done by business management, almost 30% stated that this task was performed by IT management and 12% indicated it was undertaken by both IT and business management (*see* Figure 5.4.4c).

Over 80% of multinational respondents indicated IS/IT investment proposals were reviewed by business management in contrast to only 36% of national respondents.

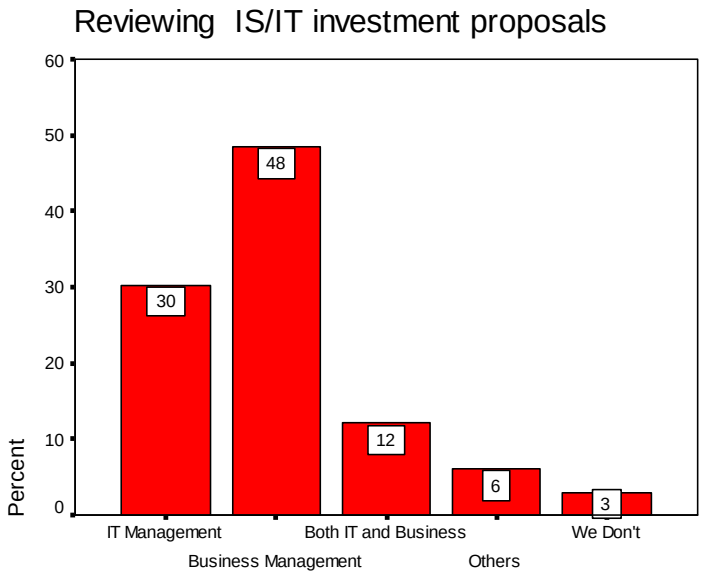


Figure 5.4.4c Reviewing IS/IT proposals

Organisations	Preparing IS/IT proposals			Justifying IS/IT proposals			Reviewing IS/IT proposals		
	IT	Business	Both	IT	Business	Both	IT	Business	Both
Overall	45%	33%	15% [1] 3% [2] 3% [3]	24%	52%	18% [1]	30%	48%	12% [1] 6% [2] 3% [3]
SMEs	45%	18%	27% [1] 9% [3]	36%	36%	18% [1] 9% [3]	18%	45%	27% [1]
Large	45%	41%	9% [1] 5% [2]	18%	59%	18% [1] 5%	36%	50%	5% [1] 9% [2] 9% [3]
National	45%	32%	18% [2]	14%	50%	27% [1] 5% [2] 5% [3]	32%	36%	18% [1] 9% [2]
Multinational	50%	30%	10% [1] 10% [2]	50%	50%		20%	80%	
Public	50%	33%	8% [1] 8% [3]	25%	42%	17% [1] 8% [2]	33%	33%	8% [1] 17% [2] 8% [3]
Private	43%	33%	19% [1] 5% [2]	24%	57%	19% [1] 8% [3]	29%	57%	14% [1]

Table 5.4.5 To compare the tasks of IS/IT investment proposals among various organisations
[1-indicates the task is performed by both IT and BM, 2-others, 3- don't]

In summary, and as depicted in Table 5.4.5, it is observed that preparing IS/IT investment proposals was performed by IS/IT management in nearly 50% of the responding organisations. On the other hand justifying IS/IT investment proposal was generally considered as a business management activity. As far as reviewing IS/IT investment proposals was concerned, higher numbers of organisations indicated that this task was performed by business management, especially in the case of multinational organisations. A smaller proportion (around 15%) of the organisations indicated they did not perform any of these activities, as they outsourced IS/IT functions.

Use of formal appraisal techniques

As illustrated in Figure 5.4.5, nearly 20% of responding organisations indicated they did not follow any formal appraisal techniques. Of those respondents who employed formal appraisal techniques, 60% indicated that they employed these techniques on most or all of their projects.

Response to the use of formal appraisal techniques is almost consistent with that of the IT managers' survey. From both the surveys it is evident that 40% of responding SMEs were not using any formal investment appraisal models. On the other hand, responding large and public sector organisations tended to use formal appraisal techniques compared to their smaller, private sector counterparts. Table 5.4.6 illustrates the use of formal appraisal techniques in various organisations' size, sector and locality.

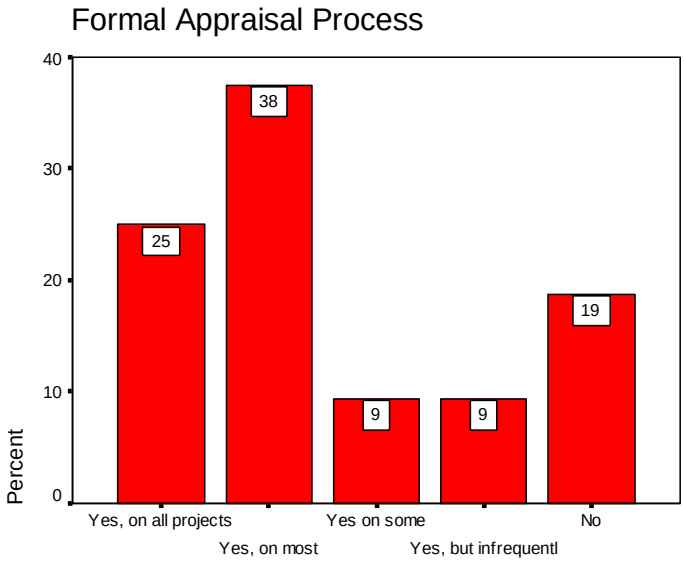


Figure 5.4.5 Use of formal appraisal techniques for IS/IT investments

Organisations	Organisations using formal appraisal techniques				
	Yes, on all projects	Yes, on most	Yes, on some	Yes, but infrequently	No
Overall	25%	38%	9%	9%	19%
SMEs	10%	20%	10%	20%	40%
Large	32%	45%	9%	5%	9%
National	24%	38%	14%	5%	9%
Multinational	30%	30%	-	20%	20%
Public	18%	55%	18%	-	9%
Private	29%	29%	5%	14%	24%

Table 5.4.6 Use of formal appraisal techniques

BUSINESS VALUE OF IS/IT

Relationship between IS/IT and other functional areas in the organisation

Just over 80% of the respondents considered IT to be at the *same* level as other functional areas in the organisation. Nearly 6% believed IT was at a *higher* level whereas 13% considered IT to be at a *lower* level. Among the organisations who considered IT to be at a lower level, all were large organisations with 75% of them private and multinational. All responding SMEs considered IT to be at the same level as other functional areas.

IS/IT contribution to the organisation's objectives

In general, finance manager respondents indicated that IS/IT had contributed to almost all areas of business and few of them specified that "*it is a significant contribution*". Almost 50% of the responding organisations indicated that IT provided support to financial management, operational support and business process automation. Some respondents indicated improved quality of service specific to individual organisations through IS/IT implementation of, for instance ERP, supply chain, POS, data warehousing, call centre performance, student enrolment and library applications.

Perceived benefits of IS/IT projects

Nearly 85% of the responding organisations indicated *process efficiency* and *satisfying information needs* as the primary gains from IS/IT perceived by their senior managers. Just over 50% believed *cost savings* were also evident, while 47% added that they sensed gains in *competitive advantage* and *service quality*. This is evident from Figure 5.4.6

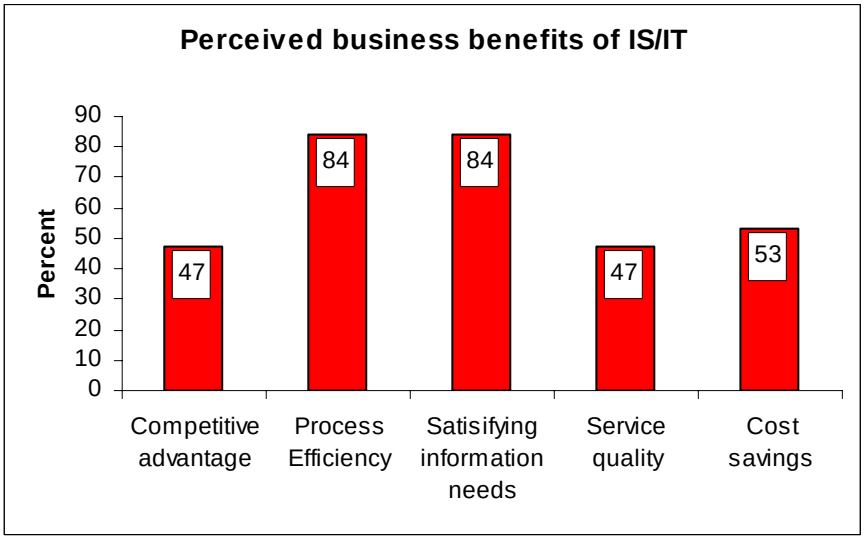


Figure 5.4.6 Perceived business benefits of IS/IT

Confidence level

Two-thirds of the responding organisations were confident that IS/IT was delivering business benefits, and only 9% indicated they were not at all confident of this.

Business benefit delivery plan

It is evident from the survey results that almost 90% of the responding organisations employed a benefit delivery plan on at least some of their projects. Over one-quarter of the respondents stated that they used such plans on 'all' projects with 42% indicating use on 'most' of their projects. Table 5.4.8 illustrates this information in detail.

It seems that the use of benefit delivery plans occurs primarily among large organisations compared to SMEs. Almost 82% of responding large organisations utilised benefit delivery plans on most or all projects, while just one-third of the responding SMEs did so (*see* Figure 5.4.7).

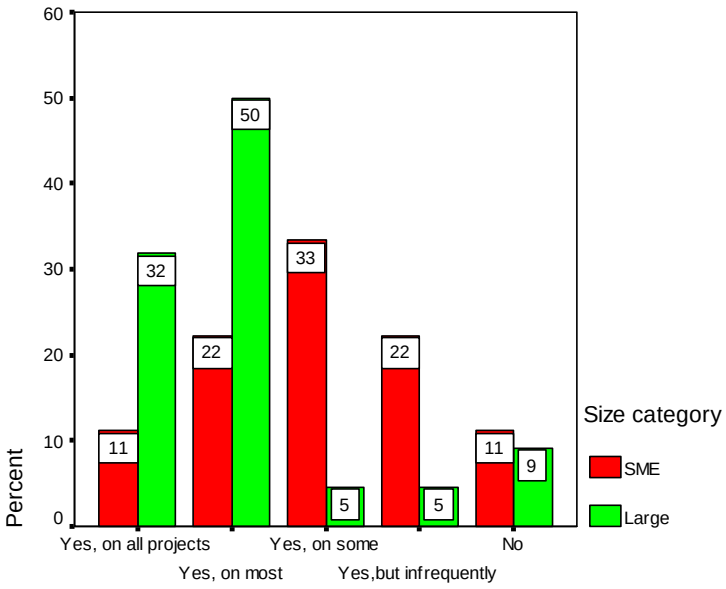


Figure 5.4.7 Business benefits delivery plan

Further information on the use of benefit delivery plans among other categories of organisation is depicted in Table 5.4.7.

With regard to the continuation of this practice, overall 7% of the responding organisations 'always' revisited benefit delivery plans during project execution and 11% on project completion. More than half of the responding large organisations (55%), compared to one-quarter of SMEs, reviewed the plans more often during project execution. Close to 40% of responding large organisations and 25% of responding SMEs revisited benefit delivery plans even after completion of the project.

Similarly, 70% of public sector respondents and 33% of private sector respondents reviewed their benefit delivery plans during project execution, while after project completion 50% of public sector and 28% of private sector respondents revisited their plans. A few respondents indicated that their use of benefit delivery plans also depended on the value of the project. In that case, the plans might be revisited even after a year or so. A small number of organisations indicated a lack of awareness of benefit delivery plans. More detailed information with regard to the use of benefit delivery plans is depicted in Table 5.4.7a and 5.4.7b across various organisations size, sector and locality.

Organisations	Organisations using benefit delivery plan				
	Yes, on all projects	Yes, on most	Yes, on some	Yes, but infrequently	No
Overall	26%	42%	13%	10%	10%
SMEs	11%	22%	33%	22%	11%
Large	32%	50%	5%	5%	9%
National	24%	48%	14%	5%	10%
Multinational	33%	22%	11%	22%	11%
Public	9%	73%	9%	-	9%
Private	35%	25%	15%	15%	10%

Table 5.4.7 Use of benefit delivery plans across various organisations

Organisations	Organisations using benefit delivery plan – during project execution				
	Never	Rarely	Sometimes	Often	Always
Overall	4%	11%	21%	46%	7%
SMEs	-	13%	38%	25%	13%
Large	5%	10%	15%	55%	5%
National	-	11%	16%	53%	11%
Multinational	13%	13%	38%	25%	-
Public	-	10%	10%	70%	-
Private	6%	11%	28%	33%	11%

Table 5.4.7a Benefit delivery plan revisited – during project execution

In general, among those organisations that maintained a benefit delivery plan for their IS/IT projects, majority have not revisited their plans after project completion. It is evident that fewer than 40% ‘often’ revisited their plans (perhaps depending on the project value).and around one-tenth of the respondents considered important to ‘always’ revisit their plans at this stage.

Organisations	Organisations using benefit delivery plan – on completion of the project				
	Never	Rarely	Sometimes	Often	Always
Overall	4%	14%	32%	36%	11%
SMEs	-	38%	38%	25%	-
Large	5%	5%	30%	40%	15%
National	13%	25%	50%	13%	-
Multinational	13%	25%	50%	13%	-
Public	-	-	30%	50%	10%
Private	6%	22%	33%	28%	11%

Table 5.4.7b Benefit delivery plan revisited – after project completion

Importance of business value in prioritising IS/IT projects

A small number of respondents (3%) indicated that they were not sure about the importance of business value in prioritising IS/IT projects. However, the remaining 97% of the responding organisations believed that business value was either 'very' or 'quite' important in this role.

Management processes to link business value with IS/IT initiatives

Some of the respondents indicated that their organisations were not using any techniques to link business value with IS/IT initiatives. A few others indicated several techniques for doing so, for instance, key performance indicators, return on investments, and review of proposals for *NP* (net profit). Some also indicated the use of budget proposals that projected business value in the outcomes of the project.

Business value as a measure of success for IS/IT projects

Nearly 6% of the respondents indicated that they were unsure about the use of business value as a success measure. All other respondents acknowledged its importance.

Business value of IS/IT measured

For nearly 90% of respondents, business value of IS/IT was measured in terms of *dollars*. Around 45% suggested *time* and 40% suggested *effort* as important value

measures. Surprisingly for almost 12% of respondents, dollars was not used as a measure of business value for IS/IT projects. Figure 5.4.8 illustrates this information.

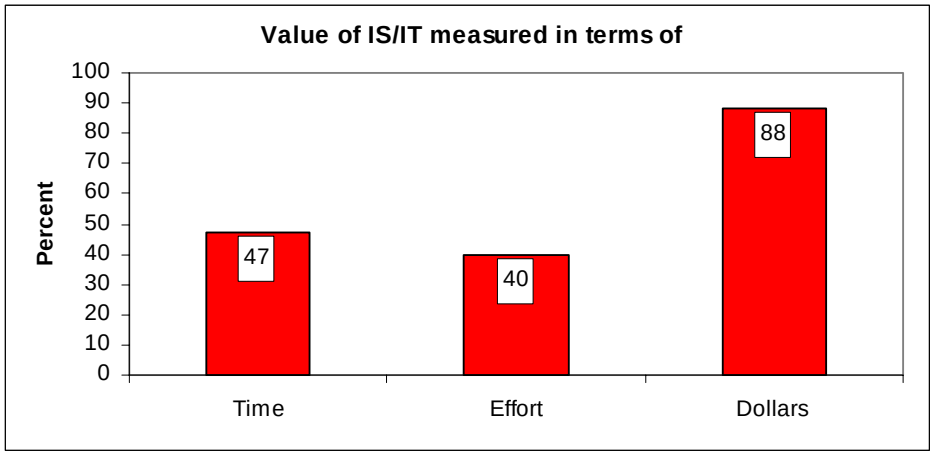


Figure 5.4.8 Business value of IS/IT measured

Apart from the above mentioned business value measures, a few respondents suggested some other ways of measuring IS/IT business value - project outcomes, potential risks, efficiency, stakeholders' perceptions, quality of service, strategic advantage and KPIs based on business requirements were all cited. Some of these included intangibles for measuring the business value from IS/IT initiatives.

Business value estimated or measured

The practice of measuring IS/IT business value is illustrated in Figure 5.4.9. It is evident that, in the case of measuring IS/IT business value, nearly 45% of the responding organisations always estimated business value during *project planning*, while over 50% indicated they often measured business value at this stage. This suggests that most of the responding organisations generally measured business value prior to IS/IT project selection.

During IS/IT project execution, however it appears that checking business value was not a common practice. Fewer than 10% indicated they always measured business value at this stage. In contrast over one-quarter of the responding organisations never or rarely checked business value at this stage.

Even on completion of the IS/IT project, measuring or estimating its business value was not a common practice for almost half of the respondents. A small proportion (6%) of

the respondents indicated that they always measured IS/IT business value even after completion of the IS/IT project, while the remaining three-quarter of the respondents did so infrequently, maybe depending on the project value. Some indicated that, depending on the IS/IT project's value, business value may be checked even one year after project completion (see Figure 5.4.9).

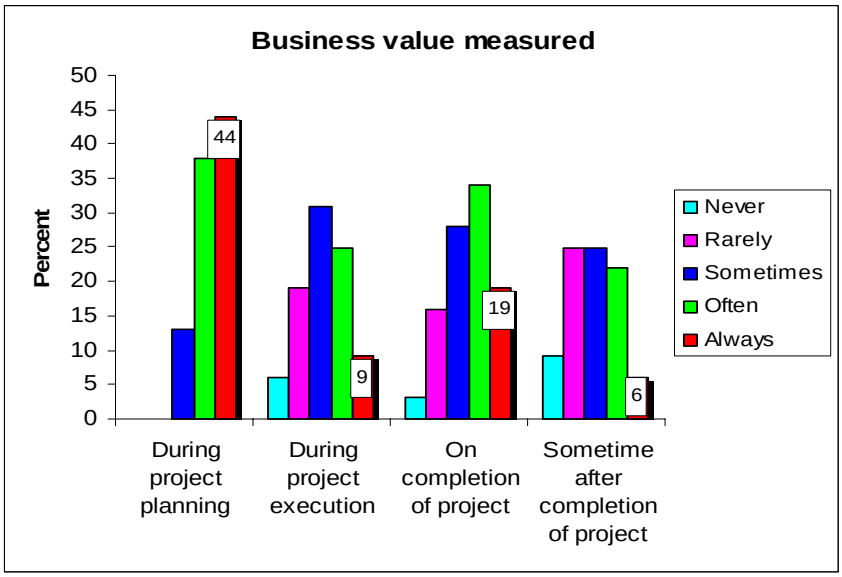


Figure 5.4.9 Business value measured

Effectiveness of current business value management process

Around 10% of the responding organisations believed that their current business value management process was 'very' effective, with over 70% indicating it was 'quite' effective at identifying and quantifying business benefits. Around 60% believed it was quite effective in ensuring business benefit delivery and in informing future decisions regarding IS/IT projects (*see* Figure 5.4.10).

On the other hand, 10-12% of the organisations were 'not sure' how effective their current IS/IT processes were in achieving these ends and another 10-20% stated that their current processes were 'not at all' effective.

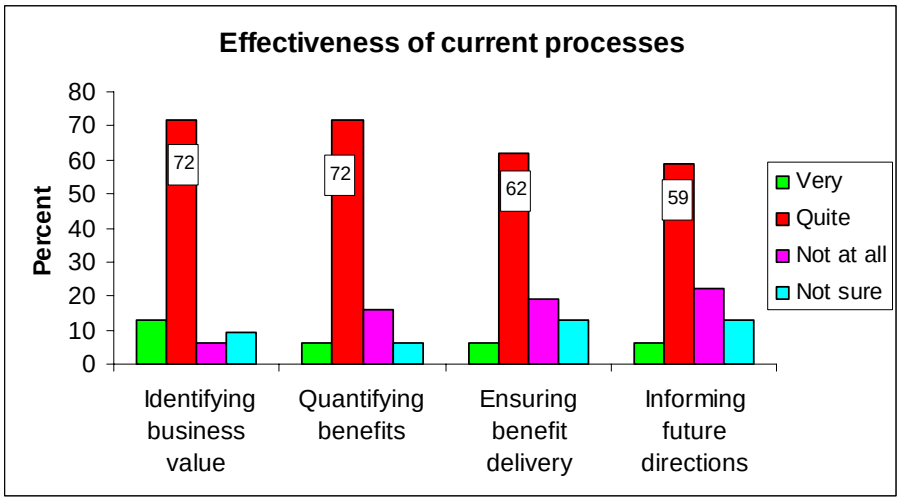


Figure 5.4.10 Effectiveness of current business value management process

Changes to the current process in order to ensure that IS/IT projects delivered business value

Only 60% of respondents had something to say about their current process in this regard. Of these, 40% indicated that there was a need to include post-implementation and benefit delivery measures to ensure that all projected benefits were delivered. A few organisations suggested a need for more business management involvement, more business 'ownership' by IS/IT and more thorough planning for ensuring benefit delivery. Multinational organisations aspired for more local autonomy, rather than blindly following what their head office insisted (*see* Appendix K Question no 21 for more details).

BENEFIT REALISATION PRACTICES

Current approaches to realise business benefits of IS/IT projects

One in five respondents indicated that they did not have any processes to realise business benefits. The remaining 80% indicated several techniques they followed. Monthly meetings, formal/informal feedback sessions, KPIs, and cost-benefit analyses were among them. Approximately 45% of the organisations also indicated benefit realisation through pre-project and post-project reviews or internal auditing. Some of them checked whether the project was delivered on time, and checked whether it performed the way it was expected to.

A few organisations specified benefit realisation approaches that more or less matched the formal BR approaches. For instance, they used a benefit charter to articulate the benefits during and after the completion of the project, they checked whether the benefits listed in the charter were all delivered, and if not, why not. This indicates that most responding organisations did practice at least some form of benefit realisation in their current practices although it was not formally realised or labelled as such by the organisations. One particular organisation indicated identification of benefits, quantifying them financially and also checking whether there was any scope for future benefits. This organisation however, stated that they did not use any BR frameworks, even though their practice closely matches some of the procedures followed in a BR approach.

To evaluate their vision for and effort in obtaining business benefits, organisations were asked to indicate whether they considered business benefits accruing to the whole organisation or only to particular business areas. More than 80% of the respondents indicated that they considered benefits accruing to the whole organisation. Almost 65% indicated benefit accruing to one or more business areas while around 50% of the respondents specifically considered users and the IT group.

Use of formal benefit realisation (BR) frameworks

Half of the respondents indicated that they did not utilise any benefit realisation frameworks. Only one large private sector firm indicated the use of a published benefit realisation framework (however they did not specify the name of the model they used). The remaining 47% used an in-house developed model. Almost 94% of those who used a framework were large organisations.

Overall, 67% of responding large organisations used BR techniques; in contrast 90% of the responding SMEs did not use any formal or in-house developed BR techniques (Figure 5.4.11)

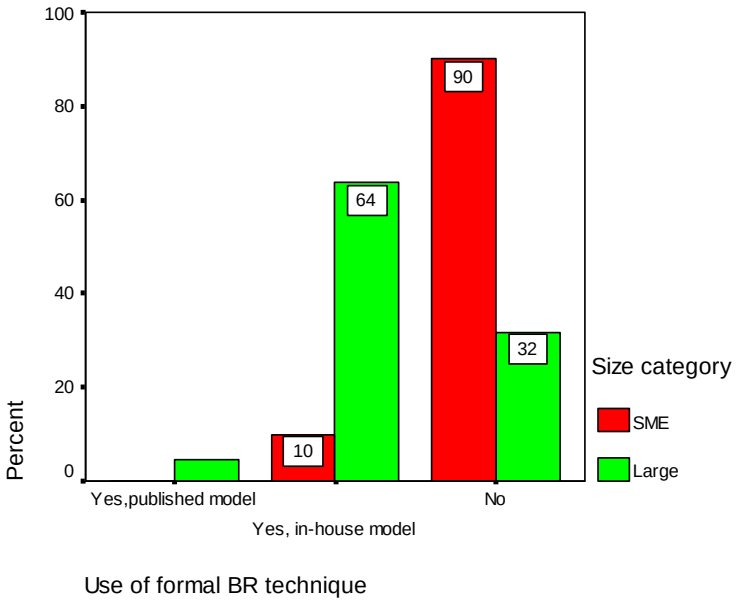


Figure 5.4.11 Use of formal BR techniques

Reasons for using a particular framework

Just over 80% of those who used some form of model indicated that it had been chosen because it 'fits organisational culture'. One-quarter of those who used an in-house model indicated 'cost-effectiveness' as one of the reasons for choosing this model. Almost 35% indicated that the framework was 'mandated by head-office'.

Use of published benefit realisation frameworks

No organisations indicated that they used any of the published BR frameworks specified in the survey (DMR, Cranfield or ABR). The one organisation that used a published model did not indicate the name of the model they were using.

Effectiveness of the framework in delivering business benefits from IS/IT

Almost 88% of the responding organisations indicated that the framework they were using was quite effective in delivering business benefits from IS/IT. The remaining 12% indicated that the frameworks were 'very' effective in delivering business value.

In spite of the fact that all respondents who used a framework considered it to be at least 'quite' effective, they indicated their positive and negative experiences with the framework. One respondent indicated that "*it systemises the approach and enables them to realise the benefits based on their priorities*" and another respondent indicated, the framework "*forces a discipline on business value, not simply IT driven*".

In terms of negative experiences, some believed the framework *overlooked* the benefits that they had not visualised or recorded prior to project execution. A few organisations indicated their framework failed to consider the intermediate changes that occurred and how that would affect benefit delivery. They indicated the framework lacked overall portfolio review. Some of them thought that the framework was "*time consuming*" and "*resource intensive*".

Changes required to the current framework used

Just 20% of respondents suggested that no changes were required to the current framework. Among those considering change, some wanted to put greater focus on post-project implementation reviews and wanted to reduce the review period to six months. Others desired more business ownership, *longer strategic planning sessions involving executives; post implementation review,* and *feedback into processing loop*. Others wanted to achieve *more grasp on the intangible benefits and link to business strengths in empirical theory* (*see* Appendix K question no 29 for more details).

Use of benefit realisation framework

Half of the responding organisations used a BR framework on either most or all of their projects, with the remaining 50% using the frameworks sparingly. Almost 78% of the private sector respondents used a framework on most of their projects while only 14% of the public sector counterparts did the same (Figure 5.4.12).

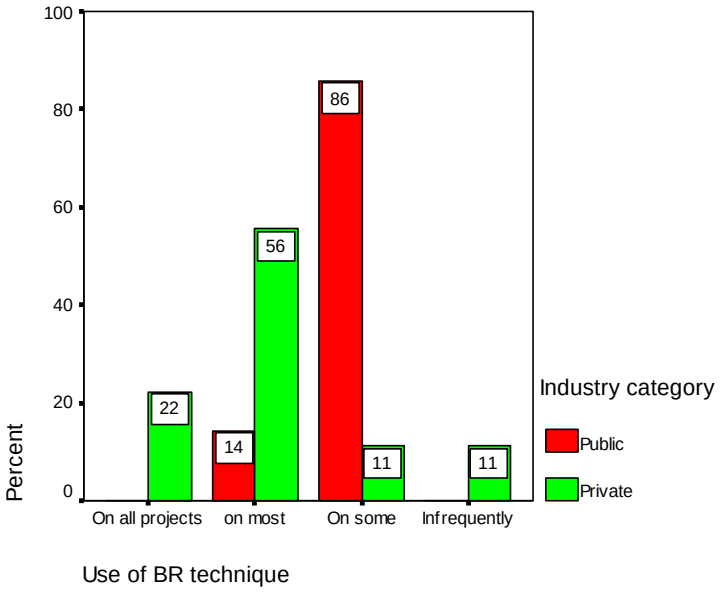


Figure 5.4.12 Use of BR techniques among public and private sector organisations

Awareness of published benefit realisation frameworks

The awareness of published benefit realisation frameworks was quite low among the responding organisations. Only 15% of them knew about Cranfield and ABR, while 18% were aware of DMR. One of the respondents suggested awareness about other frameworks available specific to their organisation, for instance, Military (US, NATO etc).

***Aware*, still not using frameworks - Reasons**

Nearly 50% of respondents did not answer this question. Among those who responded almost 58% were using an in-house developed model. Close to 10% suggested their reason for not using a published BR model was because 'it is too expensive'. A further 6% said it was 'too cumbersome' and 12% stated that it 'does not fit our processes'. Almost 18% specified they 'don't see the need'.

Other reasons given for not adopting any frameworks included *cost and time to implement, low on priority list/time, current process works* and others (*see* appendix K question no 32 for more details)

Changes required for adopting a framework

Almost 50% of the organisations indicated no need for any change to the current practice. Others indicated a need for greater *IT expenditure*, resource, priorities - *organisational culture swings to risk management focus* as some of the reasons. Nearly 50% of those who responded expressed an interest in knowing more about the existing models and wanted to be convinced that the *process will add value.* They also wanted to know how different the frameworks were from the often informal frameworks they currently used. One commented – *frameworks need to be a means to an end and not an end in themselves.*

Another respondent wanted their IT manager to identify one efficient BR model and to recommend it to the management stating the benefits of using such frameworks. In addition to this one or two respondents were concerned about the functionality and suitability of the models to their specific industry or organisation's processes. Others thought that their senior managers' approval for the adoption would be essential. (See appendix K question no 33 for more details)

Organisations' awareness about benefit realisation techniques

Nearly 40% of respondents indicated that their organisations were 'not at all' aware of BR techniques. Just 16% indicated their organisation was 'very' much aware. Awareness among responding large organisations was considerably higher (73%) than SMEs (40%). It appeared that the public sector respondents were more aware (82%) compared to those responding from the private sector organisations (52%) (*see* Figure 5.4.13). In the case of responding multinational and national organisations, national organisations seemed to be more aware than their counterparts. Almost 60% of the multinational respondents were 'not at all' aware of BR techniques when compared to 29% of the national respondents who indicated the same.

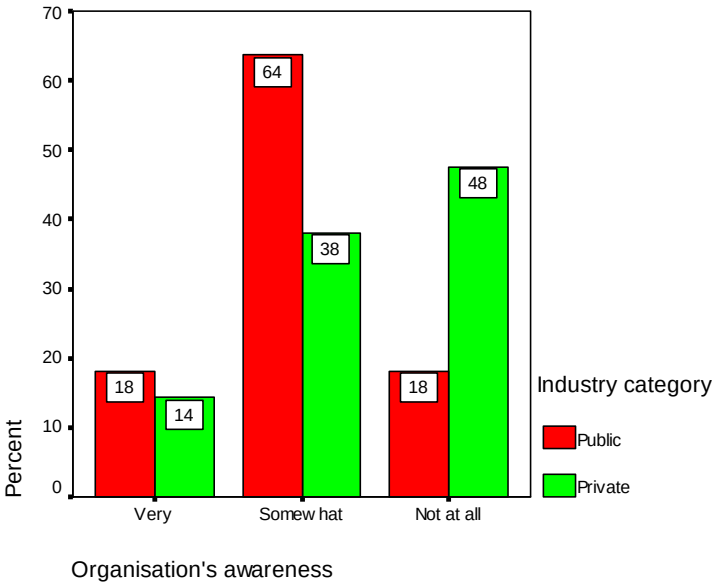


Figure 5.4.13 Organisational awareness about BR among private and public organisations.

5.5 Summary

This chapter described the results of both the IT and finance manager surveys. Comparison of results across various industry sizes, sectors and localities have been performed in order to gain knowledge about current IT practices in different organisations and how they differ. A detailed discussion of these results comparing both IT and finance managers' perspectives is presented in the next chapter.

CHAPTER 6 LINKING CURRENT IS/IT PRACTICES AND PERSPECTIVES WITH BUSINESS BENEFIT REALISATION APPROACHES

6.1 Introduction

The purpose of this chapter is to relate the research findings to the research question. As described in the earlier chapters the aim of this study is to identify the underlying factors that influence the adoption of business benefit realisation models (BRM) in New Zealand (NZ) organisations. The research approach and the findings are described in chapter 4 and chapter 5 respectively.

This chapter begins with a brief summary of the results in order to compare IS/IT practices from IT managers' and finance managers' perspectives to identify the factors that influence BR adoption. In addition, in order to identify the underlying factors this study also compares the current IS/IT practices from other perspectives such as (a) SMEs and large organisations, (b) private and public sector organisations, (c) national and multinational organisations, and then analyses IT and business/finance managers' perspectives regarding their current practices.

Due to relatively low response rates the findings are not able to be generalised to the entire population. From an exploratory research point of view, however, the findings will provide a basic understanding of the current NZ scenario. This will have the potential to help in adding value to the management of strategic information systems in NZ organisations. Moreover the lack of research in this area in NZ acts as a major source of motivation for this work. Furthermore this study suggests avenues for further investigation to provide more in-depth analysis in this area, discussed in detail in chapter 7.

6.2 Approach for discussion

In order to carry out an in-depth analysis, the research findings are analysed using a framework (illustrated in Figure 6.1) which specifically describes the objectives and the structure of the research undertaken. This conceptual framework was developed after analysing the different BRMs described in chapter 3. Using this framework as a guideline, the data is further analysed from IT and finance managers' perspectives to understand NZ organisations' IS/IT practices, in order to identify the key factors influencing the adoption of BRMs. Moreover, as per the survey results, it is obvious that

awareness and use of formal BRMs among the participants were very low. This framework enables the identification of organisations' IS/IT best practices in an effort to fit them into the fundamentals of benefit realisation approaches**.**

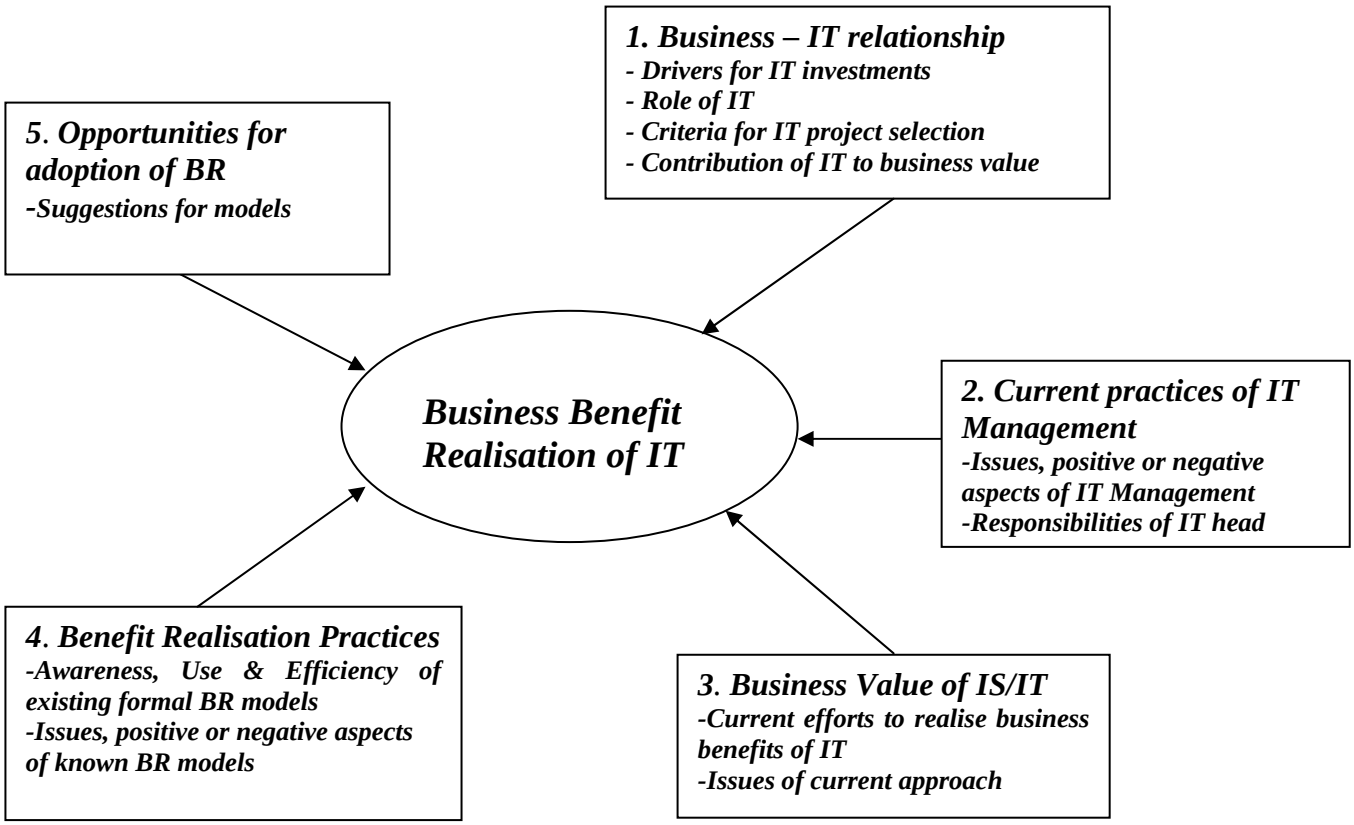


Figure 6.1 Concise framework for assessing business benefit realisation of IT

6.3 Comparison of IT and finance managers' perspectives towards business benefit realisation of IS/IT projects

Based on the knowledge obtained from the extant literature reviewed in chapter 2, the key factors for the adoption of BRM in organsiations are identified as *awareness*, *effectiveness* and *use*. Therefore the study has analysed the influence of these three key factors on current IS/IT practices in New Zealand.

It does appear that IS/IT investment in New Zealand organisations is increasing just as in other countries, corresponding to Greenwood's (2002) and Bell et al.'s (2003) prediction of such an increase in IS/IT investments in this country. Approximately 60% of respondents to both surveys believed that their IS/IT investments would increase in the next two years. This seems to be in spite of various difficulties in justifying their

investments in order to obtain process efficiency, to satisfy information needs and to stabilise themselves in the competing environment.

As stated by many researchers over the last decade or more (Lin & Pervan, 2003; Ward & Peppard, 2002; L. Willcocks, 1992) organisations are finding evaluation of IS/IT investments extremely difficult, thus creating an evaluation paradox of IT productivity among the business community. Researchers (Farbey et al., 1994; Gunasekaran et al., 2001; Lin & Pervan, 2003; Thorp, 1999; Ward & Peppard, 2002) have emphasised that organisations are facing this situation mainly due to their current techniques of IS/IT evaluation. This is coupled with managerial misconceptions about IS/IT and their resistance to change concerning IS/IT practices (Brynjolfsson, 1993; Grover et al., 1998; Ogilvie, 2003; Peppard, 2003). Therefore, keeping these issues in focus, the current study has investigated New Zealand organisations' current practices and managerial views about these issues using the framework illustrated in Figure. 6.1.

6.3.1 Business – IT relationship

Previous research (Avison et al., 1999) suggests that in most organisations IS/IT has been given a lower status than other functional areas. They assert that this difference in status creates an impact on the performance of the IS managers, resulting in poor IS/IT management. In addition to the above, Teo and Ang (1999b) stated that an increase in the status level will improve the relationship between business and IT managers, thus contributing to better alignment of business and IT objectives. The current study has found that in New Zealand IT has been given the same status as other functional areas in the organisations. Around 80% of both IT and finance managers who participated in this survey indicated this (as illustrated in Table 6.1). Some 9% of IT and 6% of finance respondents believed that IT was at a higher level. On the other hand, another 13% to 14% from each group considered IT was at a lower level.

Questions	IT manager	Finance manager
Business IT-Relationship **-Higher** **-Same** **-lower**	 9% 77% 14%	 6% 81% 13%
Drivers for investing in IS/IT (For more details refer Figure 6.2)	-Process efficiency (95%) -Satisfying info needs (87%) -Competitive advantage (40%)	-Process efficiency (84%) -Satisfying info needs (84%) -Competitive advantage (47%)
Role of IT	54% - Essential 37%- Strategic 5% - Both Essential & strategic 4% - Not critical	30% - Essential 55%- Strategic 6% - Both Essential & strategic 9% - Not critical
Contribution of IT to the business value	Improved customer service, supply chain, manufacturing process control, Retail service process development, EDI, data quality and management, communications. Business change, sales & marketing, quality of service, finance & accounting, operation cost reduction, eCommerce, B2B, improving day-to-day administrative and operational activities (*see* appendix J -Qno 15 for more details)	Improved customer service and call centre performance, financial processes, business process automation, supply chain, communications, operational work management, EDI, Sales, data management for better decision making, reduction of process time, personnel productivity, network control, revenue management (*see* appendix K- Qno 11– for more details)
Confidence level	25%(V), 67%(Q),4%(NA),4%(NS)	25%(V),66%(Q),9%(NA)

Table 6.1 Business IT-relationship: IT and Finance managers' perspectives

Drivers for IT investment

As mentioned previously in this chapter almost 60% of respondents to both surveys believed that their IS/IT investments would increase in the next two years. According to the studies of Ward and Peppard (2002), Lin and Pervan (2003), and Peppard and Ward (2004) gaining or sustaining competitive advantage, obtaining processes efficiency, and effective cost reductions were some of the key IS/IT business benefits perceived by business executives that encouraged them to invest in technology. The results of this study are consistent with those previous studies. Close to all respondents indicated *process efficiency* and *satisfying information needs* were the most important business benefits perceived by their senior managers. Nearly half of the respondents indicated competitive advantage and cost savings were also seen as key drivers for IS/IT investments (*see* Table 6.1 and Figure 6.2).

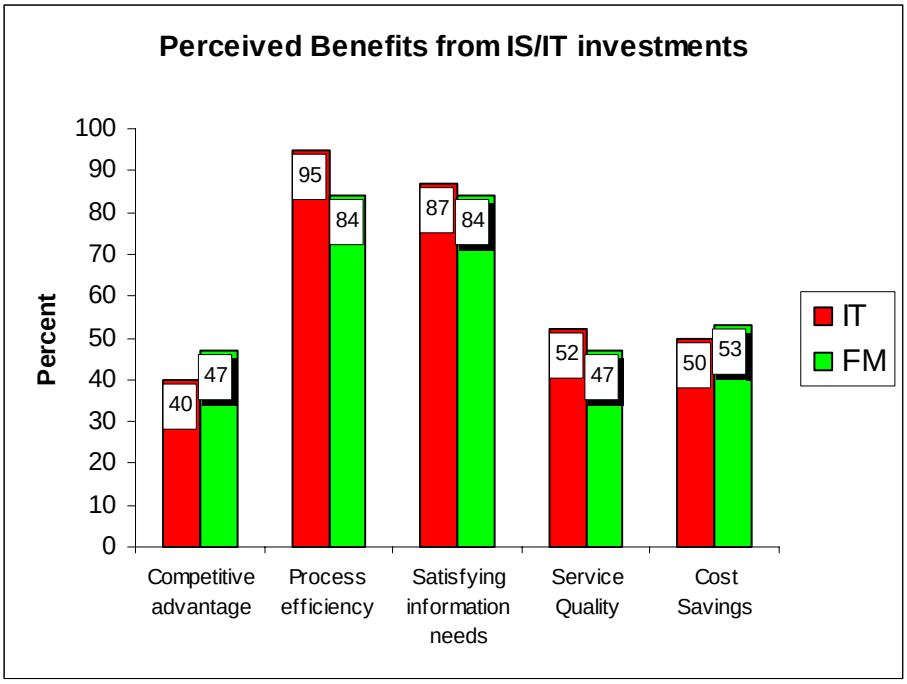


Figure 6.2 Drivers for investing in IS/IT from both IT managers and finance managers' perspective

In contrast to our findings, a survey conducted by Fuji Xerox (Caunce, 2004) in New Zealand, reported that only 13% of their respondents stated reducing cost was a challenge, while 34% of UK organisations agreed the same. Similarly around one-quarter of respondents from both countries agreed 'remaining competitive' was also a challenge. It is evident from the current study (*see* Figure 6.2) 'competitive advantage' was considered as a driver for investment for almost 40% of respondents, which is comparatively higher than the former study. Although the Fuji Xerox survey and the current survey were conducted approximately at the same period of time, the variation in findings are obvious. The reason for this could be the sample targeted in each of these surveys. In the current survey as indicated previously the sample included organisations from a variety of sizes and sectors. On the other hand, the Fuji Xerox survey suggests that their respondents came from NZ's top 400 businesses and therefore size and sector of the business is not apparent.

Further, differences were also evident between the two responding groups in the current study. Compared to finance managers, IT managers believed process efficiency was more important, with almost 95% of IT managers selecting this issue compared to 84% of finance managers. On the other hand, the response in support of competitive advantage is comparatively higher from finance respondents. As described by Boar

(2001), in this information age, IT is the vehicle for strategic competition that enables organisations to be more strategically competent. Therefore by obtaining process efficiency and facilitating effective decision making by satisfying information needs, in this way organisations are preparing themselves to sustain or attain their position in the market. Thus the two are not unrelated.

Role of IT in the organisation

In order to manage IS/IT effectively and also strategically, it would seem important for the organisation to understand and value the role of IT in that organisation. The current study observed a slight difference among IT and finance managers' perspectives regarding the role of IT in the organisation (*see* Table 6.1). Almost 54% of the responding IT managers considered IT was *essential* to the organisation's day-to-day operations and 37% considered IT was *strategic*. In contrast, 55% of responding finance managers believed IT was *strategic* and 30% considered it was *essential.* Around 5% from each category considered it was strategic as well as essential. There was a small percentage of respondents who considered IT as *Not critical* to the day to day operation, 4% from IT and slightly higher (9%) from finance managers.

If the organisations considered IT as strategic, then they might perhaps select their projects carefully keeping the business value of IT in mind, compared to those who think IT is not critical to their organisation. Their opinion on IS/IT's objectives can also be a factor that allows them to streamline IT management processes more effectively. For instance, use of investment appraisal techniques, use of benefit delivery plans, pre- and post-implementation reviews and other benefit realisation methods can be used to measure and determine the strategic value of IT in business.

Contribution of IT to business value

Most relevant studies including Grover *et al*. (1998) and Peppard (2003) have stated that organisations tend to see IS/IT applications as just a mere utility. These authors empahsise that IS/IT application is more than just an utility; it should be seen as a "*value creation*" application. The survey data from this research suggests that the purpose and perceived business benefits of IS/IT reflect its place as more than just a utility. Respondents to both surveys expressed that IS/IT was contributing to all areas of their business. One of the finance managers also specified "*IS/IT contributed to all areas of business and it is a significant contribution"*. Therefore according to these

respondents' views, IT has a strategic value. The IT and finance managers' opinions concerning the contribution of IS/IT were consistent and positive (*see* Table 6.1).

Both groups indicated that IT contributed to customer service, business automation, finance and accounting, EDI, data management and improvement in the quality of service and was thus contributing to the achievement of the organisations' strategic goals. Moreover most of these organsisations expected IS/IT to provide process efficiency and to satisfy their information needs. Their responses showed that the benefits they received were in line with their expectations.

Confidence level

Further, close to all respondents (over 90%) from both groups showed a high level of confidence in their IS/IT projects delivering percieved business benefits. Almost 25% of respondents from each group indicated that they were 'very' confident, which is again largely consistent with the findings of Lin and Pervan (2003) who indicated 23.9% of their respondents indicated this. Confidence in benefit delivery may also depend on the approaches employed to track benefits, such as a benefit delivery plan or benefit realisation approaches. This is analysed in the following section.

6.3.2 Current practices of IT Management

Ward & Peppard (2002), Lin & Pervan (2003), Syntelligence (*Connecting IT investment to value*, 2003) and Preston (2003) affirmed that almost 70% of organisations invest in IS/IT without performing investment appraisal or technology acceptance checks. This is reiterated in part in the current study, which shows that very few organisations used investment appraisal techniques. More than one-quarter of IT respondents specified that they did not utilise any appraisal techniques, as did 19% of finance respondents. The responses related to current practices are summarised in Table 6.2.

Not unexpectedly finance managers appear to be more likely to use IS/IT investment appraisals than IT managers. Among the responding finance managers, 63% used investment appraisal techniques on most or all of their projects, of which 25% of respondents suggested they were used on all projects. On the other hand only 47% of the responding IT managers did so on all or most projects and 19% stated they were used on all projects (*see* Table 5.3.9 & Table 5.4.7). Further analysis shows that 43% from IT and 66% from finance respondents who employed formal appraisal techniques

have indicated higher levels of confidence in the delivery of business benefits. This implies that the use of formal techniques can improve confidence in IS/IT projects' business benefit delivery.

Based on these findings, it seems that finance managers see the importance of using investment appraisal techniques prior to investing in IS/IT more so than their IT colleagues. This coincides with Ogilvie (2003) who stated that most IT managers do not consider the organisation's financial situation prior to investing or proposing a technology. Preston (2003), however calls for organisations to come out of the belief that "IT professionals cannot handle financial responsibility". He emphasises that organisations should focus on retraining their personnel and should enable IT and other departments to work collaboratively to obtain business value from their technology investments. Teo and Ang (1999b) suggested that CIOs with knowledge about "strategic IT" and business will be better able to participate in business-IT strategy formulation and to recommend more appropriate technology. It is therefore essential for IT managers to participate in investment appraisal and to understand financial status and business strategy to improve IS planning.

Organisations' current methods of preparing, justifying and reviewing IS/IT proposals were also investigated. Mixed practice was observed among the respondents with regard to their IS/IT proposals. There was no significant difference among the perspectives of the two respondent groups (*refer* Table 6.2).

In the case of preparing IS/IT proposals, 64% of IT respondents and 45% of finance manager respondents specified that IS/IT proposals were prepared by the IT management team. On the other hand, 26% of IT managers and 33% of finance managers specified that the business management team was responsible for preparing the proposals (*see* Figure 5.3.9a and Figure 5.4.4a). This indicates a relative difference of perspective between the two groups. However, we cannot conclude that this as a misunderstanding among the managers because the responses are from different organisations, and individual practices may vary.

It is evident from recent literature (Lin & Pervan, 2003; H. J. Smith & Keil, 2003) that some IS/IT managers overstate the business benefits of IS/IT projects in order to get project approval. It is therefore considered important that proposals are checked by the

business management as well as by related IT governance members to verify and confirm that the business benefits estimated are specific to the project and are deliverable. In the current study, almost half of the respondents from both groups (48% of IT managers and 52% of finance managers) stated that justifying IS/IT investment proposals was performed by business management (*see* Table 6.2). Organisations' such practices comply with the above stated best practice approach and can avoid misconception about benefit delivery to a certain extent.

Questions	**IT manager**	**Finance manager**
Methods (efforts) used to justify investments in IS/IT – % of respondents used		
1. Formal investment appraisal techniques	Not using at all – 26% On all -19% On most-26%	Not using at all – 19% On all – 25% On most-38%
2. Benefit delivery plan - **% used during project planning** - **% used after project completion**	24% - never used 4% never All of them revisited, but at different stages.	10% - never used 4% never Not at all of them revisited after completion of the project
[1*]**Responsible for IS/IT functions** -preparing proposal -justifying proposals -reviewing proposal	64%(IT),26%(BM),10%(B) 39%(IT),48%(BM),12%(B) 27%(IT), 55%(BM),11%(B)	45%(IT),33%(BM),15%(both) 24%(IT),52%(BM),18%(B) 30%(IT),48%(BM),12%(B)
Processes that link business with IT investments (links and justifies IS/IT investments)	ROI, NPV, cost/benefit , business-IT strategies, EPDEP/Chevron Texaco policy	ROI,NPV, KPIs, objectives and outcomes

(1*: IT- IT management, BM- Business management***)**

Table 6.2 Current practices of IT management: IT and Finance managers' perspectives

A lesser proportion of respondents (12% from IT and 18% from finance) indicated that justifying the proposal was performed collaboratively by both IT and business management (*see* Table 6.2). Although relatively few organisations employed this practice, such a practice could be considered paramount to all approaches in terms of understanding the deliverables of an IS/IT project, the financial situation of the organisation, as well as any other risks associated with the project (Kumar, 2002; Milis

& Mercken, 2004; Ogilvie, 2003; Remenyi & Sherwood-Smith, 1998; Teo & Ang, 1999b).

This practice is specified in BR models such as ABR and PAM. It would seem advisable for more organisations to implement such a practice particularly when planning for high valued IS/IT projects. This may enable them to charter their benefits more explicitly and reduce the incidence of business-IT misconceptions.

There remain a number of other organisations in which both preparing and justifying the IS/IT investment proposals were performed by the IT department itself. Just under 40% of IT respondents and 24% of finance managers responded in this way. It is advisable for these organisations to change their practice and to encourage business management to take part in this process to ensure that business departments are convinced of the worth of the investment (*see* Table 6.2).

With regard to the reviewing of IS/IT investment proposals, nearly 12% from both IT and finance respondents indicated that this was a collaborative effort. Around 50% of respondents from both categories suggested it was totally business management's responsibility. A further group of respondents, 27% from IT managers and 30% from finance managers, indicated this was done by IT management. This gives us an indication that perspectives among the two groups towards their investment decisions are almost consistent.

It was observed that around three-quarters of the organisations practiced pre- and post-implementation reviews, such as formal investment appraisals or used benefit delivery plans (*see* Table 6.2). This is largely consistent with the results of Ward and Peppard (2002) and Lin and Pervan (2003) whose studies stated that 70% of organisations practiced reviews or employed benefit delivery plans. Therefore as suggested by Ward and Peppard (2002) the remaining organisations should consider using pre- and post-implementation assessments so that they can better link their expectations and outcomes of the project.

As discussed in the literature (Farbey et al., 1994; Shang & Seddon, 2002; Work, 2002) organisations should utilise a benefit delivery framework as guidelines to enable them in locating business benefits. In the current study it is observed that apart from 24% of

IT respondents and 10% of finance respondents all other organisations used benefit delivery plans (*see* Table 6.2). This significant difference among IT and finance managers' responses affirms that from the finance manager's perspective using investment appraisals or having benefit delivery plans are considered more important. Further analysis on the use of benefit delivery plans and use of formal appraisal techniques has revealed a significant correlation between the two. It indicates that those (55% from IT and 57% from finance) who have employed formal appraisal techniques have also used benefit delivery plans. Tables 6.3a, 6.3b and 6.3c illustrate IT managers' cross tabulation details and Tables 6.4a, 6.4b and 6.4c illustrate Finance managers details.

IT managers cross tabulation

Count

		Delivery plan					Total
		Yes, on all projects	Yes, on most	Yes, on some	Yes, but infrequently	No	
Formal Appraisal Process	Yes, on all projects	8	0	0	0	2	10
	Yes, on most	3	11	1	0	0	15
	Yes, on some	0	4	5	1	1	11
	Yes, but infrequently	0	0	0	2	2	4
	No	1	4	1	1	8	15
Total		12	19	7	4	13	55

Table 6.3a IT managers' cross tab analysis of formal appraisal process and delivery plan

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.562	.109	5.090	.000
		Formal Appraisal Process Dependent	.569	.110	5.090	.000
		Delivery plan Dependent	.556	.109	5.090	.000

Table 6.3b IT managers' directional measures of formal appraisal process and benefit delivery plan

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	1.106			.000
	Cramer's V	.553			.000
Ordinal by Ordinal	Kendall's tau-b	.562	.109	5.090	.000
	Kendall's tau-c	.537	.106	5.090	.000
N of Valid Cases		55			

Table 6.3c IT managers' symmetric measures of formal appraisal process and benefit delivery plan

Finance managers' cross tabulation

Count

		Delivery plan					Total
		Yes, on all projects	Yes, on most	Yes, on some	Yes, but infrequently	No	
Formal Appraisal Process	Yes, on all projects	5	2	0	0	1	8
	Yes, on most	1	8	1	0	1	11
	Yes on some	0	2	1	0	0	3
	Yes, but infrequently	0	0	0	3	0	3
	No	2	1	2	0	1	6
Total		8	13	4	3	3	31

Table 6.4a Finance managers' cross tab analysis of formal appraisal process and delivery plan

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.356	.172	2.070	.038
		Formal Appraisal Process Dependent	.363	.176	2.070	.038
		Delivery plan Dependent	.349	.168	2.070	.038

Table 6.4b Finance managers' directional measures of formal appraisal process and delivery plan

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	1.219			.000
	Cramer's V	.610			.000
Ordinal by Ordinal	Kendall's tau-b	.356	.172	2.070	.038
	Kendall's tau-c	.328	.158	2.070	.038
N of Valid Cases		31			

Table 6.4c Finance managers' symmetric measures of formal appraisal process and delivery plan

Around 65% of respondents from each group who have used benefit delivery plans have revealed high levels of confidence in the delivery of business benefits from their projects. This implies that the use of formal approaches for investment appraisal and tracking benefit delivery can improve an organisation's confidence in the project's benefits delivery and in understanding its strategic importance.

With regard to the practice of benefit delivery plans, as found by Lin and Pervan (2003) and Ward and Peppard (2002), although their responding organisations followed some

techniques such as pre- or post-implementation reviews or benefit delivery plans, most of them failed to carry on with such efforts consistently to the end and on all projects. The same situation was noticed among the respondents of the current study. Among those who employed benefit delivery plans, only 35% of IT respondents mentioned they 'often' used them during project execution and just 4% stated that they were 'always' used. On completion of the project only around 20% of IT respondents stated that they 'always' revisited the plans (see Table 5.310, 5.3.10a & 5.3.10b). These findings are almost consistent with the survey conducted by Ward and Peppard (2002) that stated that 26% of 60 major organisations in the UK revisited benefit delivery plans. In the current study it is also obvious that responding large organisations (33%) tended to employ such practices more than the SMEs (7%).

Among finance respondents, although most (90%) of them used a benefit delivery plan, almost 46% indicated they 'often' used the plans during project execution, only 11% indicated that they revisited the plans on project completion (*see* Tables 5.3.8, 5.3.8a, 5.3.8b and 6.2). This indicates that although organisations see the need for these techniques they may lack the dedication for carrying such an approach through till the end, or they may lack a dedicated person to handle this.

In order to manage and monitor IS/IT projects and their benefit delivery, it has been suggested that organisations need a dedicated person. A few organisations in the current study (as in the Australian study (Lin & Pervan, 2003)) expressed the need for a person responsible for keeping track of the benefits delivered.

On the whole, it seems that not all organisations see the need for benefit realisation; therefore they do not seem to be particularly serious about using BR techniques and practices systematically. A few of them indicated they used a benefit delivery plan depending upon the value of the project. Yet most of these organisations did not revisit or monitor the benefit delivery plan. If the organisations did not revisit the plans at least during project execution and once again on project completion then the purpose of having a benefit delivery plan is lost. This signifies that organisations in general are not putting enough effort in to yielding benefit from IS/IT projects. Figure 6.3 synthesises the main tasks involved in obtaining business benefit delivery from IS/IT projects

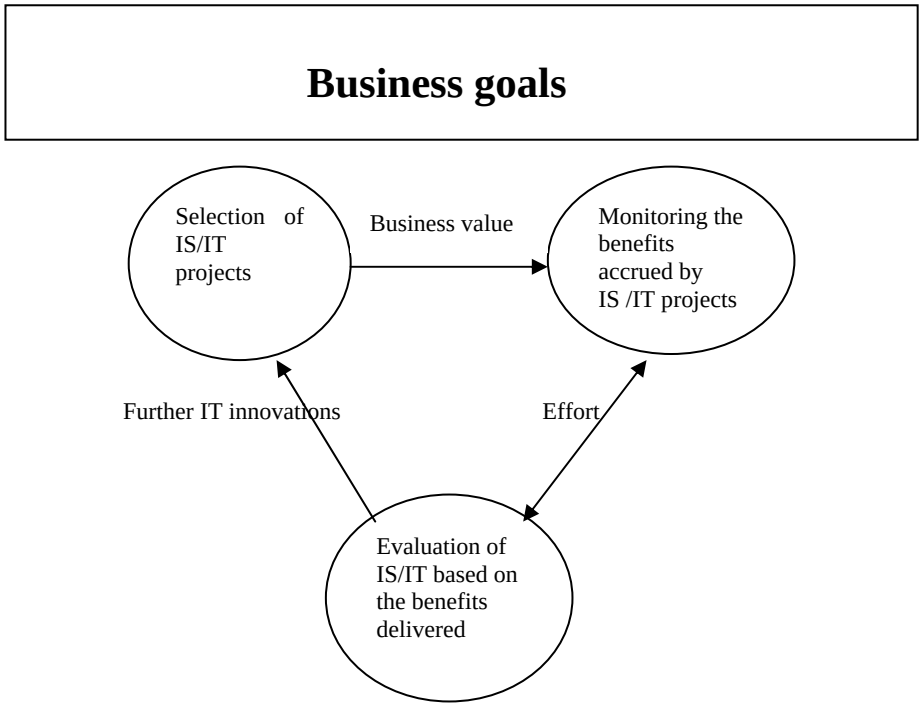


Figure 6.3 Main tasks to obtain benefits from IT project

6.3.3 Business value of IS/IT

Practitioners and academics emphasise that one of the reasons why organisations struggle to evaluate and justify IS/IT investments is because they do not understand the business value of the associated projects. In the current study over 90% of IT respondents and 97% of finance managers respondents indicated *business value* was important while prioritising IS/IT projects (*see* Table 6.3). This demonstrates that respondents realise the need to determine the business value of the IS/IT projects, although their practices do not entirely reflect this understanding.

Current efforts to realise business benefits of IT

Organisations used different ways to link business value with IT initiatives. This included mainly financial techniques such as, ROI, NPV, and cost/benefit analysis, just as is evident in much of the existing literature. A few others indicated that they used key performance indicators (KPIs) or reviews of the budget proposals. Others indicated a more generic approach such as through business strategy, IT strategy or business cases. However, unless the organisation's business strategy or IT strategy intends to realise business benefits through an appropriate and measured approach these efforts are

unlikely to contribute any value to the business. Rather surprisingly almost 30% of the IT respondents indicated they neither used any techniques nor were they aware of any.

Questions	IT manager	Finance manager
Importance of business value while prioritising the IS/IT projects	92% - very/quite important	97% very/quite important
Importance of business value as a measure of success	90% - very/quite important	94%- very/quite important
% of respondents measured business value of IS/IT in terms of - **Time** - **Effort** - **Dollars** - **Others**	59% 54% 89% Quality, Cust. satisfaction, cust. experience, company image, benefits delivered	47% 40% 88% project outcomes, efficiency, stakeholders perceptions, quality of service, strategic advantage, KPIs
[2*] **% of respondents measured business value** - **during project planning** - **on completion of project**	34%(A),45%(O),0%(N) 20%(A),29%(O),10%(N)	44%(A),38%(O),13%(S) 6%(A),22%(O), 9%(N)
[3*]**Current approaches to ensure that IS/IT projects delivered business value** **- Changes required for the current approach**	15%(V),60%(Q),20%(NS) more rigid, formal audits, timely completion & delivery of benefits , responsible person, co ordinations between IT& business,	<10%(V),60-70%(Q), 10-12%(NS) post-implementation & benefit delivery plan to measure & ensure benefits delivery, business ownership, thorough planning
Current approach to realise business benefits from IS/IT projects	14% had no processes. post-implementation review process, formal feedback, change management, customer satisfaction, ROI, KPIs, monthly meetings	20% had no processes. Monthly meetings, formal/informal feedback, KPIs, Cost-benefit approaches,, pre-post project review, internal auditing, project delivery time, ensured benefit delivery,, benefit charters and benefit delivery plan

2*- A- Always, R-Rarely, S-Sometimes, O-Often, N-Never
3*- V- Very, Q- Quite, NA-Not at all, NS- Not sure

Table 6.5 Business value of IS/IT: IT and finance managers' perspectives

Overall, the majority of organisations confirmed that business value was important when prioritising the IS/IT projects and for the success of their projects. For instance,

more than 90% of the respondents from both groups considered that *business value* was important for the success of the IS/IT project (*see* Table 6.3). The approaches for measuring and for linking IT initiatives with business value were mainly financial techniques, although both tangible and intangible benefits were considered by some (*see* Table 6.2).

The survey results reflect that the organisations' expected benefits in terms of IT's contribution to the business included intangible benefits such as process efficiency, satisfaction of information needs, and higher customer satisfaction, which may take some time to generate revenue. This may result in difficulties for evaluating and justifying IS/IT investments. As indicated by many other international studies (Gunasekaran et al., 2001; Lin & Pervan, 2003; Milis & Mercken, 2004; Ward & Peppard, 2002), the cause for the evaluation paradox is the nature of IS/IT benefits and the evaluation techniques being primarily financial.

This paradox is also evident in the fact that 89% of IT respondents and 88% of finance respondents indicated that the business value of IS/IT projects was measured in terms of *dollars*. More or less 50% of the respondents indicated business value was also measured in terms of *time* and *effort*. There is some indication that IT respondents considered time and effort to be more important than finance managers.

However, although most organisations acknowledged the importance of business value, the time and effort devoted to monitor and manage the projects to harness business value seems to be minimal. For instance, more than three-quarters of respondents from both categories indicated that they often measured business value during project planning; perhaps that is when the benefit delivery plan was also developed. As for benefit delivery plan follow-up, not all organisations measured business value at regular intervals. Even this seemed like an irregular practice among the respondents, demonstrating little effort exerted to obtain business benefit from IS/IT projects from both IT and finance perspectives.

According to Boar (2001), the success of an IS/IT project arises from an organisational IT strategy that includes *monitoring, learning* and *vigilance* of the projects. *Monitoring* includes regular formal review of the progress of a project. Similarly, learning includes necessary actions or changes that are mandatory to improve the performance of the

project and to be vigilant of unexpected events or risks that may influence the strategic approach. In the current study, very few organisations indicated the use of monthly meetings, formal feedback, and pre- and post-project reviews as monitoring activities. As a part of learning, very few organisations indicated change management processes. Other methods identified that would forecast risks were cost/benefit analysis, ROI and KPIs, but again financial approaches dominated.

Despite these practices, the majority of the responding organisations were quite confident about the effectiveness of their current IS/IT approaches in identifying the business value of a project, quantifying the relevant benefits, ensuring delivery of business value and informing future decision making regarding IS/IT projects.

In spite of these positive attitudes organisations were keen on refining their current practices to better optimise their business value from IS/IT projects. That included plans for making their practices more rigid, using formal audits, being more specific about completion times, post-implementation reviews, and benefit delivery plans to ensure delivery of expected benefits. Furthermore a few IT managers emphasised the need for more business-IT collaboration. Some insisted on the need for a person responsible for ensuring business benefits delivery of IT projects. This signifies that these organisations have recognised the need for realising the benefits of IT or have realised their own inadequacy in current IT practices.

6.3.4 Benefit realisation Practices

As evident from Table 6.4, a close consistency is noted among the respondents from both groups with respect to the business benefit accrued.

Use of BR models

Regarding formal BR practices, the current study shows that the use of formalised approaches for business benefit realisation from IS/IT projects was very low (0-3%). Almost 65% of responding IT managers and 50% of responding finance managers indicated that they were not using any formal frameworks. Of those remaining, 47% of finance respondents and 29% of IT respondents indicated they often used in-house developed models (*see* Table 6.4).

While once again a difference can be noted between IT and finance respondents, this cannot be confirmed as a difference in organisational perspectives, because the respondents were generally from different organisations (only 8 organisations responded to both the surveys). This can therefore only be considered as a general finding. The reasons for choosing these approaches were similar to those stated by Lin & Pervan (2003). For instance, over 80% of responding finance managers and almost 65% of the responding IT managers indicated the reasons for choosing the current framework as 'fits organisational culture', 'cost-effectiveness' and 'mandated by head-office'.

Awareness of BR models

This study's findings imply that the main reason for not using a published BR model is simply a lack of awareness (see Table 6.4). Results indicate that less than 5% of IT respondents knew about published BR models indicated in the research instrument – Cranfield, ABR and DMR. As expected finance managers showed relatively higher awareness compared to IT respondents. This provides some evidence to indicate that finance managers are more focused on the business benefits and financial situation of the organisation compared to the IT managers. This corresponds to the views of Ogilvie (2003).

In general, even though organisations did not use any formal approaches for BR, most of them did utilise one or more techniques to monitor projects in an effort to identify and obtain business value. These were primarily financial techniques. For instance, ROI (Return on investment), NPV (Net present value), PV (Present value), ROR (Rate of return) and Cost/benefit analysis. More importantly, some of them employed a post-implementation review process, formal feedback approaches, pre- and post-project review, and monthly meetings. These practices are consistent with the findings of Lin and Pervan (2003). Other finance managers stated even more specific approaches, such as the use of a benefit charter and benefit delivery plans. These are commonly incorporated in formal BR approaches**.**

Further analysis also indicates that approximately half of those respondents from both IT and finance who have used benefit delivery plans have not used any benefit realisation approaches (IT managers' information is illustrated in Tables 6.6a, 6.6b and 6.6c and finance managers' information is illustrated in Tables 6.7a,6.7b,6.7c). This

indicates that their in-house models have not incorporated benefit delivery plans, which would have improved benefit tracking.

IT managers' cross tabulation for use of benefit delivery plans and BR techniques

		Use of formal BR technique			Total
		Yes, consultant provided	Yes, method developed in-house	No	
Delivery plan	Yes, on all projects	1	5	6	12
	Yes, on most	0	8	10	18
	Yes, on some	0	1	5	6
	Yes, but infrequently	0	0	4	4
	No	0	2	10	12
Total		1	16	35	52

Table 6.6a IT managers' benefit delivery plan and BR techniques cross tab analysis

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.291	.109	2.546	.011
		Delivery plan Dependent	.388	.143	2.546	.011
		Use of formal BR technique Dependent	.232	.091	2.546	.011

Table 6.6b IT managers' directional measures of benefit delivery plan and BR techniques

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	.428			.301
	Cramer's V	.302			.301
Ordinal by Ordinal	Kendall's tau-b	.300	.113	2.546	.011
	Kendall's tau-c	.263	.103	2.546	.011
N of Valid Cases		52			

Table 6.6c IT managers' symmetric measures of benefit delivery plan and BR techniques

Finance managers' cross tabulation for use of benefit delivery plans and BR techniques

Count

		Use of formal BR technique			Total
		Yes, a published model	Yes, method developed inhouse	No	
Delivery plan	Yes, on all projects	1	4	3	8
	Yes, on most	0	8	5	13
	Yes, on some	0	2	2	4
	Yes, but infrequently	0	0	3	3
	No	0	1	2	3
Total		1	15	15	31

Table 6.7a Finance managers' benefit delivery plan and BR techniques cross tab analysis

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.279	.153	1.769	.077
		Delivery plan Dependent	.329	.180	1.769	.077
		Use of formal BR technique Dependent	.242	.134	1.769	.077

Table 6.7b Finance managers' directional measures benefit delivery plans and BR techniques

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	.484			.509
	Cramer's V	.342			.509
Ordinal by Ordinal	Kendall's tau-b	.282	.155	1.769	.077
	Kendall's tau-c	.262	.148	1.769	.077
N of Valid Cases		31			

Table 6.7c Finance managers' symmetric measures of benefit delivery plan and BR techniques

On the other hand, it is evident that most of the organisations that have used formal appraisal techniques have used in-house developed benefit realisation techniques. This information is depicted in Tables 6.8a, 6.8b and 6.8c for IT managers and Tables 6.9a, 6.9b and 6.9c for finance managers' information.

Count

		Use of formal BR technique			Total
		Yes, consultant provided	Yes, method developed in-house	No	
Formal Appraisal Process	Yes, on all projects	1	6	4	11
	Yes, on most	0	7	7	14
	Yes, on some	0	4	6	10
	Yes, but infrequently	0	0	4	4
	No	0	0	14	14
Total		1	17	35	53

Table 6.8a IT managers' cross tab analysis of Formal appraisal process and Use of formal BR technique

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.456	.083	4.877	.000
		Formal Appraisal Process Dependent	.612	.106	4.877	.000
		Use of formal BR technique Dependent	.363	.075	4.877	.000

Table 6.8b Finance managers' directional measures of formal appraisal techniques and BR techniques

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	.585			.020
	Cramer's V	.414			.020
Ordinal by Ordinal	Kendall's tau-b	.472	.086	4.877	.000
	Kendall's tau-c	.423	.087	4.877	.000
N of Valid Cases		53			

Table 6.8c IT managers' Symmetric Measures for formal appraisal and BR techniques

Finance managers' cross tab analysis of Formal appraisal process and Use of formal BR techniques

Count

		Use of formal BR technique			Total
		Yes, a published model	Yes, method developed inhouse	No	
Formal Appraisal Process	Yes, on all projects	0	5	3	8
	Yes, on most	0	8	4	12
	Yes on some	0	2	1	3
	Yes, but infrequently	0	0	3	3
	No	1	0	5	6
Total		1	15	16	32

Table 6.9a Finance managers' cross tab analysis of Formal appraisal process and Use of formal BR techniques

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	.273	.167	1.670	.095
		Formal Appraisal Process Dependent	.328	.208	1.670	.095
		Use of formal BR technique Dependent	.234	.138	1.670	.095

Table 6.9b Finance managers' directional measures of formal appraisal techniques and BR techniques

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Phi	.665			.078
	Cramer's V	.470			.078
Ordinal by Ordinal	Kendall's tau-b	.277	.169	1.670	.095
	Kendall's tau-c	.261	.156	1.670	.095
N of Valid Cases		32			

Table 6.9c Finance managers' symmetric measures for formal appraisal and BR techniques

From the cross tab analysis it appears that most organisations have incorporated formal investment appraisal techniques into their in-house models. This indicates that despite their lack of awareness of any BR models they have used some forms of benefit realisation approaches.

Effectiveness of the models

As none of the responding organisations made use of any of the published BR models, effectiveness of these formal models cannot be assessed. However, the effectiveness of the in-house developed models they were using can be considered. All the finance respondents and the majority of IT respondents (84%) considered their current in-house model to be quite effective in achieving their objectives and only a few also had some suggestions for amendments (*see* Table 6.4).

Some IT respondents commented positively regarding the models they were using. According to one or two, the model they were using was a 'great tool' and ensured benefit delivery that linked benefits to business objectives. From the finance managers' perspective, the models they were using systematised the approach and enabled them to realise the benefits based on business priorities. This seems to be very promising and supports the concept of aligning IT with business.

In general those who used some kind of model were quite happy and confident about the approach they were currently using. This result is consistent with that observed among the Australian survey respondents (Lin & Pervan, 2003). A few IT managers found that the model was too restrictive and did not allow them to consider intermediate changes. Therefore they felt modifications were essential to suit different situations and also different projects sizes. Similarly, some finance managers found that the model sometimes overlooked benefits that were not perceived or recorded earlier. Some found the system was not efficient enough to consider the timely changes that occurred and thereby affected actual benefit realisation. This suggests that they wanted the current approach to be more flexible to allow them to make appropriate timely decisions or business focussed changes.

Furthermore, among the responding IT managers who said they were using an in-house developed model, about 10-15% stated they were 'Not Sure' about the effectiveness of the model. This suggests that these organisations could be in need of a person responsible for this aspect of IS/IT management. One or two respondents admitted that they needed a dedicated person to keep track of benefit delivery and to follow-up on this issue. More generally, it seems that there is a degree of urgency to create BR awareness among the business and IT communities.

Another prevalent limitation was the infrequent use of whatever approach they were pursuing. Among those who used a model, only 20-25% from each group used them 'on all' projects. Around 50% from both groups indicated that they used them 'on most' of the projects. The same trend was evident even among the Australian respondents (Lin & Pervan, 2003). This could be because most of the organisations were either unaware of the strategic significance of such an approach or may lack necessary resources or time. Using the models more frequently by including more BR practices for reviewing and realising benefits may improve the effectiveness of their approach.

Questions	IT manager	Finance manager
Considered benefit delivered to **-organisation** **-business area** **-IT group** **-Users**	 83% 57% 47% 48%	 83% 65% 45% 51%
% of respondents -*used* - **formal benefit realisation model** - **model suggested by consultant** - **in-house developed models** - **no models**	0% 3% 29% 65% not using any BR frameworks	3% 0% 47% 50% not using any BR frameworks
% respondents *aware* of formal benefit realisation models - **Cranfield** - **ABR** - **DMR** - **Other models**	Less than 5% awareness on any model	15% 15% 18% Military NATO
[3*] **% of respondents considered the current framework was *effective* in realising business benefits** - **Positive** - **Negative**	84%(V-quite), 5(NA),11%(NS) -great tool to ensure benefit delivery and link benefits to business value, enables to assess risks - too restrictive & laborious needs modifications to suit different situations, more local authority	12%(V), 88%(q) -Systemises and enables benefit delivery -overlooked benefits not chartered, intermediate changes, lacked overall portfolio review, time consuming, resource intensive.
[4*]**How widely the frameworks were used**	25%(A),50%(M),10%(S),15%(I)	50%(on most),50%(sparingly)
% of respondents believed reasons for not using a model is/are - **too expensive** - **too cumbersome** - **doesn't fit our process** - **don't see the need others**	Around 20% responded 2% 2% 9% 5%	Nearly 50% responded 9% 6% 12% 18%
Organisations awareness of benefit realisation approaches	2%(Very), 50%(some what), 48%(not at all)	16%(Very), 47%(some what), 38%(not at all)

3*- V- Very, Q- Quite, NA-Not at all, NS- Not sure
4*- A- On all projects, M- on most, S- on some, I- infrequently

Table 6.10 Benefit realisation practice: IT and finance managers' perspectives

6.3.5 Opportunities for adoption of BR

Based on the findings, it is observed that awareness of formal BRM among the respondents was very low. That said, the awareness of BRM among finance managers was slightly higher than among IT managers (*see* Table 6.10). However, even those few organisations who were aware of the models have not adopted any. Earlier studies in Australia and the UK (Lin & Pervan, 2003; Ward & Peppard, 2002) found that at least one-third of their respondents used published BR models. In contrast the current study did not find even a single respondent from either group that used any of these published models.

Questions	IT manager	Finance manager
What is required to make the organisations adopt a model in future	50% no response/suggestions. Out of the remaining - -50% - wants to learn more 50% - suggested company policies, senior manager's approval, availability of resource, growth of business. Needs to be convinced that the framework is reliable and increases benefit delivery.	50% no suggestions. 50% interested in learning more regarding the existing model, wants IT to investigate and adopt one, senior manager's approval, wants to be convinced that the model will add value, functionality and suitability of the model to suit their specific industry or organisations needs

Table 6.11 Opportunities for BR adoption: IT and finance managers' perspectives

In line with overseas research (Lin & Pervan, 2003; Ward & Peppard, 2002) the NZ respondents indicated that the BRMs were 'too expensive' or 'too cumbersome' or 'may not fit the process' (*see* Table 6.10). However these results are not conclusive because of the low response rate (only 20% of the IT managers and almost 50% of finance managers responded to this question). Surprisingly 18% of finance managers indicated that they "don't see the need" for any such models, perhaps because some of these responding organisations were using in-house models. Others stated that adopting a model was not a priority. Likewise, a few others emphasised a need for business enhancement rather than using any model to evaluate their current approach. This in a way signifies that the managers were quite confident and satisfied with their current practices and were reluctant to consider the necessity of improvement using a formalised BR approach.

In terms of this research, it seems that most organisations have barely realised the importance of the BRM approach. If the organisations have invested in an IS/IT project

as per their business strategy to improve process efficiency or to satisfy information needs, it would seem equally important for them to prioritise IS/IT management to effectively obtain perceived benefits and in turn satisfy their business strategy. However 48% of the responding IT managers and 38% of the responding finance managers indicated that their organisations were 'not at all' aware of benefit realisation techniques.

A few others claimed that their organisations were 'very' aware of the techniques. However the evidence suggests that some of these organisations might have simply overstated their awareness, because their practices were minimal compared to many other organisations that employed some useful techniques such as benefit charters or post-implementation review, and yet indicated that they were 'not at all' aware. This gave an impression that those who knew something about the techniques were curious to know more to improve their practice while others who knew nothing assumed they knew everything and gave no scope for improvement. Perhaps these uncertain perspectives lead in part to the evaluation paradox of IT.

Regarding the effectiveness of the published BR models, only one of the IT managers expressed displeasure about the effectiveness of the existing BR models as one of the reasons for not adopting. Moreover, as evident from this research's findings, none of the responding organisations used any published BR models specified in the research instrument. Therefore although one of the objectives of this research was to assess the effectiveness of these existing models, due to the lack of practical evidence this cannot be performed. The evidence suggests that some organisations may have preconceptions about the published models while many others seem to have barely any idea about the existence of the models. It seems that we can affirm that the lack of awareness of BRM is the key factor that has influenced the adoption (or lack of it) in New Zealand organisations.

This research may have increased the awareness of BRM in the responding organisations. This is evident from the fact that most of the organisations that showed an interest in knowing about these techniques were previously not aware of BR. For instance, of the 50% of organisations who responded to the question - "*What would need to change in order for you to use one or more of the frameworks*?" (*see* Table 6.11), 50% from both groups expressed interest in learning about the techniques before

adopting one. They were interested to know how different and effective those frameworks would be when compared to those models they were already using. Some organisations pointed out *business resistance to change* and *organisational culture* as some of the causes that may hamper the adoption of the models, a result that echoed the outcome of the previous Australian survey (Lin & Pervan, 2003). There was close consistency in the IT and finance perspectives.

Furthermore, respondents insisted that the formal models would need to be efficient and compatible with their business processes. They wanted to be convinced about the proven effectiveness of the model. They simply did not want to take the risk of trying one without such an assurance.

The only interim solution for all these concerns would be for the organisations to learn about one (or more) of these existing BR models. As explained in chapter 3, all the models have more or less the same fundamentals. Therefore, in the interests of the organisation's strategy they should learn about one or more of these models and then develop their own model to suit their business. As discussed previously some of the organisations have already been practicing techniques that are among procedures specified in the formal BR models. Therefore improving their own in-house developed model more systematically and then using this on all projects would be the ideal approach for business benefit realisation of IS/IT.

As stated previously a few international studies (Gunasekaran et al., 2001; Lin & Pervan, 2003) asserted that effectiveness of the BR models is one of the key factors that influences adoption and therefore they insisted on the development of more specialised models. However based on this research's findings, it is apparent that in the NZ business scenario, *awareness* of benefit realisation models is more critical prior to any judgment on the *effectiveness* of models. The following section analyses the relationship among these factors in detail.

6.4 The analysis of key factors of BR models from NZ perspective

This study analysed the impact of three key factors, *awareness, use* and *effectiveness* of BR models for adoption in NZ. The findings of this study (*see* chapter 5) confirm that *awareness* of the BR models is the key factor that has influenced model adoption. Low awareness has resulted in low *use*. Given that effectiveness depends on both awareness

and use, it has also been impossible to assess the influence of this factor. Figure 6.4 depicts the relationship between these three factors and other contributing parameters such as knowledge.

As suggested by Chikofsky & Rubin (1999) effective IS/IT management relies on organisations improving their knowledge by learning about various other metrics that can ensure business benefit delivery. Similarly, if organisations take interest in knowing about various BR models they can gain knowledge about their effectiveness and can also plan to use them regularly on most of their projects for obtaining better business results. Simultaneously when organisations use any of these models they can learn about any factors or risks that influence benefit delivery, which may not have been apparent previously. Such factors should be identified and managed effectively in order to gain more confidence in business benefit delivery. This theme is diagrammatically illustrated in Figure 6.4.

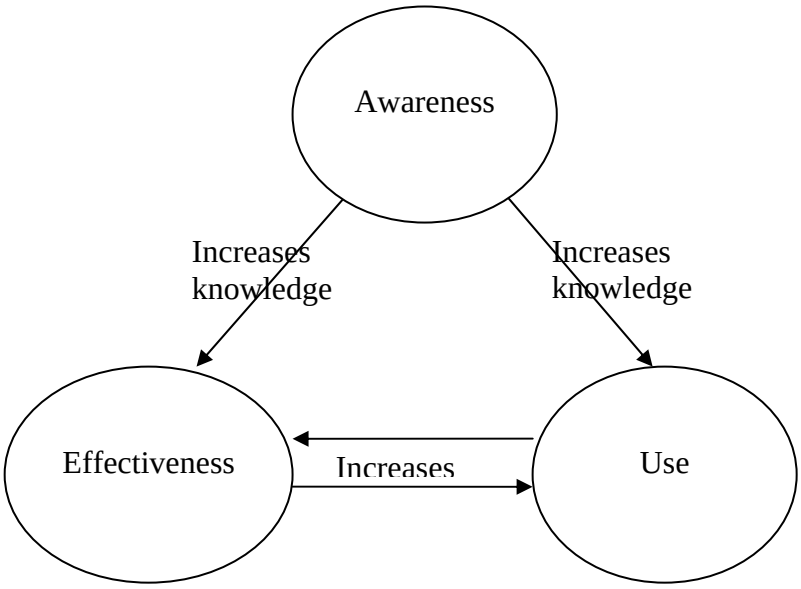


Figure 6.4 Relationships among the key factors of BRMs

This study therefore recommends organisations, firstly, to improve their awareness regarding the availability, functionality, objectives and advantages of BR models. This will increase organisations' knowledge about the BR models and may encourage them to use one or a combination of those models. On the other hand, obtaining knowledge about BR models and their effectiveness will also better enable organisations to decide about adoption of such models.

Further, this study recommends that organisations investigate more than one BR model, so that they can identify the best features that suit their organisation and incorporate these into their own in-house developed model. The experience of others (Chikofsky & Rubin, 1999; Thorp, 2001; Ward & Peppard, 2002) suggests that this may help them to improve their current IS/IT practice and facilitate them in identifying and obtaining the business benefits of their IT projects more effectively.

6.5 Summary

In this chapter the results of the surveys were discussed focusing on the perspectives of IT and finance managers on various aspects of effective IS/IT management and benefit realisation. It is evident that due to lack of awareness of the BR models, the responding organisations have not adopted any of them. The next chapter highlights recommendations for practice and implications for further research.

CHAPTER 7 SUMMARY AND CONCLUSIONS

7.1 Summary

The primary objective of this thesis was to investigate the underlying factors that influenced the adoption of benefit realisation (BR) models in New Zealand organisations. Chapter 1 highlighted the importance of this study in this country. In order to understand the wider context for the work and to accomplish the objective of this study, a comprehensive literature review was carried out and presented in chapters 2 and 3. Chapter 2 focused on organisations' IS/IT investment trends worldwide and current approaches employed to identify the business benefits of IT in order to justify those investments. The same chapter also described the investment trends and current approaches of IS/IT evaluation apparent in New Zealand organisations. The study showed that NZ organisations are in line with global trends, tending to invest heavily in the latest technology.

It is apparent from several studies that the approaches generally used to justify investments in IS/IT are ineffective and inapt, mainly because those techniques fail to quantify the actual benefits delivered by projects of this nature. BR techniques have been proposed as one of the solutions to overcome these difficulties and to facilitate organisations in enhancing IS/IT's contribution to business value. A discussion of the more prominent techniques was reported in chapter 3. Although effectiveness of BR techniques has been established in a small number of studies, the adoption or acceptance of these models are yet to be demonstrated. It is contended that these techniques suggest ways to effectively monitor projects, organise them, include interim changes whenever required enabling organisations to identify the business benefits of IS/IT projects at scheduled intervals thus ensuring ongoing fit with the organisational strategy.

The factors that have influenced the adoption of BR models in other countries have been identified and were discussed in chapter 3. An attempt has been made to understand the current situation in NZ organisations and their employees' perspectives concerning BR models. Based on the literature reviewed it appeared that awareness, effectiveness and use of BR models, were the three key factors that influenced BR adoption. The limited research on the influence of these key factors in the NZ business context has been the major motivation for the current research.

Chapter 4 describes the approach that has been employed to investigate the influence of these and other factors in NZ business. The study originally intended to replicate a similar study undertaken in large Australian organisations by Lin and Pervan (2003) and to use the same research instrument as employed in their study. However, realising the fact that in New Zealand the population of SMEs is far greater than that of large organisations, it was decided to perform a comparative study of large organisations and SMEs. Therefore a number of amendments were incorporated into the Australian survey instrument to better suit the current research.

Subsequently the study extended its scope to analyse IS/IT practices in different types of organisations and from both IT managers' and business managers' perspectives. Organisations were classified as being:

1) SMEs or large
2) Public or private sector
3) National or multinational

In addition to this, investigating managerial perspectives on current IS/IT practices and the general relationship between IT and business in the organisation was considered important in terms of understanding the rationale behind organisations' IS/IT practices. Therefore the study included yet another comparative element in order to analyse the perspectives of IT and finance managers on their current IS/IT practices. Chapter 4 presented a detailed description of the adopted research methodology, comprising survey sample selection, the framework adopted for questionnaire design, survey distribution, and the questionnaire refinement strategy.

The survey findings were detailed in chapter 5 in two sections, describing in turn the views of IT and finance managers. Chapter 6 described and compared IS/IT practices from these two perspectives based on a framework designed to identify organisational best practices that relate to benefit realisation, revisiting the literature along with relevant previous surveys. Based on the research findings, the relationship among the three key factors that influenced the adoption of BR models in NZ organisations were proposed.

7.2 Conclusions

From the responses received it appears that although NZ organisations' IS/IT investments have increased in recent years, their IT strategies lack formalised approaches to benefit realisation. It is also evident that responding IT and finance managers considered achieving *process efficiency* and *satisfying information needs* as the key drivers for investing in IS/IT projects. These are at best indirectly related to the derivation of business benefits.

While more than 90% of the respondents to both IT and finance managers' surveys acknowledged the significance of business value when prioritising IS/IT projects, in practice, fewer than 25% used any investment appraisal techniques prior to investment. In spite of this, most respondents (from both groups) were quite confident of their current approaches in delivering perceived business benefits.

The results indicate that most of the responding organisations do not utilise a systematic approach for identifying or increasing the perceived benefits, especially in organisations employing fewer than 100 FTEs. The majority of the responding organisations were following primarily financial assessment techniques, such as ROI, NPV or cost/benefit analysis, to identify and quantify business value from IS/IT, irrespective of organisational size, type or sector. It was also apparent from this study that more than half of the responding organisations neither used any formal BR frameworks nor any models developed in-house, in spite of recognising the importance of business value in IS/IT investment. Those organisations that used in-house models or any IS/IT practices that demonstrated BR awareness included mainly large and multinational organisations.

Such use was not consistent, however. Most of the responding organisations that used in-house developed models failed to use them regularly or on all projects. Further, more than 85% of respondents from both groups were not aware of any formal approaches. Over half of the respondents were keen to learn about BR techniques in order to understand their benefits. It also seems that organisations were in fact hesitant to adopt any of these techniques unless they were first convinced of their effectiveness.

Despite the low overall awareness of BR, those organisations that used in-house models incorporated one or two important aspects of BR techniques, such as pre- and post-implementation reviews, monthly meetings, feedback, benefit charters and benefit

delivery plans. This suggests, if the organisations were made aware of the significance of the wider BR concepts, they could enhance their current models more systematically.

This study emphasises that integrating BR strategy into an organisation's IT strategy should be given high priority in order to satisfy that organisation's strategic goals. This research confirms that (for the proportion of responding organisations at least) the lack of awareness of BR techniques is the key factor that has influenced the adoption of these models in New Zealand. In fact the majority of the responding organisations were not aware of any published BR models. It was therefore not possible to assess the effectiveness of any published BR models. Once they learn and are perhaps convinced of the effectiveness of the models, they can decide whether to choose a formal BR model or to develop an in-house model integrating the most important BR aspects and business concepts.

7.3 Recommendations for practice

It was apparent from this research's findings that there are some limitations to the current IS/IT practices of the responding NZ organisations:

- minimum use of investment appraisal techniques prior to IS/IT investments
- minimum use of business benefit delivery plans, lack of formal pre- and post-implementation reviews to identify or to track the benefits delivered
- irregular use of in-house models
- low awareness of business benefit realisation techniques/models.

On the other hand, many organisations are keen to learn more about formal BR models. In order to adopt any BR model in the future, these organisations will need to address their organisational culture and overcome business resistance to change. In addition, uncertainty concerning effectiveness of those models, lack of resources, and fear of excessive time-consumption are other more specific barriers that will need to be addressed.

Therefore, considering the drawbacks and issues of BR adoption on one side and realising the benefits of BR on the other, it is important that organisations educate themselves in one or more formal benefit realisation techniques to further enhance their current IS/IT practices and to obtain greater awareness of BR. This can be done either

by arranging short-term courses or having conferences or seminars arranged by reputable educational bodies. It is obvious that organisations are cost-conscious, yet it is important that organisations take more interest in BR awareness and allocate sufficient budget for its employees to attend training. Once one or two employees are trained they can train and share their BR knowledge among others to increase organisational awareness in BR. This will enable them to better understand their business situation and assist in developing a more appropriate in-house BR model that suits their business scenario.

Prior to adopting any model it is recommended that the organisation follow an approach similar to that illustrated in Figure 6.1 to analyse the strengths and weaknesses of their current business value management processes. This will suggest to them directions for improvement. Thereafter as mentioned above, the organisations can either adopt a formal BR model or develop a similar in-house model, integrating key BR aspects based on their own business processes. This will facilitate them to analyse project costs, benefits, risks, and help them to identify approaches to be taken to mitigate against the identified risks and to ensure that the benefits are delivered as expected.

All formal BR models emphasise such aspects and setting targets for every task. Thus organisations leveraging their knowledge of BR with the analysis of their own practices can develop more business-specific models themselves. In turn they may be able to reduce expenditure by saving on consultation fees, time and budget (rather than spending resources on rectifying failed projects at a later stage). At the same time it is recommended that the organisations systematically utilise these models on all (non-trivial) projects. Only then can the model be effective in identifying and delivering the benefits of each and every project.

7.4 Limitations of the research

As with all research, this study has its own limitations.

Primarily, the response rate to the IT managers' survey (11%) and to the finance managers' survey was low (17%), the main result of which means that the findings may not generalise to the target population. Similarly, the study aimed to analyse the perspectives of IT and finance managers on their practices within organisations. This was not possible because there were insufficient responses from both perspectives within the same organisation. Therefore, although there was an overall consistency in IT

and finance managers' opinion, it would have added more value if the responses from the same organisations were more in number.

Further, the response rate from SMEs with fewer than 100 FTEs was also lower than expected; therefore all organisations with fewer than 500 employees were grouped as SMEs in order to carry out the analysis, even though in this country, organisations employing more than 100 FTEs are generally considered large organisations. A higher response rate from organisations employing fewer than 100 FTEs would have strengthened the analysis and the results would have been more relevant to this group. Having said that, this does mean greater comparability with the Australian study.

Furthermore, although a tentative comparison of IS/IT practices in SMEs vs. large organisations, public vs. private sector organisations, and national vs. multinational organisations was carried out, confirmatory conclusions or further hypotheses could not be formulated due to the low response rates.

Pervan (1997) stated the response rate of 7.3% in their study, although low, was reasonable, considering the fact that the target population included CEOs of large Australian organisations, who are very busy people. In the current research, the target population was similarly CIOs, IS/IT managers, CEOs, CFOs and other relevant personnel. So although we cannot claim that the response rate is sufficient, we can affirm that low response rate is not uncommon and is in many respects inevitable, especially given the target population. It was evident from one or two respondents who replied that their busy schedule was one of the reasons for not completing or sending the survey.

Although effort was taken to design the questionnaires with minimal technical jargon a few respondents were not aware of some specific terms used in the questionnaire, for instance, business value, and benefit realisation techniques, where one or two respondents specified "don't know what it means". As a result they were unable to complete some of the sections.

7.5 Research contributions

Despite these limitations, this research and its findings form a useful contribution to the body of knowledge regarding New Zealand's management of strategic information

systems. As discussed previously there was no prior NZ research done in IS/IT management from a business benefit realisation perspective. Therefore this research provides a first sense of the scenario in New Zealand.

One of the most important contributions of this study is the survey instrument employed to carry out this research. It was developed as a result of analysis of various underlying factors of IT practices globally. First a concise framework was designed considering these factors (illustrated in Figure 4.1 and Figure 6.1). Based on this framework, the structure of the questionnaire was designed (Figure 4.2). This structure enabled the framing of relevant questions in each particular section. Some of the questions addressed in the associated Australian survey (Lin & Pervan, 2003) were included having been made specific to the current study. The questionnaire was validated by pre-testing with faculty members, co-Masters students, and experienced personnel in finance management, followed by a pilot survey of 20 organisations for each group (IT and finance). Therefore this survey instrument could be useful for similar studies.

Second, the above mentioned concise framework (Figure 4.1 & Figure 6.1) is also considered to be a contribution of this work. This framework was developed by analysing the literature in the area of IT management and various BR models. Organisations could use this framework to identify strengths and weaknesses in their current IS/IT practices, and to analyse the missing links between the approaches. This framework, although basic, is at an appropriate level given the lack of maturity of NZ organisations regarding business benefits and will suggest directions for them to enhance their practices.

Third, as stated in the limitations section, although a group-wise comparison (SMEs vs. large organisations, public vs. private sector organisations, national vs. multinational organisations) of IS/IT practices could not be carried out in the manner intended, the discussion in chapter 6 does provide an in-depth comparison of IT and finance managers' perspectives with regard to their IS/IT practices and BR practices. Although small in number, these respondents have highlighted the important issues and some useful suggestions for best practice, which could be picked up by other organisations.

Fourth, the response set size not withstanding, the issues identified from the IT and finance managers' surveys enabled us to draw some useful recommendations for

practice. These recommendations are the result of our analysis of various issues that influenced the adoption of BR models among the responding organisations.

Finally, the contributions and limitations of this study also suggest opportunities for future research, as detailed in the final section of this thesis.

7.6 Implications for future research

As mentioned previously, the current study can be considered as providing baseline research by investigating the key factors underlying the adoption of BR models. The research findings have identified several different avenues for future in-depth analysis.

First, this research can be further extended by adopting a case study approach to investigate a specific organisation's attitude to and use of BR by conducting interviews with IT staff, business executives and users within the same organisation. The concise framework and the research structure will be useful in developing the research instrument and in assisting researchers to analyse varying managerial perspectives within the same organisation. Likewise, to obtain more in-depth analysis this could be done for at least two SMEs and two large organisations from a particular industry sector to provide greater understanding of managerial views regarding BR adoption from a particular industry perspective.

Second, a similar study undertaken in Australia (Lin & Pervan, 2003), that compared the BR practices among organisations with BR models vs. organisations without BR models, could be carried out in NZ to understand the cost and benefits arising from BR model use. However at least in terms of the current study's findings there are no organisations that have adopted BR models in NZ. Instead a future researcher could identify an organisation that is interested in BR techniques and could help them to introduce a BR model in that organisation using an action research approach. Throughout this process they could analyse the organisation's current situation and managerial perspectives. After the BR model is introduced, regular interviews could be conducted prior to project implementation, during the implementation and after the implementation at regular intervals. In this manner the researcher could compare the perspectives of IT, business executives and other stakeholders regarding their practices and expectations. This would enable the researcher to assess the performance and impact of the model.

Third, research could also be conducted to formulate hypotheses from this exploratory research's findings that could form the basis of future confirmatory research.

Fourth, another survey could be pursued targeting a higher response rate. This may facilitate some useful confirmatory conclusions or the development of some new hypotheses.

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APPENDICES

Appendix A Research instrument (Australian study)

Questionnaire

IS/IT BENEFITS MANAGEMENT SURVEY

School of Information Systems

CURTIN UNIVERSITY OF TECHNOLOGY

SURVEY QUESTIONNAIRE

General Instructions

- **Please answer all the questions**

(it should take 20 to 30 minutes, depending on the detail of the replies)

- **Please add any comments about the questionnaire at the end**

WE GUARANTEE THAT ALL RESPONSES WILL BE TREATED IN CONFIDENCE AND THAT NO PARTICIPANTS WILL BE IDENTIFIED

Thank you for participating in this survey

Please use the enclosed envelope to send your completed questionnaire and any queries.

CORPORATE BACKGROUND INFORMATION

1) Which industry is your organisation primarily in (i.e. manufacturing, mining, retailing)?		
2) What is the size of your organisation in terms of net revenue (A$m)?		
3) What is the size of your organisation in terms of total employees?		
4) Would your describe your organisation as:		a multinational ❑ OR a national only ❑ organisation
5) How would you best describe your organisational structure?	a) Hierarchical ❑ OR Flat ❑ (choose one) b) Centralised ❑ OR De-centralised ❑ (choose one) c) Cross-Functional ❑ OR Divisional/Functional ❑ (choose one)	

BACKGROUND INFORMATION

6) Do you come from an IS/IT background?		Yes ❑ No ❑
7) What is the position, in your organisation, of the Head of the IS/IT department relative to the Chief Executive, i.e. how many reporting levels are there between the IS/IT Head and the Chief Executive? (choose one only)		Direct Link ❑ One Level ❑ Two Levels ❑ Three or more Levels ❑
8) What are the three most serious issues currently concerning you in your role as an IS/IT manager?	1. 2. 3.	
9) Which of the following categories would you describe IS/IT applications as fulfilling in your organisation? a) IS/IT provides a support role which is not critical to everyday operations b) IS/IT provides key operational process which are essential to everyday operations c) IS/IT is of strategic importance to the organisation d) IS/IT is used to develop processes which may become important in the future		 a) Yes ❑ No ❑ b) Yes ❑ No ❑ c) Yes ❑ No ❑ d) Yes ❑ No ❑
10) Are any of your organisation's IT functions outsourced?		Yes ❑ No ❑
11) If yes, please indicate the appropriate proportion for each of the following outsourced: a) systems development b) user support c) telecommunication / networking d) operation e) project management f) IS/IT planning g) other		 a) ____% outsourced b) ____% outsourced c) ____% outsourced d) ____% outsourced e) ____% outsourced f) ____% outsourced g) ____% outsourced

GENERAL QUESTIONS

12) What types of benefits do your senior managers perceive are being provided by IS/IT?		
13) How confident are *you* that IS/IT is actually delivering these benefits to your organisation?	(Not at all) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ (Very)	
14) Please explain why do you think this is the case?		
15) About how many IS/IT projects of the following size has your organisation implemented in the last 12 months?	a) < A$1 million? ____ projects b) A$1-10 million? ____ projects c) > A$10 million? ____ projects d) none? ____ projects	
16) About how many IS/IT projects of the following size is your organisation planning to implement in the next 12 months?	a) < A$1 million? ____ projects b) A$1-10 million? ____ projects c) > A$10 million? ____ projects d) none? ____ projects	

17) Does your organisation have: a) a systems development methodology (such as SSADM)? b) a project management methodology (such as PRINCE)? c) a formal IS/IT investment appraisal process? d) an IS/IT benefits management methodology?	 a) Yes ❑ No ❑ b) Yes ❑ No ❑ c) Yes ❑ No ❑ d) Yes ❑ No ❑
18) How widely are they used? a) systems development methodology? b) project management methodology? c) formal IS/IT investment appraisal process? d) IS/IT benefits management methodology?	(Not at all) (Extensively) a) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ b) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ c) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ d) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑
19) How effective are they in ensuring successful information systems? a) systems development methodology? b) project management methodology? c) formal IS/IT investment appraisal process? d) IS/IT benefits management methodology?	(Not at all) (Extensively) a) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ b) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ c) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑ d) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑

IDENTIFYING AND STRUCTURING BENEFITS

20) What are the underlying issues that drive your organisation's investment in IS/IT?	
21) Do you have a process that ensures that IS/IT projects are linked to business objectives?	Yes ❑ No ❑
22) If yes, please outline this process	
23) What types of benefits do you consider when planning IS/IT projects?	
24) Do you include intangible benefits in your IS/IT project appraisal process?	Yes ❑ No ❑
25) What methods and techniques does your organisation use to decide upon IS/IT investments?	
26) How appropriate do you consider them to be?	(Not at all) (Very) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑
27) If you ticked a box less than 5, what do you think are the problems with the approach?	
28) Describe any particular consequences of these problems?	
29) Who is primarily responsible for preparing and submitting the justification for approval? a) IT management? b) business management? c) others (please specify)	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) Who?
30) Do you believe that your current process: a) identifies all available benefits for a project? b) adequately quantifies the relevant benefits? c) overstates the benefits in order to get approval?	 a) Yes ❑ No ❑ b) Yes ❑ No ❑ c) Yes ❑ No ❑
31) Does your organisation currently use pilot studies when implementing IS/IT?	Yes ❑ No ❑

32) If yes, what are the objectives of the pilot study? a) to evaluate technology? b) to understand the benefits available? c) to demonstrate how to realise the benefits? d) other? (please specify)	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d)

PLANNING BENEFITS REALISATION

33) Do you appoint a "Business Project Manager" for major IS/IT developments?	Yes ❑ No ❑
34) If yes, what is the primary role of that Business Project Manager?	
35) Do you allocate specific responsibility to managers for realising the business benefits claimed in the justification?	Yes ❑ No ❑
36) If yes, what action is the responsible manager expected to take?	1) 2) 3)
37) How do you ensure that IS/IT projects will deliver benefits to all relevant users?	

38) When would you normally plan any <u>process changes</u> which would be associated with IS/IT projects: a) before approval? b) during system design? c) during implementation? d) when the system has been implemented? e) not at all?	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) ❑ ❑ ❑ ❑ ❑ e) ❑ ❑ ❑ ❑ ❑
39) Who is normally responsible for planning such process changes?	
40) When would you normally plan any <u>organisational changes</u> which would be associated with an IS/IT project: a) before approval? b) during system design? c) during implementation? d) when the system has been implemented? e) not at all?	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) ❑ ❑ ❑ ❑ ❑ e) ❑ ❑ ❑ ❑ ❑
41) Who is normally responsible for planning such organisational changes?	
42) Do you prepare a benefits delivery plan?	Yes ❑ No ❑
43) If yes, at what stage is the plan prepared? a) before approval? b) during system design? c) during implementation? d) when the system has been implemented?	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) ❑ ❑ ❑ ❑ ❑

DELIVERING THE BENEFITS

44) Who is primary responsible for ensuring that the benefits which have been identified are delivered: a) senior management? b) line/departmental managers? c) users? d) IS/IT specialists? e) other? (please specify who)	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) ❑ ❑ ❑ ❑ ❑ e) Who?
45) During the implementation process, do you hold formal reviews of activities associated with delivering benefits?	Yes ❑ No ❑
46) As a result of monitoring benefit-realising activities, would any changes be made to either the system design or the implementation approach?	Yes ❑ No ❑

EVALUATING AND REVIEWING RESULTS

47) How do you currently conclude whether or not an IS/IT project has been successful?	
48) At what stage in the process are any measures of success normally defined: a) before project approval? b) before implementation? c) after implementation? d) measures not defined?	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) ❑ ❑ ❑ ❑ ❑
49) Are intangible benefits ever regarded as a major success criteria?	Never Rarely Sometimes Often Always ❑ ❑ ❑ ❑ ❑
50) Does your organisation conduct any formal post-implementation project reviews?	Yes ❑ No ❑
51) If yes: a) what form do they take?	a)
b) how long after implementation are they held?	b)
c) If yes, who is normally involved in these reviews?	c)
52) If yes, what are the objectives of these reviews: a) technical conformance? b) project management effectiveness? c) benefits delivery? d) other? (please specify)	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑ c) ❑ ❑ ❑ ❑ ❑ d) What?
53) Do you take steps to review any intangible benefits that were claimed at the justification stage?	Never Rarely Sometimes Often Always ❑ ❑ ❑ ❑ ❑
54) If you do conduct some form of benefit evaluation, are the results fed back to whoever approved the project?	Yes ❑ No ❑
55) Do you have a formal process to ensure that the lessons learned from successful (or unsuccessful) implementations are transferred to future projects?	Yes ❑ No ❑

POTENTIAL FOR FURTHER BENEFITS

56) Do you believe that it is possible to anticipate all potential benefits at the project approval stage?	Yes ❑ No ❑
57) Do you believe that, in general, the achievable benefits can change during implementation so that: a) new benefits are identified? b) benefits claimed become unachievable?	Never Rarely Sometimes Often Always a) ❑ ❑ ❑ ❑ ❑ b) ❑ ❑ ❑ ❑ ❑
58) Do you have a formal process to identify any further benefits after implementation?	Yes ❑ No ❑
59) Do you normally take any action after implementation to realise these further benefits?	Yes ❑ No ❑
60) If you do, who is responsible for this action?	
61) Given the increasing demand from senior managers for value for money from IS/IT, and taking your previous answers into consideration, what is the scope for improvement in your current approach to managing IS/IT benefits?	(No improvement needed) (Scope for significant improvement) 1 ❑ 2 ❑ 3 ❑ 4 ❑ 5 ❑

Appendix B IT managers' survey instrument

Obtaining Business Benefits from IS/IT Investments

SURVEY QUESTIONNAIRE

Organisations are increasingly reliant on Information Technology (IT) and on the Information Systems (IS) that utilise current technologies. Yet in general it appears that organisations find it difficult to justify investments in IS/IT. In part this is because recognising, valuing and realising the business benefits of these investments is highly complex.

The purpose of this survey is to collect information so that we can develop a fuller understanding regarding the use of IS/IT benefit realisation methodologies in New Zealand as part of the process for justifying IS/IT investments. The information collected by this survey will contribute to the development of strategies for the management and evaluation of IS/IT initiatives in New Zealand organisations.

By completing this questionnaire you will provide us with valuable information relating to the evaluation of IS/IT investments and the various procedures that enable business benefits to be realised from such investments. In turn, on request we will provide you with a summary of the results that you can use to benchmark your practices against those of your industry peers (details are on the last page of this questionnaire).

Please complete this form and use the enclosed pre-paid envelope to send us your completed questionnaire. Any queries you have regarding this questionnaire or the wider project of which it is a part can be directed to Professor Stephen MacDonell (smacdone@aut.ac.nz) or Saritha Kodthuguli (sarkod88@aut.ac.nz).

Participants Concerns:
Concerns regarding the conduct of the research should be notified to:
The Executive Secretary, AUTEC, Madeline Banda, madeline.banda@aut.ac.nz , 917 9999, ext 8044.

Approved by the Auckland University of Technology Ethics Committee,
Reference Number: 04/37

WE GUARANTEE THAT ALL RESPONSES WILL BE TREATED IN CONFIDENCE AND THAT NO PARTICIPANTS WILL BE IDENTIFIED

Thank you for participating in this survey

Questionnaire Version 2.1

CORPORATE BACKGROUND INFORMATION

1. Which business category *best* describes your organisation?

Communications and Media	❑	Government (Central and local)	❑
Construction and Engineering	❑	IT, Legal, Business, Property Svcs	❑
Distribution, Transport, Storage	❑	Manufacturing and processing	❑
Education, Health, Community Svcs	❑	Primary industries	❑
Electricity, Gas and Water Utilities	❑	Finance, Insurance, Banking	❑
Tourism, Accomm., Food Services	❑	Other (please specify)	❑
Wholesale and retail trade	❑	_____	

2. What is the size of your organisation in terms of full-time equivalent employees?

0-19	❑	250-499	❑
20-49	❑	500-999	❑
50-99	❑	1000 or more	❑
100-249	❑		

3. Would you describe your organisation as national ❑ or multi-national ❑?

4. How would you characterise your organisational structure?

Hierarchical	❑	OR	flat	❑
Centralised	❑	OR	de-centralised	❑
Cross-functional	❑	OR	divisional/functional	❑

IS BACKGROUND INFORMATION

5. What is the size of your organisation's IS/IT function in terms of full-time equivalent employees?

0-19	❑	250-499	❑
20-49	❑	500-999	❑
50-99	❑	1000 or more	❑
100-249	❑		

6. What proportion of your organisation's *capital budget* was committed to IS/IT spending in the current financial year?

_____%

7. What proportion of your organisation's *operations budget* was committed to IS/IT spending in the current financial year?

_____%

8. How has overall expenditure on IS/IT changed in the *last* two years?

Increased substantially	❑	Increased	❑	Stayed the same	❑
Decreased	❑	Decreased substantially	❑		

9. How do you expect overall expenditure on IS/IT to change in the *next* two years?

Increase substantially	❑	Increase	❑	Stay the same	❑
Decrease	❑	Decrease substantially	❑		

10. Which of the following statements *best* describes the role of IS/IT in your organisation?

IS/IT provides a support role that is not critical to everyday operations ❑
IS/IT enables key operational processes that are essential to everyday operations ❑
IS/IT is of ongoing strategic importance to the organisation ❑

11. Who is directly responsible for the management of the IS/IT function?

CEO	❑	Facilities Manager	❑
CIO	❑	IS/IT Manager	❑
CFO	❑	Systems Administrator	❑
Chief Accountant	❑		

12. Who is primarily responsible for :

	IS/IT management	Business management	Other (please specify)
preparing proposals for IS/IT investment?	❑	❑	❑ _____
justifying proposals for IS/IT investment?	❑	❑	❑ _____
reviewing whether IS/IT investments have been worthwhile	❑	❑	❑ _____

13. Do they use a formal IS/IT investment appraisal process?

Yes, on all projects	❑	Yes, on most	❑
Yes, on some	❑		
Yes, but infrequently	❑		
No	❑		

BUSINESS VALUE OF IS/IT

14. **What is the relationship between IS/IT and other functional areas of the organisation?**

IS/IT is at a *higher* level in the organisational hierarchy ❑
IS/IT at the *same* level in the organisational hierarchy ❑
IS/IT is at a *lower* level in the organisational hierarchy ❑

15. In your organisation, what are the main areas of business to which IS/IT projects have positively contributed?

_____
_____
_____
_____

16. What types of business benefits do your senior managers perceive are being provided by IS/IT? (Tick all that apply)

Competitive advantage	❑	Cost savings	❑
Process efficiency	❑	Other (please specify)	❑

Satisfying information needs ❑ _____
Service Quality ❑

17. How confident are you that IS/IT is actually delivering these business benefits?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

18. Do you prepare a business benefits delivery plan for IS/IT investments?

Yes, on all projects ❑
Yes, on most ❑
Yes, on some ❑
Yes, but infrequently ❑
No ❑

If you answered 'Yes' to Q.18, is the benefit delivery plan revisited: (Tick all that apply)

	Never	Rarely	Sometimes	Often	Always
during project execution?	❑	❑	❑	❑	❑
on completion of the project?	❑	❑	❑	❑	❑

19. How important is business value in prioritising IS/IT projects?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

20. What management processes are used to link business value to IS/IT initiatives?

_____
_____
_____
_____

21. How important is business value as a measure of success of an IS/IT project?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

22. How is the business value of an IS/IT project measured? (Tick all that apply)

Time ❑
Effort ❑
Dollars ❑
Other (please specify) ❑ _____

23. When is business value estimated or measured? (Tick all that apply)

	Never	Rarely	Sometimes	Often	Always
During project planning	❑	❑	❑	❑	❑
During project execution	❑	❑	❑	❑	❑
On completion of the project	❑	❑	❑	❑	❑
Some time after completion	❑	❑	❑	❑	❑

24. In your opinion how effective is your current business value management process in:

	Very	Quite	Not at all	Not sure
identifying the business value likely to accrue from an IS/IT project?	❑	❑	❑	❑
quantifying the relevant benefits?	❑	❑	❑	❑

ensuring delivery of business value?	❑	❑	❑	❑
informing future decisions regarding IS/IT projects?	❑	❑	❑	❑

25. What would you like to change about your current process in order to ensure that IS/IT projects deliver business value?

_____
_____
_____
_____
_____

BENEFIT REALISATION PRACTICES

26. How do you currently manage the process of realising business benefits from IS/IT projects?

_____
_____
_____
_____

27. Do you consider benefits accruing to:

the organisation? ❑ **the business area?** ❑ **the IT group?** ❑ **users?** ❑

28. Do you use a formal benefit realisation or value management framework for IS/IT investments?

Yes, a published model	❑
Yes, a model provided by consultants	❑
Yes, a method developed in-house	❑
No	❑

If you answered 'No' to Q.28 please skip to Q.35

29. Why did you choose your framework this way? (Tick all that apply)

Most cost-effective	❑
Mandated by head office	❑
Fits organisational culture	❑
Other (please specify)	❑ _____

30. Do you *use* any published framework? (Tick all that apply)

Yes, Cranfield	❑
Yes, DMR	❑
Yes, ABR	❑
Yes, other (please specify)	❑ _____
No	❑

31. In your view, how effective is your framework in delivering business benefits from IS/IT investments?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

32. What positive or negative experiences have you had in using the framework?

Positive: _____

_____
_____
_____

Negative:_____
_____
_____
_____

33. What would you like to change in the framework(s) you are using?

_____
_____
_____
_____

34. How extensively is your organisation using the benefit realisation framework(s) for IS/IT investments?

On all projects ❑
On most ❑
On some ❑
Infrequently ❑

35. Are you *aware of* any published benefit realisation frameworks? (Tick all that apply)

Cranfield ❑
DMR ❑
ABR ❑
Other (please specify) ❑ _____
No ❑

36. If you are aware of but do not use any formal frameworks, why not? (Tick all that apply)

Too expensive ❑
Too cumbersome ❑
Doesn't fit our process ❑
Don't see the need ❑
Other (please specify) ❑ _____

37. What would need to change in order for you to use one or more of the frameworks?

_____
_____
_____
_____

38. How well informed do you think your organisation is regarding IS/IT business benefit realisation techniques?

Very ❑ Somewhat ❑ Not at all ❑

Obtaining Business Benefits from IS/IT Investments

SUPPLEMENTARY SHEET

Please complete this sheet or enclose your business card if you would like to receive summary results from this survey. You may either:

- **return this sheet or enclose your business card with the questionnaire in the reply-paid envelope; or**
- **return this sheet or enclose your business card separately (see below for the address).**

IN ANY CASE, WE GUARANTEE THAT ALL RESPONSES TO THE MAIN SURVEY FORM WILL BE TREATED IN CONFIDENCE AND THAT NO PARTICIPANTS WILL BE IDENTIFIED

YOUR NAME:

COMPANY:

ADDRESS:

TELEPHONE NUMBER:

Please send me a summary of the survey results: **Yes** ❑ **No** ❑

Please use the enclosed envelope to send your completed questionnaire and any queries. If you decide to send your business card or any queries separately, please address these to:

Dr Stephen MacDonell
Professor of Software Engineering
School of Computer and Information Sciences
Auckland University of Technology
Private Bag 92006
Auckland

Appendix C Finance managers' survey instrument

Obtaining Business Benefits from IS/IT Investments

SURVEY QUESTIONNAIRE

Organisations are increasingly reliant on Information Technology (IT) and on the Information Systems (IS) that utilise current technologies. Yet in general it appears that Organisations find it difficult to justify investments in IS/IT. In part this is because recognising, valuing and realising the business benefits of these investments is highly complex.

The purpose of this survey is to collect information so that we can develop a fuller understanding regarding the use of IS/IT benefit realisation methodologies in New Zealand as part of the process for justifying IS/IT investments. The information collected by this survey will contribute to the development of strategies for the management and evaluation of IS/IT initiatives in New Zealand organisations.

By completing this questionnaire you will provide us with valuable information relating to the evaluation of IS/IT investments and the various procedures that enable business benefits to be realised from such investments. In turn, on request we will provide you with a summary of the results that you can use to benchmark your practices against those of your industry peers (details are on the last page of this questionnaire).

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Concerns regarding the conduct of the research should be notified to:
The Executive Secretary, AUTEC, Madeline Banda, madeline.banda@aut.ac.nz , 917 9999, ext 8044.

Approved by the Auckland University of Technology Ethics Committee,
Reference Number: 04/37

WE GUARANTEE THAT ALL RESPONSES WILL BE TREATED IN CONFIDENCE AND THAT NO PARTICIPANTS WILL BE IDENTIFIED

Thank you for participating in this survey

Questionnaire Version 1.1

CORPORATE BACKGROUND INFORMATION

1. Which business category *best* describes your organisation?

Communications and Media	❑	Government (Central and local)	❑
Construction and Engineering	❑	IT, Legal, Business, Property Svcs	❑
Distribution, Transport, Storage	❑	Manufacturing and processing	❑
Education, Health, Community Svcs	❑	Primary industries	❑
Electricity, Gas and Water Utilities	❑	Tourism, Accomm., Food Services	❑
Finance, Insurance, Banking	❑	Wholesale and retail trade	❑
Other (please specify)	❑	_____	

2. What is the size of your organisation in terms of full-time equivalent employees?

0-19	❑	250-499	❑
20-49	❑	500-999	❑
50-99	❑	1000 or more	❑
100-249	❑		

3. Would you describe your organisation as national ❑ or multi-national ❑?

4. How would you characterise your organisational structure?

Hierarchical	❑	OR	flat	❑
Centralised	❑	OR	de-centralised	❑
Cross-functional	❑	OR	divisional/functional	❑

IS BACKGROUND INFORMATION

5. How has overall expenditure on IS/IT changed in the *last* two years?

Increased substantially	❑	Increased	❑	Stayed the same	❑
Decreased	❑	Decreased substantially	❑		

6. How do you expect overall expenditure on IS/IT to change in the *next* two years?

Increase substantially	❑	Increase	❑	Stay the same	❑
Decrease	❑	Decrease substantially	❑		

7. Which of the following statements *best* describes the role of IS/IT in your organisation?

IS/IT provides a support role that is not critical to everyday operations	❑
IS/IT enables key operational processes that are essential to everyday operations	❑
IS/IT is of ongoing strategic importance to the organisation	❑

8. Who is primarily responsible for :

	IS/IT management	Business management	Other (please specify)
preparing proposals for IS/IT investment?	❑	❑	❑ _____
justifying proposals for IS/IT investment?	❑	❑	❑ _____
reviewing whether IS/IT investments have been worthwhile	❑	❑	❑ _____

9. Do they use a formal IS/IT investment appraisal process?

Yes, on all projects	❑	Yes, on most	❑
Yes, on some	❑		
Yes, but infrequently	❑		
No	❑		

BUSINESS VALUE OF IS/IT

10. What is the relationship between IS/IT and other functional areas of the organisation?

IS/IT is at a higher level in the organisational hierarchy	❑
IS/IT at the same level in the organisational hierarchy	❑
IS/IT is at a lower level in the organisational hierarchy	❑

11. In your organisation, what are the main areas of business to which IS/IT projects have positively contributed?

_____
_____
_____
_____

12. What types of business benefits do your senior managers perceive are being provided by IS/IT? (Tick all that apply)

Competitive advantage	❑	Cost savings	❑
Process efficiency	❑	Other (please specify)	❑
Satisfying information needs	❑	_____	
Service quality	❑		

13. How confident are you that IS/IT is actually delivering these business benefits?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

14. Do you prepare a business benefits delivery plan for IS/IT investments?

Yes, on all projects ❑
Yes, on most ❑
Yes, on some ❑
Yes, but infrequently ❑
No ❑

If you answered 'Yes' to Q.14, is the benefit delivery plan revisited: (Tick all that apply)

	Never	Rarely	Sometimes	Often	Always
during project execution?	❑	❑	❑	❑	❑
on completion of the project?	❑	❑	❑	❑	❑

15. How important is business value in prioritising IS/IT projects?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

16. What management processes are used to link business value to IS/IT initiatives?

17. How important is business value as a measure of success of an IS/IT project?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

18. How is the business value of an IS/IT project measured? (Tick all that apply)

Time ❑
Effort ❑
Dollars ❑
Other (please specify) ❑ _____

19. When is business value estimated or measured? (Tick all that apply)

	Never	Rarely	Sometimes	Often	Always
During project planning	❑	❑	❑	❑	❑
During project execution	❑	❑	❑	❑	❑
On completion of the project	❑	❑	❑	❑	❑
Some time after completion	❑	❑	❑	❑	❑

20. In your opinion how effective is your current business value management process in:

	Very	Quite	Not at all	Not sure
identifying the business value likely to accrue from an IS/IT project?	❑	❑	❑	❑
quantifying the relevant benefits?	❑	❑	❑	❑
ensuring delivery of business value?	❑	❑	❑	❑
informing future decisions regarding IS/IT projects?	❑	❑	❑	❑

21. What would you like to change about your current process in order to ensure that IS/IT projects deliver business value?

_____
_____
_____
_____

BENEFIT REALISATION PRACTICES

22. How do you currently manage the process of realising business benefits from IS/IT projects?

_____
_____
_____
_____

23. Do you consider benefits accruing to:
the organisation? ❑ the business area? ❑ the IT group? ❑ users? ❑

24. Do you use a formal benefit realisation or value management framework for IS/IT investments?

Yes, a published model ❑
Yes, a model provided by consultants ❑
Yes, a method developed in-house ❑
No ❑

If you answered 'No' to Q.24 please skip to Q.31

25. Why did you choose your framework this way? (Tick all that apply)

Most cost-effective ❑
Mandated by head office ❑
Fits organisational culture ❑
Other (please specify) ❑ _____

26. Do you *use* any published framework? (Tick all that apply)

Yes, Cranfield ❑
Yes, DMR ❑
Yes, ABR ❑
Yes, other (please specify) ❑ _____
No ❑

27. In your view, how effective is your framework in delivering business benefits from IS/IT investments?

Very ❑ Quite ❑ Not at all ❑ Not sure ❑

28. What positive or negative experiences have you had in using the framework?

Positive:

_____
_____
_____

Negative:

_____
_____
_____

29. What would you like to change in the framework(s) you are using?

_____
_____
_____
_____
_____

30. How extensively is your organisation using the benefit realisation framework(s) for IS/IT investments?

On all projects	❑
On most	❑
On some	❑
Infrequently	❑

31. Are you *aware of* any published benefit realisation frameworks? (Tick all that apply)

Cranfield	❑
DMR	❑
ABR	❑
Other (please specify)	❑ _____
No	❑

32. If you are aware of but do not use any formal frameworks, why not? (Tick all that apply)

Too expensive	❑
Too cumbersome	❑
Doesn't fit our process	❑
Don't see the need	❑
Other (please specify)	❑ _____

33. What would need to change in order for you to use one or more of the frameworks?

_____
_____
_____

34. How well informed do you think your organisation is regarding IS/IT business benefit realisation techniques?

Very ❑ Somewhat ❑ Not at all ❑

Obtaining Benefits from IS/IT Investments

SUPPLEMENTARY SHEET

Please complete this sheet or enclose your business card if you would like to receive summary results from this survey. You may either:

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- **return this sheet or enclose your business card separately (see below for the address).**

IN ANY CASE, WE GUARANTEE THAT ALL RESPONSES TO THE MAIN SURVEY FORM WILL BE TREATED IN CONFIDENCE AND THAT NO PARTICIPANTS WILL BE IDENTIFIED

YOUR NAME:

COMPANY:

ADDRESS:

TELEPHONE NUMBER:

Please send me a summary of the survey results: **Yes** ❑ **No** ❑

Please use the enclosed envelope to send your completed questionnaire and any queries. If you decide to send your business card or any queries separately, please address these to:

Dr Stephen MacDonell
Professor of Software Engineering
School of Computer and Information Sciences
Auckland University of Technology
Private Bag 92006
Auckland

Appendix D Covering letter – pilot survey

To,
The …….. Manager
…..
…..
…..

27th February 2004

Dear Sir/Madam

Pilot Study – Business Benefit Realisation from Information Technology Investments

Professor Stephen MacDonell and I are conducting research on the way New Zealand organisations gain business benefits from the investments they make in information technology and information systems. We have not always got the best out of these investments, but evidence suggests that this can be improved if we do a better job of identifying, managing and evaluating IS/IT related business benefits. Your organisation has been carefully selected to assist with a short postal survey on this important topic, based on its size and business sector.
By completing the enclosed questionnaire you will provide us with valuable information relating to the evaluation of IS/IT projects and the various procedures that enable business benefits to be realised. In turn, on request we will provide you with a summary of the results that you can use in order to benchmark your practices against those of your industry peers.

Please be assured that your answers will be completely confidential. Survey responses will be viewed only by Professor MacDonell and myself. Data from your response will be separated out, and only aggregated results will be released, so no individual responses can be identified. Your identity will never be connected to your answers in any way. At the end of the study, the data will be held securely at Auckland University of Technology for six years before it is destroyed.

Your participation in the survey is completely voluntary. However, you can help us very much by taking the time to share your organisation's experiences of IT investment, value management and benefit realisation. If for some reason you are not able to answer questions relating to these issues, we would appreciate you forwarding this letter and the enclosed questionnaire on to the person in your organisation who can.

We would be grateful if you could find time to complete the survey as soon as possible within the next two weeks. If you have any questions or comments about the survey or the wider study, or you have difficulty in completing the survey, please email us at sarkod88@aut.ac.nz. Thank you very much for your help with this important study.

Yours sincerely

Saritha Kodthuguli

Please note that as this is a pilot study we are especially interested in your feedback regarding the questionnaire itself – length, any ambiguous questions, unclear instructions. We would be grateful if you would add any comments of this nature to the questionnaire itself, or email them to us separately at sarkod88@aut.ac.nz. We would also appreciate you telling us how long it took you to complete the questionnaire, on the final page of the survey. Thank you.

Appendix E Covering letter - primary survey

To,

The …… Manager
….
….
….

29th March 2004

Dear Sir/Madam

Business Benefit Realisation from Information Technology Investments

Professor Stephen MacDonell and I are conducting research on the way New Zealand organisations gain business benefits from the investments they make in information technology and information systems. We have not always got the best out of these investments, but evidence suggests that this can be improved if we do a better job of identifying, managing and evaluating IS/IT related business benefits. Your organisation has been carefully selected to assist with a short postal survey on this important topic, based on its size and business sector.

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We would be grateful if you could find time to complete the survey as soon as possible within the next two weeks. If you have any questions or comments about the survey or the wider study, or you have difficulty in completing the survey, please email us at sarkod88@aut.ac.nz.
Thank you very much for your help with this important study.

Yours Sincerely

Saritha Kodthuguli

Appendix F Covering letter – follow-up survey

To,
The .. Manager
….
…
…

27th April 2004

Dear Sir/ Madam

Business Benefit Realisation from Information Technology Investments – Reminder

You have already received a copy of this survey that Professor MacDonell and I are conducting, on the way New Zealand organisations gain business benefits from the investments they make in information technology and information systems. Your organisation has been carefully selected to assist with a short postal survey on this important topic, based on its size and business sector.

We are still very keen to receive your response, as this will help us to ensure that your view is represented in the overall results presented. It may take 10-15mins of you time. We do understand that you are busy but we are reliant on organisation like yours to give our conclusion the necessary level of evidence.

By completing the enclosed questionnaire you will provide us with valuable information relating to the evaluation of IS/IT projects and the various procedures that enable business benefits to be realised. In turn, on request we will provide you with a summary of the results that you can use in order to benchmark your practices against those of your industry peers.

Please be assured that your answers will be completely confidential. Survey responses will be viewed only by Professor MacDonell and myself. Data from your response will be separated out, and only aggregated results will be released, so no individual responses can be identified. Your identity will never be connected to your answers in any way. At the end of the study, the data will be held securely at Auckland University of Technology for six years before it is destroyed.

Your participation in the survey is completely voluntary. However, you can help us very much by taking the time to share your organisation's experiences of IT investment, value management and benefit realisation. If for some reason you are not able to answer questions relating to these issues, we would appreciate you forwarding this letter and the enclosed questionnaire on to the person in your organisation who can.

We would be grateful if you could find time to complete the survey as soon as possible within the next two weeks. If you have any questions or comments about the survey or the wider study, or you have difficulty in completing the survey, please email us at sarkod88@aut.ac.nz.

Thank you very much for your help with this important study.

Yours Sincerely

Saritha Kodthuguli

Appendix G Survey sample

Appendix G1 Pilot survey

Organisations	Industry sectors
1. Independent Newspapers Limited	Communications and Media
2. MainZeal Group Limited	Construction and Engineering
3. Eden Hardware Group Ltd	Construction and Engineering
4. Owens Group Limited	Distribution, Transport, Storage
5. Waitemata District Health Board	Education, Health, Community Svcs
6. Unitec	Education, Health, Community Svcs
7. Shell New Zealand Holding Company Limited	Electricity, Gas and Water Utilities
8. Contact Energy	Electricity, Gas and Water Utilities
9. New Zealand Insurance	Finance, Insurance, Banking
10. Audit New Zealand	Finance, Insurance, Banking
11. Ministry of Education	Government (Central and local)
12. Trans Tasman Properties Limited	IT, Legal, Business, Property Svcs
13. KIWI cooperative Dairies Limited	Manufacturing and processing
14. The Westland Cooperative Dairy Co limited	Manufacturing and processing
15. Goodman Fielder (NZ) Limited	Manufacturing and processing
16. Southcorp NZ Limited	Manufacturing and processing
17. FERNZ corporation limited	Primary industries
18. Turners & Growers Ltd	Tourism, Accomm., Food Services
19. Blackmores (NZ) Ltd	Tourism, Accomm., Food Services
20. Mitre 10 (New Zealand) Limited	Wholesale and retail trade

Appendix G2 Sample selected for primary IT managers' survey

Organisations	Industry sectors
1. Alcatel New Zealand Ltd	Communications and Media
2. Answer Services N.Z. Ltd	Communications and Media
3. Aristocrat Technologies NZ Ltd	Communications and Media
4. AT&T Global Informations Solutions (NZ) Limited	Communications and Media
5. Brightpoint New Zealand Ltd	Communications and Media
6. Brooker's	Communications and Media
7. Callplus Limited	Communications and Media
8. CanWest New Zealand	Communications and Media
9. Cellular Cellnet (NZ) Ltd	Communications and Media
10. Christchurch Casinos Ltd	Communications and Media
11. Clear Communications	Communications and Media
12. Cogent Communications	Communications and Media
13. Color Communications Inc Australasia Ltd	Communications and Media
14. Ericsson Communications Limited	Communications and Media
15. Fintech Limited	Communications and Media
16. FUJITSU New Zealand Limited	Communications and Media
17. IDG Communications Ltd	Communications and Media
18. Jenkins Group Limited	Communications and Media
19. Lotteries Commission New Zealand	Communications and Media
20. Motorola New Zealand Limited	Communications and Media
21. New Zealand Post Limited	Communications and Media
22. Radio New Zealand Limited	Communications and Media
23. Rhema Broadcasting Group Inc	Communications and Media
24. Sky City Entertainment Group	Communications and Media
25. Telecom Corporation New Zealand Limited	Communications and Media
26. Television NewZealand Limited	Communications and Media
27. Telnet Services Ltd	Communications and Media
28. Telstrclear	Communications and Media
29. VeCommerce (NZ) Limited	Communications and Media
30. Vodafone New Zealand	Communications and Media
31. Zeacom Ltd	Communications and Media
32. Zintel Communications Ltd	Communications and Media
33. AB Equipment Limited	Construction and Engineering
34. Acrow Limited	Construction and Engineering
35. Adams Landscape Ltd	Construction and Engineering
36. Ajax Group A Division Of Austrim National Radiators Ltd	Construction and Engineering
37. Alstom New Zealand Limited	Construction and Engineering
38. Amalgamated Hardware Merchants Ltd	Construction and Engineering
39. Approved Building Certifiers Ltd	Construction and Engineering
40. APV New Zealand Limited	Construction and Engineering
41. Archimedia Ltd	Construction and Engineering
42. Architectus	Construction and Engineering
43. Argon Construction Ltd	Construction and Engineering
44. Asea Brown Boveri Limited	Construction and Engineering
45. Ash Air (NZ) Ltd	Construction and Engineering
46. Ashton Mitchell Architects	Construction and Engineering
47. Asmuss & Co Ltd, H.J.	Construction and Engineering
48. Babbage Consultants Ltd	Construction and Engineering
49. Babcock New Zealand Ltd	Construction and Engineering
50. Benchmark Building Supplies Ltd	Construction and Engineering
51. Brown Construction Co Ltd	Construction and Engineering
52. Canam Construction Ltd	Construction and Engineering
53. Carson Group (Akl) Ltd	Construction and Engineering

54.	Cemac Auckland Limited	Construction and Engineering
55.	Construction Marketing Services (1992) Ltd	Construction and Engineering
56.	Creative Spaces Limited	Construction and Engineering
57.	Crighton & Son Ltd, W.	Construction and Engineering
58.	Dispatch & Garlick Ltd	Construction and Engineering
59.	Dominion Constructors Ltd	Construction and Engineering
60.	Downer Construction (NZ) Ltd	Construction and Engineering
61.	Excell Corporation Limited	Construction and Engineering
62.	Exotic Building Supplies Ltd	Construction and Engineering
63.	Farra Dunedin Engineering Limited	Construction and Engineering
64.	Fencerite Industries Limited	Construction and Engineering
65.	Fletcher Challenge Limited	Construction and Engineering
66.	Forman Building Systems Ltd	Construction and Engineering
67.	Fulton Hogan Ltd	Construction and Engineering
68.	Godfrey Garrard Group Limited	Construction and Engineering
69.	Green Acres Franchise Group Ltd	Construction and Engineering
70.	Griffen & Smith Ltd	Construction and Engineering
71.	Ipsco Ltd	Construction and Engineering
72.	James Hardie New Zealand Limited	Construction and Engineering
73.	Miles Nelson Manufacturing Co Ltd	Construction and Engineering
74.	Northland Port Corporation (NZ) Limited	Construction and Engineering
75.	NZ Nail Industries Ltd	Construction and Engineering
76.	Potter Interior Systems Ltd	Construction and Engineering
77.	Programmed Maintenance Services (NZ) Ltd	Construction and Engineering
78.	Robt Stone & Co Ltd	Construction and Engineering
79.	Sinclair Knight Merz Limited	Construction and Engineering
80.	Sopers (NZ) Ltd	Construction and Engineering
81.	Transfield Services (New Zealand) Limited	Construction and Engineering
82.	United Gooder Ltd	Construction and Engineering
83.	Works Infrastructure Limited	Construction and Engineering
84.	Wren, James & Co Ltd	Construction and Engineering
85.	Auckland Co-operative Taxi Society Ltd	Distribution, Transport, Storage
86.	Bridgestone/Firestone New Zealand Ltd	Distribution, Transport, Storage
87.	Burnard International Ltd	Distribution, Transport, Storage
88.	Canon New Zealand Limited	Distribution, Transport, Storage
89.	Dunedin International Airport Ltd	Distribution, Transport, Storage
90.	EGL-Eagle Global Logistics NZ Ltd	Distribution, Transport, Storage
91.	Exel New Zealand Limited	Distribution, Transport, Storage
92.	FUJI Xerox NZ limited	Distribution, Transport, Storage
93.	Mainfreight Ltd	Distribution, Transport, Storage
94.	Massey University School Of Aviation	Distribution, Transport, Storage
95.	Merck Sharp & Dohme (NZ) Limited	Distribution, Transport, Storage
96.	Ports Of Auckland Ltd	Distribution, Transport, Storage
97.	Poultrymen's Cooperative Limited	Distribution, Transport, Storage
98.	Repco Merchants	Distribution, Transport, Storage
99.	Sony New Zealand Limited	Distribution, Transport, Storage
100.	South Pacific Tyres N.Z. Ltd	Distribution, Transport, Storage
101.	Stagecoach Auckland	Distribution, Transport, Storage
102.	Transmark Corporation Limited	Distribution, Transport, Storage
103.	Tranz Rail	Distribution, Transport, Storage
104.	Vehicle Testing NZ Limited	Distribution, Transport, Storage
105.	Youngman Richardson & Co Ltd	Distribution, Transport, Storage
106.	AgResearch	Education, Health, Community Svcs
107.	Auckland College of Education	Education, Health, Community Svcs
108.	Auckland district health board	Education, Health, Community Svcs
109.	Auckland University Of Technology	Education, Health, Community Svcs
110.	Bay of Plenty District Health Board	Education, Health, Community Svcs

111.	Cantebury district health board	Education, Health, Community Svcs
112.	Capital and Coast District Health Board	Education, Health, Community Svcs
113.	Christchurch College of Education	Education, Health, Community Svcs
114.	Christchurch Polytechnic Institute of Technology	Education, Health, Community Svcs
115.	Counties Manukau District Health Board	Education, Health, Community Svcs
116.	Diagnostic Medlab	Education, Health, Community Svcs
117.	Fisher & Paykel Healthcare Corporation Ltd	Education, Health, Community Svcs
118.	Hoechst New Zealand Limited	Education, Health, Community Svcs
119.	Hutt Valley District Health Board	Education, Health, Community Svcs
120.	Johnson & Johnson (NewZealand) Limited	Education, Health, Community Svcs
121.	Lincoln University	Education, Health, Community Svcs
122.	Manukau Institute of Technology	Education, Health, Community Svcs
123.	Massey University	Education, Health, Community Svcs
124.	MidCentral District Health Board	Education, Health, Community Svcs
125.	Otago District Health Board	Education, Health, Community Svcs
126.	Otago Polytechnic	Education, Health, Community Svcs
127.	Roche Products (New Zealand) Limited	Education, Health, Community Svcs
128.	Ryman Healthcare Ltd	Education, Health, Community Svcs
129.	Saint Kentigern Trust Board	Education, Health, Community Svcs
130.	Southern Cross Healthcare	Education, Health, Community Svcs
131.	Southern Insititute of Technology	Education, Health, Community Svcs
132.	Te Wanaga o Aotearoa	Education, Health, Community Svcs
133.	The National Institute of Water and Atm Research	Education, Health, Community Svcs
134.	University of Auckland	Education, Health, Community Svcs
135.	University of Canterbury	Education, Health, Community Svcs
136.	University of Otago	Education, Health, Community Svcs
137.	University of Waikato	Education, Health, Community Svcs
138.	Victoria University Of Wellington	Education, Health, Community Svcs
139.	Waikato District Health Board	Education, Health, Community Svcs
140.	Waikato Institute of Technology	Education, Health, Community Svcs
141.	Waikato Management School	Education, Health, Community Svcs
142.	Wellington Institute of Technology	Education, Health, Community Svcs
143.	West Coast District Health Board	Education, Health, Community Svcs
144.	Whitireia Community Polytechnic	Education, Health, Community Svcs
145.	Workbridge Inc	Education, Health, Community Svcs
146.	Air Liquide New Zealand Ltd	Electricity, Gas and Water Utilities
147.	BHP New Zealand Steel Limited	Electricity, Gas and Water Utilities
148.	BOC Gases New Zealand Limited	Electricity, Gas and Water Utilities
149.	BP New Zealand Holdings Limited	Electricity, Gas and Water Utilities
150.	Caltex Oil (NZ) Limited	Electricity, Gas and Water Utilities
151.	Capital Power limited	Electricity, Gas and Water Utilities
152.	Dunedin Electricity Ltd	Electricity, Gas and Water Utilities
153.	Electricity Corporation Of New Zealand limited	Electricity, Gas and Water Utilities
154.	Enerco New Zealand Limited	Electricity, Gas and Water Utilities
155.	Energy Efficiency And Conservation Authority	Electricity, Gas and Water Utilities
156.	Fuelquip Services Ltd	Electricity, Gas and Water Utilities
157.	Genesis Power Limited	Electricity, Gas and Water Utilities
158.	Gough Ltd, E.C.	Electricity, Gas and Water Utilities
159.	Gull Petroleum (NZ) Ltd	Electricity, Gas and Water Utilities
160.	Hawkes bay power Distribution limited	Electricity, Gas and Water Utilities
161.	Living Flame Ltd	Electricity, Gas and Water Utilities
162.	Mercury Energy Limited	Electricity, Gas and Water Utilities
163.	Meridian Energy Ltd	Electricity, Gas and Water Utilities
164.	Mighty River Power Limited	Electricity, Gas and Water Utilities
165.	Mobil Oil New Zealand Limited	Electricity, Gas and Water Utilities
166.	National Institute Of Water & Atmospheric Research Ltd - NIWA	Electricity, Gas and Water Utilities

167.	Natural Gas Corporation Holdings Ltd	Electricity, Gas and Water Utilities
168.	NGC Holdings Ltd	Electricity, Gas and Water Utilities
169.	NorthPower Limited	Electricity, Gas and Water Utilities
170.	Omya New Zealand Limited	Electricity, Gas and Water Utilities
171.	Power New Zealand Limited	Electricity, Gas and Water Utilities
172.	Rockgas Limited	Electricity, Gas and Water Utilities
173.	Solid Energy New Zealand Ltd	Electricity, Gas and Water Utilities
174.	Southpower Limited	Electricity, Gas and Water Utilities
175.	Spartan Engineering Co Ltd	Electricity, Gas and Water Utilities
176.	Taranaki Energy Limited	Electricity, Gas and Water Utilities
177.	The New Zealand Refining Co Limited	Electricity, Gas and Water Utilities
178.	Transpower New Zealand Limited	Electricity, Gas and Water Utilities
179.	TrustPower	Electricity, Gas and Water Utilities
180.	United networks Limited	Electricity, Gas and Water Utilities
181.	Vector Ltd	Electricity, Gas and Water Utilities
182.	A.M.I. Insurance	Finance, Insurance, Banking
183.	ABN AMRO New Zealand Ltd	Finance, Insurance, Banking
184.	ACE Insurance Limited	Finance, Insurance, Banking
185.	Allianz New Zealand Limited	Finance, Insurance, Banking
186.	Allied Finance Ltd	Finance, Insurance, Banking
187.	Alliott Thompson Francis Ltd	Finance, Insurance, Banking
188.	Amdel New Zealand Limited	Finance, Insurance, Banking
189.	American Banknote New Zealand Limited	Finance, Insurance, Banking
190.	ANZ Banking Group (New Zealand) Ltd	Finance, Insurance, Banking
191.	Aon Risk Services NZ Limited	Finance, Insurance, Banking
192.	Aoraki Corporation Limited	Finance, Insurance, Banking
193.	Apex Advice Group Ltd	Finance, Insurance, Banking
194.	ASB Bank Ltd	Finance, Insurance, Banking
195.	Ascent Business Directions Ltd	Finance, Insurance, Banking
196.	Auckland Finance Ltd	Finance, Insurance, Banking
197.	Auckland New Ventures Incorporated	Finance, Insurance, Banking
198.	Autex International Ltd	Finance, Insurance, Banking
199.	Bancorp New Zealand Ltd	Finance, Insurance, Banking
200.	Bank of New Zealand	Finance, Insurance, Banking
201.	Bank Of Tokyo - Mitsubishi (Australia) Ltd	Finance, Insurance, Banking
202.	Bartercard New Zealand Ltd	Finance, Insurance, Banking
203.	BAX Global (NZ) Limited	Finance, Insurance, Banking
204.	BDO Spicers	Finance, Insurance, Banking
205.	Brierley Investments Limited	Finance, Insurance, Banking
206.	Citibank, N.A.- New Zealand Branch	Finance, Insurance, Banking
207.	Deutsche Bank Ag	Finance, Insurance, Banking
208.	Fisher & Paykel Finance Limited	Finance, Insurance, Banking
209.	Hellaby Holdings Ltd	Finance, Insurance, Banking
210.	IAG New Zealand	Finance, Insurance, Banking
211.	ING (NZ) Limited	Finance, Insurance, Banking
212.	Polson Higgs & Co	Finance, Insurance, Banking
213.	Promina Group	Finance, Insurance, Banking
214.	Pyne Gould Corporation Limited	Finance, Insurance, Banking
215.	Reid Farmers Limited	Finance, Insurance, Banking
216.	Reserve Bank NZ	Finance, Insurance, Banking
217.	Royal & Sun Alliance (New Zealand) Limited	Finance, Insurance, Banking
218.	Sitel New Zealand Limited	Finance, Insurance, Banking
219.	Sovereign Assurance	Finance, Insurance, Banking
220.	The National Bank	Finance, Insurance, Banking
221.	TOWER Limited	Finance, Insurance, Banking
222.	Viking Pacific Holdings Limited	Finance, Insurance, Banking
223.	Watson Wyatt New Zealand Ltd	Finance, Insurance, Banking

224. Westpac Bank	Finance, Insurance, Banking
225. Abraham New Zealand Ltd	Government (Central and local)
226. Accident Compensation Corporation	Government (Central and local)
227. Auckland City Council	Government (Central and local)
228. Banks Peninsula District Council	Government (Central and local)
229. Bayer New Zealand Limited	Government (Central and local)
230. Christchurch City Council	Government (Central and local)
231. Department of Child youth and Family	Government (Central and local)
232. Department of Conservation	Government (Central and local)
233. Department Of Corrections	Government (Central and local)
234. Department of Internal Affairs	Government (Central and local)
235. Dunedin City Council	Government (Central and local)
236. Dunedin City holdings Ltd	Government (Central and local)
237. Fox & Gunn Ltd	Government (Central and local)
238. Housing New Zealand Corporation	Government (Central and local)
239. Inland Revenue Department	Government (Central and local)
240. Land Information New Zealand	Government (Central and local)
241. Manukau City Council	Government (Central and local)
242. Ministry For The Environment:	Government (Central and local)
243. Ministry of Agriculture and Forestry	Government (Central and local)
244. Ministry of Economic Development	Government (Central and local)
245. Ministry Of Fisheries	Government (Central and local)
246. Ministry of Foreign Affairs and Trade	Government (Central and local)
247. Ministry of Health	Government (Central and local)
248. Ministry of Social Development	Government (Central and local)
249. New Zealand Automobile Association Inc	Government (Central and local)
250. New Zealand Customs Service	Government (Central and local)
251. New Zealand Immigration Service	Government (Central and local)
252. New Zealand Police	Government (Central and local)
253. NZ Defence Force	Government (Central and local)
254. NZ Federation Of Voluntary Welfare Organisations	Government (Central and local)
255. Perpetual Trust Limited	Government (Central and local)
256. Royal NZ Navy	Government (Central and local)
257. Statistics New Zealand	Government (Central and local)
258. Tairawhiti District Health Board	Government (Central and local)
259. Wellington City Council	Government (Central and local)
260. Acco International (NZ) Ltd	IT, Legal, Business, Property Svcs
261. Allied Work Force Ltd	IT, Legal, Business, Property Svcs
262. Alto Plastics Ltd	IT, Legal, Business, Property Svcs
263. Armstrong Jones (NZ) Limited	IT, Legal, Business, Property Svcs
264. Beca Carter Hollings & Ferner	IT, Legal, Business, Property Svcs
265. Blue Star Group Limited	IT, Legal, Business, Property Svcs
266. Brave New World (NZ) Limited	IT, Legal, Business, Property Svcs
267. Bridon New Zealand Limited	IT, Legal, Business, Property Svcs
268. Buddle Findlay	IT, Legal, Business, Property Svcs
269. Burns & Ferrall Ltd	IT, Legal, Business, Property Svcs
270. Christchurch city holdings Limited	IT, Legal, Business, Property Svcs
271. Chubb New Zealand Limited	IT, Legal, Business, Property Svcs
272. Corporate Express New Zealand Limited	IT, Legal, Business, Property Svcs
273. Datacom Systems (Wellington) Ltd	IT, Legal, Business, Property Svcs
274. Duncan Cotterill	IT, Legal, Business, Property Svcs
275. EDS (New Zealand) Limited	IT, Legal, Business, Property Svcs
276. Flint Ink NZ Ltd	IT, Legal, Business, Property Svcs
277. Gen-i Limited	IT, Legal, Business, Property Svcs
278. Hay Group Limited	IT, Legal, Business, Property Svcs
279. Hewlet-Packard (NZ) Limited	IT, Legal, Business, Property Svcs
280. IBM New Zealand Limited	IT, Legal, Business, Property Svcs

281. Intelligroup New Zealand Limited	IT, Legal, Business, Property Svcs
282. Kenny Marketing Ltd	IT, Legal, Business, Property Svcs
283. LSI Consulting Ltd	IT, Legal, Business, Property Svcs
284. Mutual Leasing Limited	IT, Legal, Business, Property Svcs
285. NZTS	IT, Legal, Business, Property Svcs
286. Opus International Consultants	IT, Legal, Business, Property Svcs
287. Otis Elevator Company Ltd	IT, Legal, Business, Property Svcs
288. Sheffield Ltd	IT, Legal, Business, Property Svcs
289. Siemens New Zealand	IT, Legal, Business, Property Svcs
290. St Lukes Group Limited	IT, Legal, Business, Property Svcs
291. Synergy International Limited	IT, Legal, Business, Property Svcs
292. Turners Auctions Ltd	IT, Legal, Business, Property Svcs
293. Tyco Flow Control Pacific Pty Ltd	IT, Legal, Business, Property Svcs
294. Tyco Services New Zealand	IT, Legal, Business, Property Svcs
295. Unisys New Zealand	IT, Legal, Business, Property Svcs
296. 3M New Zealand	Manufacturing and processing
297. ABB Ltd	Manufacturing and processing
298. Affco Holdings Limited	Manufacturing and processing
299. AFFCO NEW ZEALAND LTD	Manufacturing and processing
300. Alliance Group Limited	Manufacturing and processing
301. Allied Foods (NZ) Limited	Manufacturing and processing
302. Anderson & O'Leary Ltd (Pinepac Group Of Companies)	Manufacturing and processing
303. Apline Dairy Products	Manufacturing and processing
304. Asian New Zealand Meat Company Limited (ANZCO)	Manufacturing and processing
305. Athena Products LTd.	Manufacturing and processing
306. Bay Milk Products Limited	Manufacturing and processing
307. Bendon Ltd	Manufacturing and processing
308. Black & Decker (NZ) Ltd	Manufacturing and processing
309. Bowron & Co Ltd	Manufacturing and processing
310. Bradken Dunedin	Manufacturing and processing
311. Broadway Industries Limited	Manufacturing and processing
312. BTR operations NZ Limited	Manufacturing and processing
313. Calmac Engineering Ltd	Manufacturing and processing
314. Cambridge Clothing Co Ltd	Manufacturing and processing
315. Carrel & Carrel Ltd	Manufacturing and processing
316. Cavalier Corporation Limited	Manufacturing and processing
317. Cerebos Pacific Holdings (NZ) Limited	Manufacturing and processing
318. Ciba-Giegy New Zealand Limited	Manufacturing and processing
319. Colgate-Palmolive Limited	Manufacturing and processing
320. Comalco New Zealand Limited	Manufacturing and processing
321. Compuspec Industries	Manufacturing and processing
322. Criterion Manufacturing Ltd	Manufacturing and processing
323. Dan Cosgrove Ltd	Manufacturing and processing
324. DB Group Limited	Manufacturing and processing
325. Defiance Food industries Limited	Manufacturing and processing
326. Donaghys Limited	Manufacturing and processing
327. DU PONT (New Zealand) Limited	Manufacturing and processing
328. Dunedin Stainless Steel Co Ltd	Manufacturing and processing
329. East Coast Lumber Ltd	Manufacturing and processing
330. Eastern equities corporation Limited	Manufacturing and processing
331. Ernest Adams Limited	Manufacturing and processing
332. Etel Ltd	Manufacturing and processing
333. Fisher & Paykel Appliances Dunedin Site	Manufacturing and processing
334. Fisher & Paykel Limited	Manufacturing and processing
335. Fletcher Challenge Forests	Manufacturing and processing
336. Ford Motor company of New Zealand	Manufacturing and processing
337. Forestry Corporation of New Zealand Limited	Manufacturing and processing

338.GEC (NEW ZEALAND) Limited	Manufacturing and processing
339.Griffins Foods Limited	Manufacturing and processing
340.Heinz-Wattie Limited	Manufacturing and processing
341.Holcim New Zealand Formerly Milburn New Zealand Ltd	Manufacturing and processing
342.HPM NZ Ltd	Manufacturing and processing
343.Huttons Kiwi Limited	Manufacturing and processing
344.ICI New Zealand Group	Manufacturing and processing
345.Juken Nissho Limited	Manufacturing and processing
346.Lion Nathan Limited	Manufacturing and processing
347.LWR industried Limited	Manufacturing and processing
348.McVicar Timber Group Ltd	Manufacturing and processing
349.Metal Protection Ltd	Manufacturing and processing
350.Michael Hill International Limited	Manufacturing and processing
351.Milburn New Zealand Limited	Manufacturing and processing
352.Nautech Electronics Ltd	Manufacturing and processing
353.New Zealand Milk	Manufacturing and processing
354.New Zealand Steel	Manufacturing and processing
355.Next Electronic Servicing Limited	Manufacturing and processing
356.Northland Cooperative Dairy company Limited	Manufacturing and processing
357.Nuplex Industried Limited	Manufacturing and processing
358.Pacific Dunlop Holdings (NZ) Limited	Manufacturing and processing
359.Pan Pacific Forest Industries (NZ) limited	Manufacturing and processing
360.PDL Holdings Limited	Manufacturing and processing
361.Pilkington (NZ) Limited	Manufacturing and processing
362.Pumpkin Patch Ltd	Manufacturing and processing
363.Ravensdown Corporation Limited	Manufacturing and processing
364.Rayonier NZ Holdings Limited	Manufacturing and processing
365.Reckitt & Colman (NZ) Limited	Manufacturing and processing
366.Richina Pacific Ltd	Manufacturing and processing
367.Ryan Manufacturing Ltd	Manufacturing and processing
368.Salmond Smith Biolanb Limited	Manufacturing and processing
369.Skellerup Group Limited	Manufacturing and processing
370.Southh Island Dairy Farmers Limited	Manufacturing and processing
371.Steel & Tube Holding Ltd	Manufacturing and processing
372.Tait Electronics Ltd	Manufacturing and processing
373.The East Tamaki Co-operative Dairy company limited	Manufacturing and processing
374.Titan Plant Services Limited	Manufacturing and processing
375.Agriquality New Zealand Ltd	Primary industries
376.Australasian Food Exports Ltd	Primary industries
377.Carter Holt Harvey Limited	Primary industries
378.Dowelancho (NZ) Limited	Primary industries
379.Fonterra Co-operative Group Ltd	Primary industries
380.Gisborne Milk Co-op Ltd	Primary industries
381.GROCORP pacific Limited	Primary industries
382.Kapiti Cheeses Ltd	Primary industries
383.Mainland Products Ltd (Christchurch)	Primary industries
384.Mainland Products Ltd (Head Office)	Primary industries
385.New Zealand Apple and Pear Marketting Board	Primary industries
386.New Zealand Dairy Foods Ltd	Primary industries
387.New Zealand Diary Board	Primary industries
388.NZMP - Clandeboye	Primary industries
389.NZMP - Edendale	Primary industries
390.NZMP	Primary industries
391.Pearson Engineering Ltd	Primary industries
392.Primary producers Co-operative Society limited	Primary industries
393.Richmond Limited	Primary industries
394.Tasman Milk Products Ltd	Primary industries

395.	Tatua Co-Operative Dairy Co Ltd	Primary industries
396.	The Grated Cheese Company Ltd	Primary industries
397.	The New Zealand Co-operative Dairy Company Limited	Primary industries
398.	Westland Co-Operative Dairy Co Ltd	Primary industries
399.	Wrightson Group	Primary industries
400.	AB Food & Industries Limited	Tourism, Accomm., Food Services
401.	Abilities Inc	Tourism, Accomm., Food Services
402.	Acton International Marketing Ltd	Tourism, Accomm., Food Services
403.	Advance Marketing Limited	Tourism, Accomm., Food Services
404.	AEP Industries (NZ) Ltd	Tourism, Accomm., Food Services
405.	Air New Zealand Ltd	Tourism, Accomm., Food Services
406.	Air New Zealand Ltd	Tourism, Accomm., Food Services
407.	Airways Corporation Of New Zealand Ltd	Tourism, Accomm., Food Services
408.	Amcor Flexibles Australasia	Tourism, Accomm., Food Services
409.	Amcor Kiwi Packaging (Auckland)	Tourism, Accomm., Food Services
410.	Arnott's New Zealand Limited	Tourism, Accomm., Food Services
411.	Attwood Ltd, E.C.	Tourism, Accomm., Food Services
412.	Auckland International Airport	Tourism, Accomm., Food Services
413.	Bluebird Foods Ltd	Tourism, Accomm., Food Services
414.	Brand Support Ltd	Tourism, Accomm., Food Services
415.	British American Tobacco (New Zealand) Limited	Tourism, Accomm., Food Services
416.	British American Tobacco (New Zealand) Limited	Tourism, Accomm., Food Services
417.	Burton Hollis Ltd	Tourism, Accomm., Food Services
418.	Cadbury confectionery limited	Tourism, Accomm., Food Services
419.	Cardmember Wines Limited	Tourism, Accomm., Food Services
420.	CDL Hotels New Zealand Ltd	Tourism, Accomm., Food Services
421.	Cerebos Gregg's Ltd	Tourism, Accomm., Food Services
422.	Chateau Creme Delight Ice Cream Co Ltd	Tourism, Accomm., Food Services
423.	Chequer Corporation Ltd	Tourism, Accomm., Food Services
424.	Clorox New Zealand Limited	Tourism, Accomm., Food Services
425.	Coca-Cola Amatil (NZ) Limited	Tourism, Accomm., Food Services
426.	CSI International (NZ) Ltd	Tourism, Accomm., Food Services
427.	Delamaine Fine Foods Ltd	Tourism, Accomm., Food Services
428.	Foodstuffs (Auckland) Limited	Tourism, Accomm., Food Services
429.	Foodstuffs(Southisland) Limited	Tourism, Accomm., Food Services
430.	Foodstuffs(Wellington) Co-ooperative Society Limit	Tourism, Accomm., Food Services
431.	HJ Heinz Co (NZ) Ltd	Tourism, Accomm., Food Services
432.	Inghams Enterprises (NZ) Pty Ltd	Tourism, Accomm., Food Services
433.	Lion Breweries	Tourism, Accomm., Food Services
434.	McDonald's Restaurants (New Zealand) Ltd	Tourism, Accomm., Food Services
435.	Moana Pacific Fisheries Ltd	Tourism, Accomm., Food Services
436.	Montana Wines Ltd	Tourism, Accomm., Food Services
437.	Nestle New Zealand Limited	Tourism, Accomm., Food Services
438.	Restaurant Brands NZ Ltd	Tourism, Accomm., Food Services
439.	Sanford Limited	Tourism, Accomm., Food Services
440.	Scenic Circle Hotels Ltd	Tourism, Accomm., Food Services
441.	Sealord Processors - Dunedin	Tourism, Accomm., Food Services
442.	Spotless Services (NZ) Ltd	Tourism, Accomm., Food Services
443.	Tegel Foods Ltd	Tourism, Accomm., Food Services
444.	The Helicopter Line Limited	Tourism, Accomm., Food Services
445.	Vertex Pacific Ltd	Tourism, Accomm., Food Services
446.	A.G.H. Webster Ltd	Wholesale and retail trade
447.	Amuri Corporation Limited	Wholesale and retail trade
448.	BASF NZ Limited	Wholesale and retail trade
449.	Borden (NZ) Limited	Wholesale and retail trade
450.	Briscoes (New Zealand) Ltd	Wholesale and retail trade
451.	Cavalier Corporation Ltd	Wholesale and retail trade

452.	Coles Myer New Zealand Holdings Ltd	Wholesale and retail trade
453.	Crane distribution New Zealand	Wholesale and retail trade
454.	Crane distribution New Zealand	Wholesale and retail trade
455.	Crown Worldwide (NZ) Ltd	Wholesale and retail trade
456.	DFS New Zealand Ltd	Wholesale and retail trade
457.	Farmers' Trading Co Ltd, The	Wholesale and retail trade
458.	Feltex Carpets Limited	Wholesale and retail trade
459.	Firstone N.Z. Limited	Wholesale and retail trade
460.	Fruitfed Supplies Limited	Wholesale and retail trade
461.	Generator Power Ltd	Wholesale and retail trade
462.	Gilmour, James & Co Ltd	Wholesale and retail trade
463.	Gullivers Pacific	Wholesale and retail trade
464.	Hallenstien Glasson Holdings Limited	Wholesale and retail trade
465.	Hally Labels Ltd	Wholesale and retail trade
466.	Hill & Stewart Appliances Ltd	Wholesale and retail trade
467.	Hirequip Ltd	Wholesale and retail trade
468.	Holden New Zealand Limited	Wholesale and retail trade
469.	Honda New Zealand Limited	Wholesale and retail trade
470.	House of Travel	Wholesale and retail trade
471.	Hutchinson Bros Ltd	Wholesale and retail trade
472.	IndeServe Limited	Wholesale and retail trade
473.	ITOCHU New Zealand Limited	Wholesale and retail trade
474.	Kimbyr Investments Ltd	Wholesale and retail trade
475.	Kirkcaldie & Stains Ltd	Wholesale and retail trade
476.	Kodak New Zealand Limited	Wholesale and retail trade
477.	Masport Ltd	Wholesale and retail trade
478.	Mastertrade Group Limited	Wholesale and retail trade
479.	Mitsui-Co(NZ) Limited	Wholesale and retail trade
480.	Monarch Fulfilment Center	Wholesale and retail trade
481.	Nissan Datsun Holdings Limited	Wholesale and retail trade
482.	Noel Leeming Limited	Wholesale and retail trade
483.	Pacific Retail Group	Wholesale and retail trade
484.	Pascoe Ltd	Wholesale and retail trade
485.	Penguin Books (NZ) Ltd	Wholesale and retail trade
486.	Phillips New Zealand Limited	Wholesale and retail trade
487.	Place Makers	Wholesale and retail trade
488.	Professional Demonstrations & Merchandising 2000 Ltd	Wholesale and retail trade
489.	Progressive Enterprisers Limited	Wholesale and retail trade
490.	Progressive Enterprises	Wholesale and retail trade
491.	Rendells Ltd	Wholesale and retail trade
492.	Retail Trading Services Limited	Wholesale and retail trade
493.	Smith Ltd, H. & J.	Wholesale and retail trade
494.	Smiths City Group Ltd	Wholesale and retail trade
495.	Tasman Properties Limited	Wholesale and retail trade
496.	Taylors Group Limited	Wholesale and retail trade
497.	The Warehouse Limited	Wholesale and retail trade
498.	Toyota New Zealand Limited	Wholesale and retail trade
499.	Whitcoulls	Wholesale and retail trade
500.	Woolworths (NZ) Limited	Wholesale and retail trade

Appendix G3 Sample selected for primary finance managers' survey

Organisations	Industry sectors
1. United networks Limited	Communications and Media
2. Television NewZealand Limited	Communications and Media
3. New Zealand Post Limited	Communications and Media
4. Telecom Corporation New Zealand Limited	Communications and Media
5. Vodafone New Zealand	Communications and Media
6. Telstrclear	Communications and Media
7. Sky City Entertainment Group	Communications and Media
8. Christchurch Casinos Ltd	Communications and Media
9. Cogent Communications	Communications and Media
10. Ericsson Communications Limited	Communications and Media
11. Fletcher Challenge Limited	Construction and Engineering
12. Alstom New Zealand Limited	Construction and Engineering
13. Benchmark Building Supplies Ltd	Construction and Engineering
14. Excell Corporation Limited	Construction and Engineering
15. Transfield Services (New Zealand) Limited	Construction and Engineering
16. Works Infrastructure Limited	Construction and Engineering
17. Fulton Hogan Ltd	Construction and Engineering
18. Babcock New Zealand Ltd	Construction and Engineering
19. Programmed Maintenance Services (NZ) Ltd	Construction and Engineering
20. United Gooder Ltd	Construction and Engineering
21. AB Equipment Limited	Construction and Engineering
22. Downer Construction (NZ) Ltd	Construction and Engineering
23. James Hardie New Zealand Limited	Construction and Engineering
24. Robt Stone & Co Ltd	Construction and Engineering
25. Sinclair Knight Merz Limited	Construction and Engineering
26. Auckland Co-operative Taxi Society Ltd	Distribution, Transport, Storage
27. Bridgestone/Firestone New Zealand Ltd	Distribution, Transport, Storage
28. Ports Of Auckland Ltd	Distribution, Transport, Storage
29. Repco Merchants	Distribution, Transport, Storage
30. Stagecoach Auckland	Distribution, Transport, Storage
31. South Pacific Tyres N.Z. Ltd	Distribution, Transport, Storage
32. Vehicle Testing NZ Limited	Distribution, Transport, Storage
33. Tranz Rail	Distribution, Transport, Storage
34. Exel New Zealand Limited	Distribution, Transport, Storage
35. Auckland University Of Technology	Education, Health, Community Svcs
36. University of Auckland	Education, Health, Community Svcs
37. Victoria University Of Wellington	Education, Health, Community Svcs
38. University of Otago	Education, Health, Community Svcs
39. Massey University	Education, Health, Community Svcs
40. Auckland district health board	Education, Health, Community Svcs
41. University of Waikato	Education, Health, Community Svcs
42. University of Canterbury	Education, Health, Community Svcs
43. Waikato District Health Board	Education, Health, Community Svcs
44. Southern Cross Healthcare	Education, Health, Community Svcs
45. Diagnostic Medlab	Education, Health, Community Svcs
46. Hutt Valley District Health Board	Education, Health, Community Svcs
47. Ryman Healthcare Ltd	Education, Health, Community Svcs
48. West Coast District Health Board	Education, Health, Community Svcs
49. AgResearch	Education, Health, Community Svcs
50. Caltex Oil (NZ) Limited	Electricity, Gas and Water Utilities
51. BP New Zealand Holdings Limited	Electricity, Gas and Water Utilities
52. Qest New Zealand Limited	Electricity, Gas and Water Utilities
53. Mobil Oil New Zealand Limited	Electricity, Gas and Water Utilities

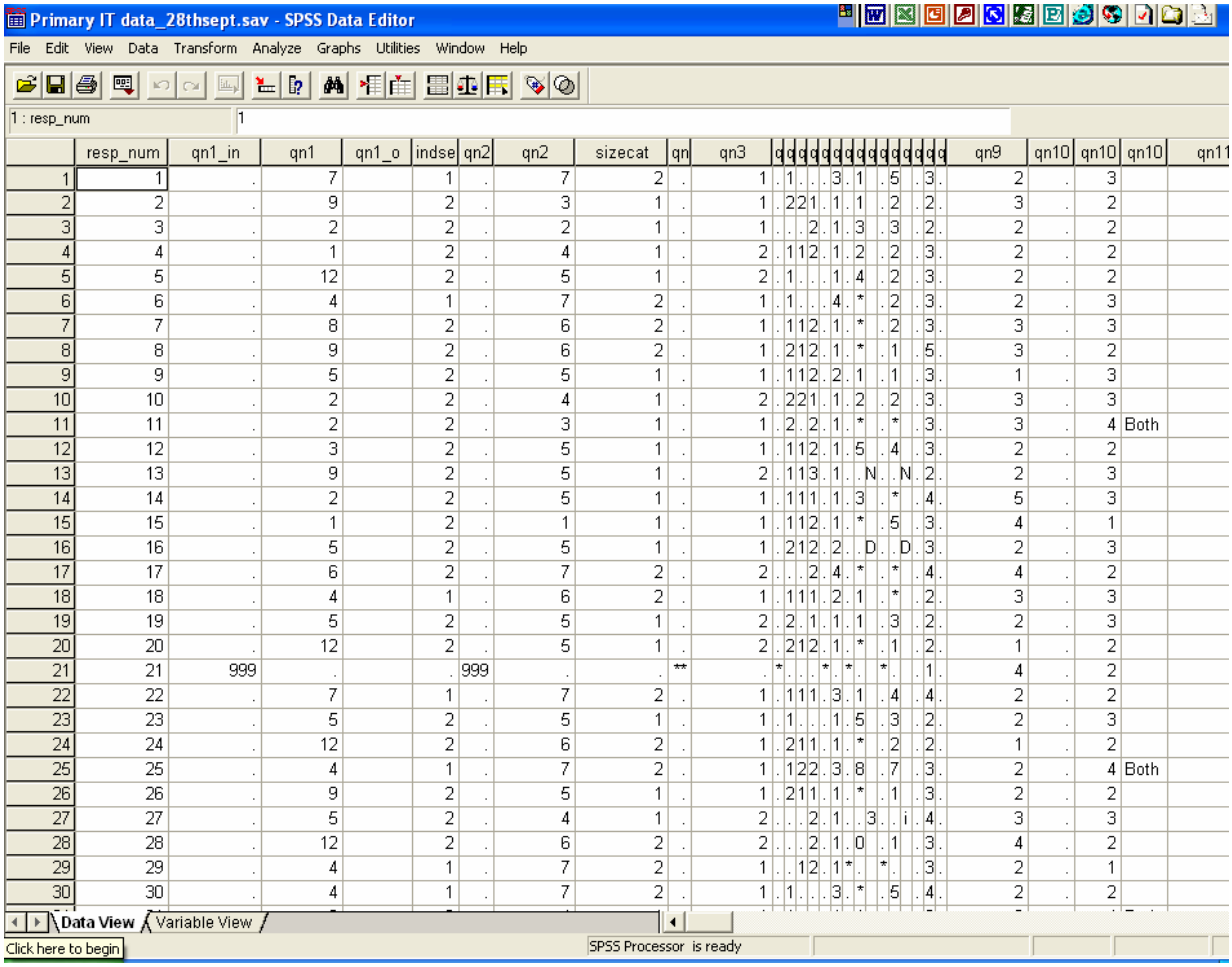
54.	BHP New Zealand Steel Limited	Electricity, Gas and Water Utilities
55.	Solid Energy New Zealand Ltd	Electricity, Gas and Water Utilities
56.	National Institute Of Water & Atmospheric Research Ltd -NIWA	Electricity, Gas and Water Utilities
57.	Natural Gas Corporation Holdings Ltd	Electricity, Gas and Water Utilities
58.	BOC Gases New Zealand Limited	Electricity, Gas and Water Utilities
59.	Genesis Power Limited	Electricity, Gas and Water Utilities
60.	Mighty River Power Limited	Electricity, Gas and Water Utilities
61.	Vector Ltd	Electricity, Gas and Water Utilities
62.	Fuelquip Services Ltd	Electricity, Gas and Water Utilities
63.	Meridian Energy Ltd	Electricity, Gas and Water Utilities
64.	TrustPower	Electricity, Gas and Water Utilities
65.	NGC Holdings Ltd	Electricity, Gas and Water Utilities
66.	A.M.I. Insurance	Finance, Insurance, Banking
67.	Brierley Investments Limited	Finance, Insurance, Banking
68.	Bank of New Zealand	Finance, Insurance, Banking
69.	Westpac Bank	Finance, Insurance, Banking
70.	The National Bank	Finance, Insurance, Banking
71.	ASB Bank Ltd	Finance, Insurance, Banking
72.	IAG New Zealand	Finance, Insurance, Banking
73.	Sovereign Assurance	Finance, Insurance, Banking
74.	ANZ Banking Group (New Zealand) Ltd	Finance, Insurance, Banking
75.	Hellaby Holdings Ltd	Finance, Insurance, Banking
76.	Royal & Sun Alliance (New Zealand) Limited	Finance, Insurance, Banking
77.	Sitel New Zealand Limited	Finance, Insurance, Banking
78.	Viking Pacific Holdings Limited	Finance, Insurance, Banking
79.	Aon Risk Services NZ Limited	Finance, Insurance, Banking
80.	Reserve Bank NZ	Finance, Insurance, Banking
81.	TOWER Limited	Finance, Insurance, Banking
82.	Department Of Corrections	Government (Central and local)
83.	Dunedin City holdings Ltd	Government (Central and local)
84.	NZ Defence Force	Government (Central and local)
85.	Auckland City Council	Government (Central and local)
86.	Ministry of Health	Government (Central and local)
87.	Ministry of Economic Development	Government (Central and local)
88.	Ministry of Social Development	Government (Central and local)
89.	New Zealand Police	Government (Central and local)
90.	Inland Revenue Department	Government (Central and local)
91.	Christchurch City Council	Government (Central and local)
92.	Statistics New Zealand	Government (Central and local)
93.	Housing New Zealand Corporation	Government (Central and local)
94.	New Zealand Customs Service	Government (Central and local)
95.	Accident Compensation Corporation	Government (Central and local)
96.	New Zealand Automobile Association Inc	Government (Central and local)
97.	Department Of Corrections	Government (Central and local)
98.	Dunedin City Council	Government (Central and local)
99.	Tairawhiti District Health Board	Government (Central and local)
100.	Ministry Of Fisheries	Government (Central and local)
101.	Burns & Ferrall Ltd	IT, Legal, Business, Property Svcs
102.	Opus International Consultants	IT, Legal, Business, Property Svcs
103.	Unisys New Zealand	IT, Legal, Business, Property Svcs
104.	EDS (New Zealand) Limited	IT, Legal, Business, Property Svcs
105.	Gen-i Limited	IT, Legal, Business, Property Svcs
106.	NZTS	IT, Legal, Business, Property Svcs
107.	Intelligroup New Zealand Limited	IT, Legal, Business, Property Svcs
108.	Datacom Systems (Wellington) Ltd	IT, Legal, Business, Property Svcs
109.	Synergy International Limited	IT, Legal, Business, Property Svcs

110.	Alto Plastics Ltd	IT, Legal, Business, Property Svcs
111.	Bridon New Zealand Limited	IT, Legal, Business, Property Svcs
112.	Tyco Flow Control Pacific Pty Ltd	IT, Legal, Business, Property Svcs
113.	Turners Auctions Ltd	IT, Legal, Business, Property Svcs
114.	Skellerup Group Limited	Manufacturing and processing
115.	Comalco New Zealand Limited	Manufacturing and processing
116.	Ford Motor company of New Zealand	Manufacturing and processing
117.	Heinz-Wattie Limited	Manufacturing and processing
118.	Lion Nathan Wines and Spirits	Manufacturing and processing
119.	Nuplex Industried Limited	Manufacturing and processing
120.	Pilkington (NZ) Limited	Manufacturing and processing
121.	Fletcher Challenge Forests	Manufacturing and processing
122.	Affco Holdings Limited	Manufacturing and processing
123.	Alliance Group Limited	Manufacturing and processing
124.	Heinz-Wattie Limited	Manufacturing and processing
125.	Pumpkin Patch Ltd	Manufacturing and processing
126.	Richina Pacific Ltd	Manufacturing and processing
127.	Bowron & Co Ltd	Manufacturing and processing
128.	Holcim New Zealand Formerly Milburn New Zealand Ltd	Manufacturing and processing
129.	Tait Electronics Ltd	Manufacturing and processing
130.	Bendon Ltd	Manufacturing and processing
131.	Cambridge Clothing Co Ltd	Manufacturing and processing
132.	Criterion Manufacturing Ltd	Manufacturing and processing
133.	ABB Ltd	Manufacturing and processing
134.	Griffins Foods Limited	Manufacturing and processing
135.	New Zealand Apple and Pear Marketting Board	Primary industries
136.	New Zealand Diary Board	Primary industries
137.	Primary producers Co-operative Society limited	Primary industries
138.	Fonterra Co-operative Group Ltd	Primary industries
139.	Wrightson Group	Primary industries
140.	NZMP	Primary industries
141.	NZMP	Primary industries
142.	New Zealand Dairy Foods Ltd	Primary industries
143.	Mainland Products Ltd (Head Office)	Primary industries
144.	Agriquality New Zealand Ltd	Primary industries
145.	The New Zealand Co-operative Dairy Company Limited	Primary industries
146.	NZMP - Clandeboye	Primary industries
147.	Westland Co-Operative Dairy Co Ltd	Primary industries
148.	Mainland Products Ltd (Christchurch)	Primary industries
149.	NZMP - Edendale	Primary industries
150.	Carter Holt Harvey Limited	Primary industries
151.	Tegel Foods Ltd	Tourism, Accomm., Food Services
152.	Cadbury confectionery limited	Tourism, Accomm., Food Services
153.	Foodstuffs (Auckland) Limited	Tourism, Accomm., Food Services
154.	Foodstuffs(Wellington) Co-ooperative Society Limit	Tourism, Accomm., Food Services
155.	Nestle New Zealand Limited	Tourism, Accomm., Food Services
156.	McDonald's Restaurants (New Zealand) Ltd	Tourism, Accomm., Food Services
157.	Sanford Limited	Tourism, Accomm., Food Services
158.	Airways Corporation Of New Zealand Ltd	Tourism, Accomm., Food Services
159.	Bluebird Foods Ltd	Tourism, Accomm., Food Services
160.	CDL Hotels New Zealand Ltd	Tourism, Accomm., Food Services
161.	Coca-Cola Amatil (NZ) Limited	Tourism, Accomm., Food Services
162.	Inghams Enterprises (NZ) Pty Ltd	Tourism, Accomm., Food Services
163.	Lion Breweries	Tourism, Accomm., Food Services
164.	Moana Pacific Fisheries Ltd	Tourism, Accomm., Food Services
165.	Montana Wines Ltd	Tourism, Accomm., Food Services
166.	Restaurant Brands NZ Ltd	Tourism, Accomm., Food Services

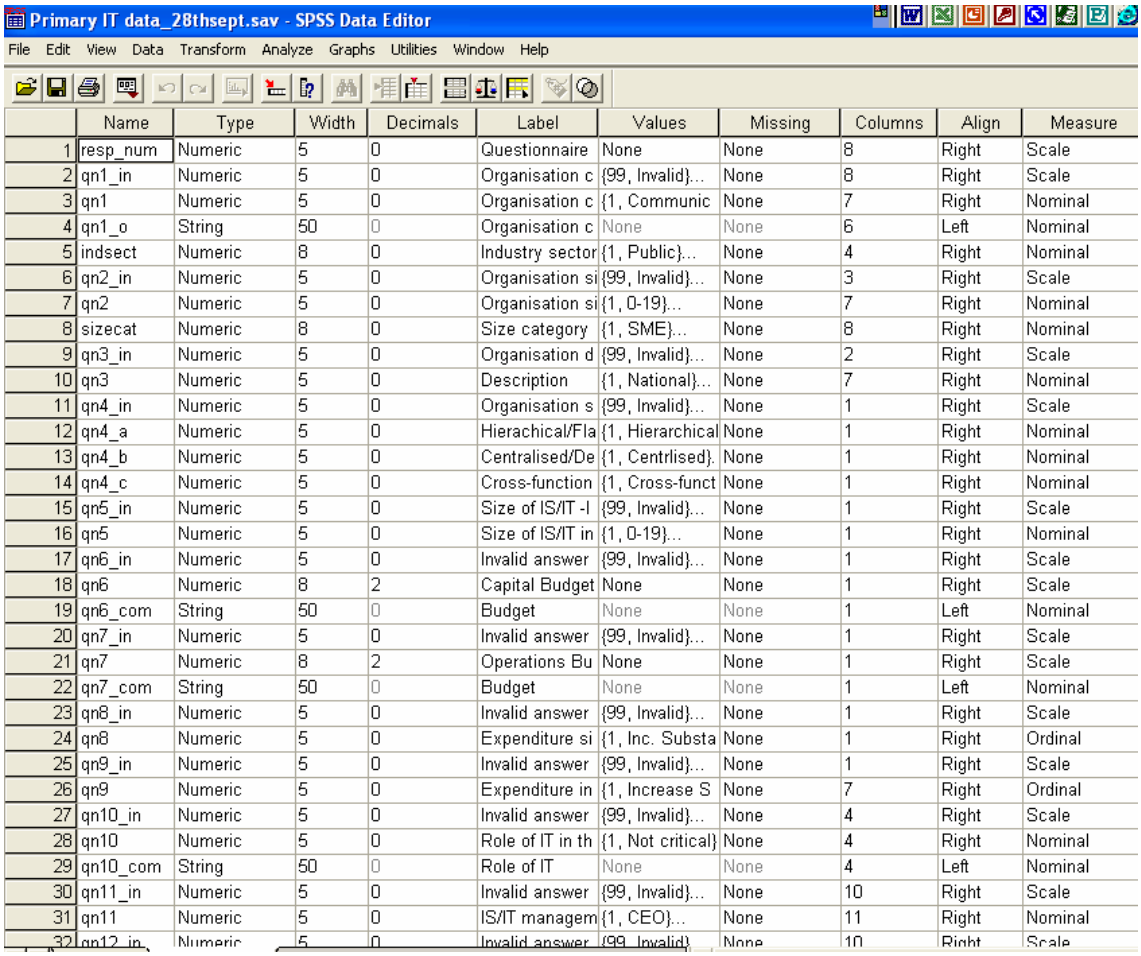
167.	Spotless Services (NZ) Ltd	Tourism, Accomm., Food Services
168.	Scenic Circle Hotels Ltd	Tourism, Accomm., Food Services
169.	Amcor Flexibles Australasia	Tourism, Accomm., Food Services
170.	Amcor Kiwi Packaging (Auckland)	Tourism, Accomm., Food Services
171.	Cerebos Gregg's Ltd	Tourism, Accomm., Food Services
172.	Sealord Processors - Dunedin	Tourism, Accomm., Food Services
173.	British American Tobacco (New Zealand) Limited	Tourism, Accomm., Food Services
174.	Vertex Pacific Ltd	Tourism, Accomm., Food Services
175.	Chequer Corporation Ltd	Tourism, Accomm., Food Services
176.	Pacific Retail Group	Wholesale and retail trade
177.	Phillips New Zealand Limited	Wholesale and retail trade
178.	Progressive Enterprisers Limited	Wholesale and retail trade
179.	The Warehouse Limited	Wholesale and retail trade
180.	The Farmers' Trading Co Ltd,	Wholesale and retail trade
181.	Cavalier Corporation Ltd	Wholesale and retail trade
182.	Feltex Carpets Limited	Wholesale and retail trade
183.	Gilmour, James & Co Ltd	Wholesale and retail trade
184.	Coles Myer New Zealand Holdings Ltd	Wholesale and retail trade
185.	Taylors Group Limited	Wholesale and retail trade
186.	Whitcoulls	Wholesale and retail trade
187.	Woolworths (NZ) Limited	Wholesale and retail trade
188.	Smiths City Group Ltd	Wholesale and retail trade
189.	Crown Worldwide (NZ) Ltd	Wholesale and retail trade
190.	Hutchinson Bros Ltd	Wholesale and retail trade
191.	Masport Ltd	Wholesale and retail trade
192.	Professional Demonstrations & Merchandising 2000 Ltd	Wholesale and retail trade
193.	Kirkcaldie & Stains Ltd	Wholesale and retail trade
194.	Briscoes (New Zealand) Ltd	Wholesale and retail trade
195.	DFS New Zealand Ltd	Wholesale and retail trade
196.	Kimbyr Investments Ltd	Wholesale and retail trade
197.	Pascoe Ltd	Wholesale and retail trade
198.	Rendells Ltd	Wholesale and retail trade
199.	Smith Ltd, H. & J.	Wholesale and retail trade
200.	Hirequip Ltd	Wholesale and retail trade

Appendix H Data set of IT managers' survey

Appendix H1 Snap shot of IT managers' survey – data view



Appendix H2 Snap shot of IT managers' survey - variable view



Primary IT data_28thsept.sav - SPSS Data Editor

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3	qn1	Numeric	5	0	Organisation c	{1, Communic	None	7	Right	Nominal
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5	indsect	Numeric	8	0	Industry sector	{1, Public}...	None	4	Right	Nominal
6	qn2_in	Numeric	5	0	Organisation si	{99, Invalid}...	None	3	Right	Scale
7	qn2	Numeric	5	0	Organisation si	{1, 0-19}...	None	7	Right	Nominal
8	sizecat	Numeric	8	0	Size category	{1, SME}...	None	8	Right	Nominal
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21	qn7	Numeric	8	2	Operations Bu	None	None	1	Right	Scale
22	qn7_com	String	50	0	Budget	None	None	1	Left	Nominal
23	qn8_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
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25	qn9_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
26	qn9	Numeric	5	0	Expenditure in	{1, Increase S	None	7	Right	Ordinal
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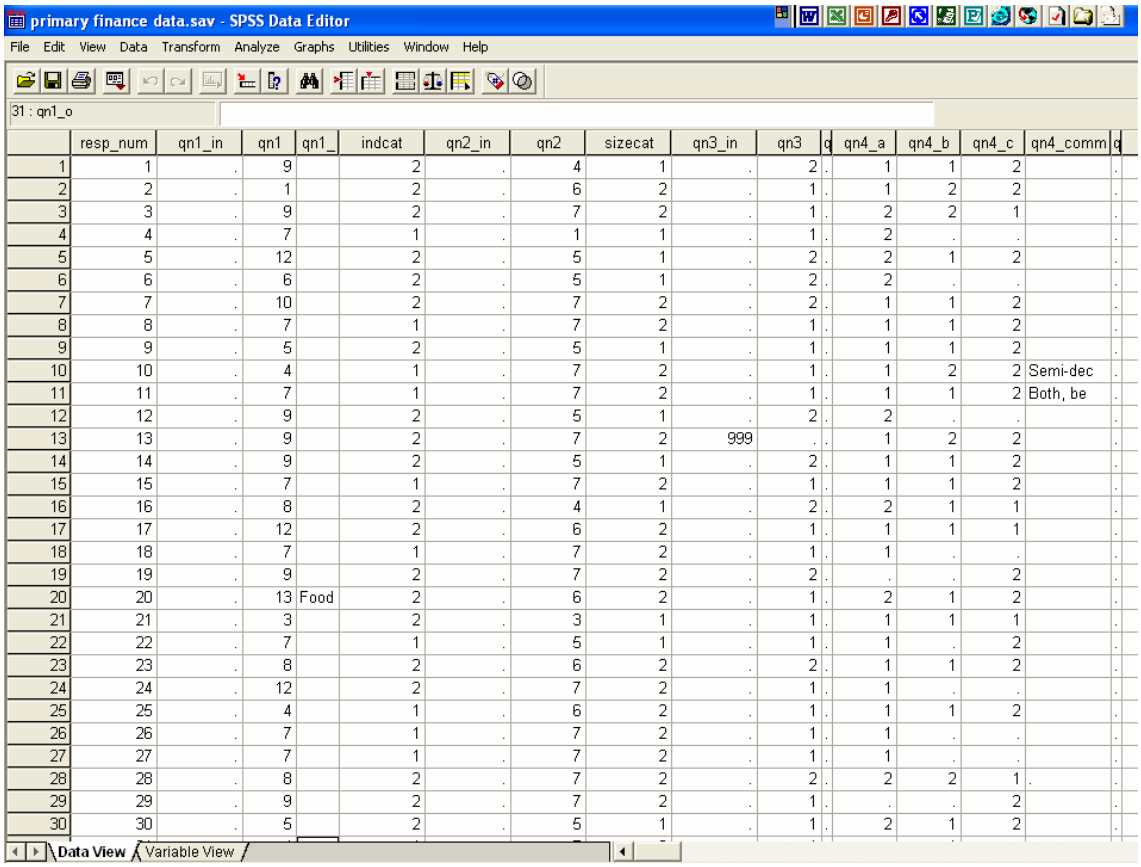
Appendix I Data set of finance managers' survey

Appendix I1 Snap shot of finance managers' survey – data view



primary finance data.sav - SPSS Data Editor

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3	3	.	9		2	.	7	2	.	1	.	2	2	1		.
4	4	.	7		1	.	1	1	.	1	.	2	.	.		.
5	5	.	12		2	.	5	1	.	2	.	2	1	2		.
6	6	.	6		2	.	5	1	.	2	.	2	.	.		.
7	7	.	10		2	.	7	2	.	2	.	1	1	2		.
8	8	.	7		1	.	7	2	.	1	.	1	1	2		.
9	9	.	5		2	.	5	1	.	1	.	1	1	2		.
10	10	.	4		1	.	7	2	.	1	.	1	2	2	Semi-dec	.
11	11	.	7		1	.	7	2	.	1	.	1	1	2	Both, be	.
12	12	.	9		2	.	5	1	.	2	.	2	.	.		.
13	13	.	9		2	.	7	2	999	.	.	1	2	2		.
14	14	.	9		2	.	5	1	.	2	.	1	1	2		.
15	15	.	7		1	.	7	2	.	1	.	1	1	2		.
16	16	.	8		2	.	4	1	.	2	.	2	1	1		.
17	17	.	12		2	.	6	2	.	1	.	1	1	1		.
18	18	.	7		1	.	7	2	.	1	.	1	.	.		.
19	19	.	9		2	.	7	2	.	2	.	.	.	2		.
20	20	.	13	Food	2	.	6	2	.	1	.	2	1	2		.
21	21	.	3		2	.	3	1	.	1	.	1	1	1		.
22	22	.	7		1	.	5	1	.	1	.	1	.	2		.
23	23	.	8		2	.	6	2	.	2	.	1	1	2		.
24	24	.	12		2	.	7	2	.	1	.	1	.	.		.
25	25	.	4		1	.	6	2	.	1	.	1	1	2		.
26	26	.	7		1	.	7	2	.	1	.	1	.	.		.
27	27	.	7		1	.	7	2	.	1	.	1	.	.		.
28	28	.	8		2	.	7	2	.	2	.	2	2	1		.
29	29	.	9		2	.	7	2	.	1	.	.	.	2		.
30	30	.	5		2	.	5	1	.	1	.	2	1	2		.

Data View | Variable View

Appendix I2 Snap shot of finance managers' survey - variable view

primary finance data.sav - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	resp_num	Numeric	5	0	Questionnaire	None	None	8	Right	Scale
2	qn1_in	Numeric	5	0	Organisation c	{99, Invalid}...	None	8	Right	Scale
3	qn1	Numeric	5	0	Organisation c	{1, Communic	None	5	Right	Nominal
4	qn1_o	String	50	0	Organisation c	None	None	4	Left	Nominal
5	indcat	Numeric	8	0	Industry categ	{1, Public}...	None	8	Right	Scale
6	qn2_in	Numeric	5	0	Organisation si	{99, Invalid}...	None	8	Right	Scale
7	qn2	Numeric	5	0	Organisation si	{1, 0-19}...	None	7	Right	Nominal
8	sizecat	Numeric	8	0	Size category	{1, SME}...	None	8	Right	Scale
9	qn3_in	Numeric	5	0	Organisation d	{99, Invalid}...	None	8	Right	Scale
10	qn3	Numeric	5	0	Discription	{1, National}...	None	6	Right	Nominal
11	qn4_in	Numeric	5	0	Organisation s	{99, Invalid}...	None	1	Right	Scale
12	qn4_a	Numeric	5	0	Hierachical/Fla	{1, Hierarchical	None	6	Right	Nominal
13	qn4_b	Numeric	5	0	Centralised/De	{1, Centrlised}	None	6	Right	Nominal
14	qn4_c	Numeric	5	0	Cross-function	{1, Cross-funct	None	6	Right	Nominal
15	qn4_comm	String	100	0	Semi	None	None	8	Left	Nominal
16	qn5_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
17	qn5	Numeric	5	0	Expenditure si	{1, Increased	None	6	Right	Ordinal
18	qn6_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
19	qn6	Numeric	5	0	Expenditure in	{1, Increase S	None	6	Right	Ordinal
20	qn7_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
21	qn7	Numeric	5	0	Role of IT in th	{1, Not critical}	None	8	Right	Nominal
22	qn7_com	String	25	0	Role of IT	None	None	8	Left	Nominal
23	qn8_in	Numeric	5	0	Invalid answer	{99, Invalid}...	None	1	Right	Scale
24	qn8_com	String	250	0		None	None	40	Left	Nominal
25	qn8_a1	Numeric	5	0	Preparing prop	{1, IS/IT Mana	None	8	Right	Nominal
26	qn8_a2	Numeric	5	0	Preparing prop	{1, Business	None	8	Right	Nominal

Appendix J Qualitative responses (exact extract)– IT managers

IT managers' survey – 2004
Obtaining business benefits of IT through benefit realisation techniques

Question no: 15
Contribution of IS/IT to the organisation

1. Customer service, internal efficiency gains, data quality & management
2. Process control, production scheduling and control
3. Debtors/Creditors and tendering
4. Improve business efficiencies, business reporting
5. Services - insurance, driver licensing, electronics inspections, service management, publishing, Internet
6. Lowered operational cost per transaction
7. Trading, customer services, management + billing
8. communication & operations
9. Practice productivity, technical ability
10. Project management
11. Planning, accounting, Payroll
12. Revenue mgt, call centres , quality service delivery, desktop , sundry knowledge provision
13. All divisions
14. Academic , administrative functions across the board
15. Day to day operations, Enabling business o achieve its strategic goal
16. Everything : increase sales, better communication, better support, availability of information , remote access, security controls +Protection of data
17. Financial performance analysis
18. Regulatory, finance, communications, city infrastructure, customer service
19. Retain operational efficiency, Innovate business change
20. Business process, Inventory managements, receivable management
21. Financial mgt, HRM, general infrastructure, student mgt, marketing, course delivery
22. After installing an ERP solutions, it has given the company a greater platform to plan , procure, manufacture & deliver products to our customers
23. ERP, integration, globalisation ,same system used across many countries
24. Business applications (POS), Warehouse & distribution, web services, electronic transaction capability
25. Web enrolment, Improve HR process
26. Customer management for billing automation of work process, customer event management, group wise, scheduling using shared calendars, linkage of office
27. Relative operational systems
28. Customer contact, business reporting from between supplier
29. Operations in hospitals, financials, …, provision of services
30. Enrolment, communications
31. EDI with customers
32. All areas of business have been fully affected by IT
33. Sales/ stock info
34. Sales , manufacture, supply chain, financials
35. Regulatory, customer service, rate payers, finance, HR, city assets
36. Manufacturing process controls and responding, financial readings and reporting, Ecommerce, communications (email)
37. Supply chain, sales, MIS

38. Communications, financial management
39. Retail services process development, hardware upgrades supporting CIS
40. Merchandising, purchasing decision support, website/intranet/extranet,, Inventory, POS
41. Invoice and relevant production
42. Sales, distribution, demand planning, mobile technology, B2B, quality control
43. Core operations - especially call centres, partner connectivity - extending our business through news delivery channels, management information , Info
44. Business values
45. Sales, distribution, finance
46. Supply chain, customer service, finance
47. IS/IT projects are about enabling people access to the
48. Ecommerce, B2B, Marketing, Advertising, Inventory control
49. Cost reduction, quality improvement
50. Admin

Question no. 20
Management processes to link IT with Business

1. Alignment with organisational strategies - initiatives are values and ranked for strategic benefit
2. Systems review board
3. Proposal document for IT board, IT board presentation (large projects >$ 100k), IT board approval, CEO approval, benefit delivery review
4. Capex round
5. Formal managements -level prioritisation groups
6. Nil
7. Time/cost, practice productivity, staff development, business intelligence
8. Predicted gains or savings are verified
9. Manual reviews
10. IT policy +advisory group - CEO in chair
11. All of IS/IT projects are jointly sponsored by business and technology teams
12. Formal business approval and project plans
13. No formal process other than a single review of progress
14. We are developing new process to better align this. Currently investment decision are made close to the business function area
15. ROI, EVA - An analysis during projects
16. Key business drivers are identified and their values prioritises. These then determine the priority of IS/IT projects
17. Business cases aligned with organisations strategic objectives
18. In house developed process which is based on traditional cost benefit analysis ROI
19. EPDEP (chevron Texaco project development and execution process
20. Business issues identified, solutions investigated, recommendations presented
21. Steering Committee
22. Approval for IS/IT projects must be approval at the executive board level
23. ROI , staff efficiency, customer relations
24. Strategic plans, KPIs , annual planning
25. CAP/ cost analysis, relationship meetings
26. NPV analysis
27. Cost and return on investment
28. We work under a series of guidelines provided by our parent company

29. New processes are being developed but project sponsor from the business is being used
30. Our capital investment process is very rigorous
31. None
32. The business base
33. Capex sign off process
34. Strategy review i.e. is does project deliver to strategic plan
35. none
36. IS prioritisation, ISP review
37. All initiatives over a threshold $ value must be approved by the executives - same process and criteria for IT and non-it initiatives
38. Business requirements documentation providing the scope + value analysis on completion of the projects
39. Project co-ordination team from the business
40. Prioritisation of IS/IT opportunities with the business
41. See Question no 12 - priorities determined through governance process at time of est. is strategy. Because subsequently follow to outline why investment should proceed.
42. None
43. Business planning process (annual)

Question no. 25
Changes to the current IT process

1. Under recognition of the stored responsibility between IT and business units to drive for benefits realisation
2. Maintain more regular updates of software etc.
3. Current processes do not take account of "standing still". Some IS/IT experts undertake 2 maintain the strategies & avoiding regression. When all projects are Val + there is a tendency 2 overlook costs associated with replacing infrastructure & tech, just 2 t
   Closer connection between business strategy & IT projects
4. Formal audits of all major IT projects
5. No major changes required
6. Increased use of feedback & review
7. Stop moving the goal posts
8. Continuous improvement
9. A continuously updated business plan for the hole organisation
10. More sponsorship from business
11. Identify business value benefits
12. Get a greater commitment & feedback from managers
13. Implement ... process & tighten up on business case
14. Better business management participation and ownership of projects
15. Greater clarity on customer expectations, tighter integration with organisational goals
16. Nothing, requires more training for these procedures who will be involved to ensure IS/IT used corrected
17. Better business strategic planning to enable better IT strategy planning
18. More formal process
19. Conduct a service technology survey to evaluate the IT requirement defined by people outside the IT area. (Meeting the needs of people)

20. Elevate a level of decision making so that CEO & board understand and are well defined
21. Need a dedicated person on the staff who understands how the business works so as to make IS/IT work best for us although this is cost prohibitive currently
22. More rigid
23. Total cost of ownership over the entire life of the system or application
24. Nil - currently cost objective
25. Projects are signed off at senior level, with sponsor accountable for realising the benefits of the project
26. Improve the feedback cycle on completion
27. Improve consistency across organisation projects
28. Executive accountability and authority
29. a decent phone system and broadband
30. Better coordination between all level of business and across business units
31. Creative business involvement in extracting "value" through process change
32. Improve the process for measuring and evaluation
33. Area that needs strengthening is in ensuring that all project completed, benefits delivered and what can learn from project to inform future
34. Calculate cost/benefit of a process before change and recalculate the cost/benefit after the process has been changed.
35. Better accountability of time.

Question no: 26
Current IS/IT practices to ensure business benefits delivery

1. Formal process managed from a centre of expertise - off an agreed benefits register
2. Controls on purchases, spending carry out feasibility studies
3. Measure post-implement outcomes against planned, stipulated improvements. Measure customer satisfaction if project aims to impact on these areas.
4. Review board
5. Where these do not occur automatically, Eg, reduced supplier charges, , then management must implement the saving (staff reduction, return equipment etc)
6. Fairly adhoc
7. We don't
8. Change accompany bottom line profitability
9. We don't
10. Comprehensive change management
    project mgt, steering committee responsibility
11. Feedback
12. Use a formal project management methodology for projects and we have a outcome focused (Risk/rewards framework for all outsourced contracts)
13. Project completed to plan
14. Simple proposal of what is required giving divisions benefits along with costs
15. IT don’t manage that today
16. Ensure processes are modified. Staff training on current using new systems
17. Review projects on completion
18. CPDEP, involves project look back during execution and operation , peer reviews are compounded at alternative selection, development , execution and operation
19. Part of the post-project review process

20. Don't
21. Evaluate benefit against the firms overall strategic plan
22. Ensuring there is a culture of accountability reinforced by follow-up review
23. From back from supplier and competitors
24. Post project evaluation
25. Senior management feedback
26. Many are soft benefits. The hard ones are measured via financial reporting and sales figures etc.
27. Increased ... from information required
28. Measurement against processes + KPIs provided by parent
29. Proposal based on ROI, Informal review of project and ROI realised
30. Spelt out in our investment process formal post implementation review (PIR) for all major project
31. No formal process
32. CBA must be developed before job started BA reviews job on completion to check for implementation and value achieved
33. Not aware
34. we don't
35. Reality checks pre-execution, milestones during execution stages
36. The business owner who starts a project is responsible for the benefits & must include them in his/her budget
37. With great difficulty - see Question no 25
38. Mainly measure cost reductions
39. This is essence. Depends on the nature of the investment but review benefits promised in business case to ensure that delivered.
40. customer satisfaction

Question no 32 a:

Experiences with the current benefit realisation framework used:

Positive perspectives

1. Common methodology for all initiatives. Common language, templates, processes, embedded in the organisation. A great tool to draw out business benefits and to prioritise on an organisational basis
2. Many IT customers initially see it as a block to progress, but those with common business sense soon understand the reasons to prepare the proposal. The others as you would expect, continue to practice on and "go no where"
3. Captures the business value aligned to IT
4. We know where we are at during the project whether it is a multi-million or small project
5. Simple process enables quick identification of key issues
6. Difficult to accurately assess risk early as in a way which is meaningful to presentation
7. Forces a more formal approach to project initiation and resource allocation
8. Standardised process
9. Requires business managers to understand value of projects before undertaking and requirement to fully achieve project value. Useful tool to set priorities and allocate resource to areas of greatest return
10. Avoids starting projects without committed executive
11. Simple to quantify against original scope

12. On positive side, ensures that benefits are clearly activated and linked to business objectives.

Question no 32 b:
Experiences with the current benefit realisation framework used:

Negative perspectives

1. Too restrictive, can be laborious, have had to modify to suit different circumstances
2. Corporate block, little to no consideration taken of local factors. Corporate dictates are at a higher importance
3. IT customers are assisted in preparing the justifications, and realising the responsibilities pre and post -implementation.
4. Sometimes it doesn't work very well on necessary infrastructure improvements projects
5. Wrong people are assigned to projects and are out of their duty with no formal understanding of owe to contribute, we are getting better as more people receive the appropriate training.
6. Not sophisticated not very structured
7. Difficulty of establishing true
8. Can be overly complex for smaller projects
9. Value judgement can be open to interpretation. Can show the development process
10. Divisive for project governance group
11. System does not adequately account for situation over which we have no control and can affect scoring of projects
12. Intangible benefits are difficult to include
13. Framework relatively new, is probably overly complex to use and under weighs some core infrastructural/ corporate benefits

Question no. 33
Changes to the current model

1. More local autonomy
2. We could structure it a little more
3. Somehow make it work for infrastructure improvement projects and business growth projects equally
4. nothing
5. Closer definitions & more structure
6. NO
7. nothing
8. Education of users in value analysis
9. tied to future budgets
10. See the above likely modify to address drawbacks identified.

Question no. 36
Other Reasons for not using the models

1. We would need to grow in size & change our primary tree of business
2. Project mainly driven by corporate policy
3. NA
4. Not aware of any
5. Internal process are used
6. Culture alignment
7. Chevron Texaco policy
8. Business resistance
9. We have adapted a framework that needs our specific needs.

Question no. 37
Changes required to the current models in order to adopt any one of the formal frameworks

1. We needed to adopt a template - we have endured considerably what we just started with
2. Benefits wouldn't have to be demonstrated /sold to regional HO at least, before changes could report don to local units.
3. I guess I'd need to learn about them
4. Find time to evaluate one
5. Education on the benefits
6. Be convinced the framework was written from out industries point of view & that the framework was more efficient than the process (internal) we already use
7. Organisational, dissatisfaction with the existing methods
8. Can't comment
9. Find out explained framework training
10. Company would need to grow as change dramatically
11. First phase is to educate business in quantifying benefits before moving to this.
12. Be more aware of the benefit of such frameworks
13. Further research into benefits and costs of different frameworks
14. Chevron Texaco policy
15. Bigger projects - risk management
16. Mandated by senior manager
17. Find out more information on the published realisation frameworks
18. Note, there are only 3 main suppliers for dealer mgt sys like we require therefore we have to evaluate their strengths and weakness and make a decision
19. Research
20. More staff
21. NA
22. Know about these formal frameworks
23. Complete process change, knowledge of the frameworks
24. Become aware
25. understanding their process and benefits
26. Awareness, demonstration that another framework will actually deliver increased benefits (i.e., the benefit is in using the framework it is to use any framework rather than have one that is not used well
27. see q36
28. Need to be head office approved and mandated
29. Not aware

Appendix K Qualitative responses (exact extract) – Finance managers

Business/Finance managers' survey – 2004
Obtaining business benefits of IT through benefit realisation techniques

Question no 11
Contribution of IS/IT to the organisations

1. Restructuring, sales planning
2. Transmission broadcast equipment used to be studio based. IT is now computer based. Relay of film clips used to be line fed in analogue, now digital.
3. Replacement of ERP systems, implementation of DW in sales & production, assisting with IT component of plant upgrade.
4. Stock management, financial processes, business processes, common platforms, pooling of knowledge experts
5. Provision of effective, reliable network + underlying systems to allow business to be transacted.
6. Data for better decision making on funding. Reduction of process times.
7. Prepared metering
8. Student enrolment administration, core financials, payroll & HRS, library.
9. Finance, supply, personnel, personal productivity, engineering, health and dental.
10. Production planning, warehousing, stock control.
11. Finance, supply chain, manufacturing.
12. Sales (EDI), production, finance.
13. Financial mgt, asset mgt, local government functions, rating, consent, licences, permits.
14. Business Process automation, Communication with overseas entities.
15. POS, Account receivable/payable, GL (general ledger)
16. Operations and processing
17. Planning, optimisations, supply chain execution, Self service, KPI, Financial reporting
18. Interaction with customers business processors (Benevolent enhancement) resulting in strategic advancement. Internal business process efficiencies
19. GPS based dispatch system, accounts
20. .... core processes .....its wired areas...sale p....
21. Finance and merchandising
22. Operational, financial
23. IS/IT contributes to all areas of business and it sis a significant contribution
24. Operational support
25. Operational work management systems
26. Business process improvement
27. Revenue management , call centre performance, field force automation & efficiency, project control, network control (SCAOA), GIS
28. Student administration, HR payroll, library , infrastructure upgrade, portal developments
29. All areas

Question no 16:
Management processes to link IT with business

1. Subjective evaluation
2. Mostly our drivers are based on critical performance. How the process would increase delivery standards in shorter time. Then it looks at business cost drivers
3. IS strategy is built from report from business on their requirement
4. o... mgt decides and then imposed in locally. Decision is global/management prospective and not local
5. Assessment of each project priority in respect of business processing
6. Review of the proposals for NPV of initiatives, external reviews
7. KPI on Service quality
8. Business case required for major IS/IT projects for approval by IS steering committee, Advisory groups such as FMIS, HRIS, Library software set up to assess progress on projects and continually re-assess value to AUT
9. Depends on process and functional areas, business sponsors have strategic goals which guide their development of service etc
10. IT investment is driven by what benefits the business will receive
11. Return on Investments
12. Budget and proposals include project value / outcomes expected
13. Business benefits analysis
14. Assessing on priority of achieving the business/ strategic planning programme
15. Capital prioritisation process
16. Strategic alignment, , stakeholder/employ needs and value
17. An IT investment is prioritised using a formal weightful process invoicing IT + the business in decision making
18. All non-mandatory (i.e., international head office dictated) projects have a business case prepared. Larger projects are run with formal project structure & steering committee
19. Alignment to business strategic objectives
20. Strategic planning initiatives, business led IT initiatives for applications process. The only IT initiatives not immediately visible tot he business are data centre, hardware related issues, retail issues/appointments
21. Linkage to ...projects, IT statement of strategic intent and University 5 year plan
22. These are one and the same, we do not make any distinction

Question no 21
Changes to the current IT processes

1. Have an objective process
2. The system is very robust. It uses steering committee from several areas outside IT to justify all decisions from initial concept through to final delivery.
3. NO
4. More local in-country input
5. Closer relationship with production unit
6. Ensure all benefits are achieved that can be. Too often the projects are ended after implementation and not extended to include re-education/re-engineering of work practice
7. Greater focus on post project implementation review
8. A more thorough examination of cost-benefit undertaken at business case stage expressed in $ terms

9. Not terribly relevant to basic processes of defence organisation. Need people who can translate between business and military needs
10. More focus on post implementation review
11. It is very hard to quantify "efficiency" - doing things in a more efficient manner when there is n FTE reduction. Also hard to quantify value of having a single data source
12. Structure time to review and evaluate
13. More thorough planning, Greater business ownership, Disciplined Execution of Project
14. Implementation of Post project reviews
15. Better use of available technology, upgrade to latest technology
16. Ensure that all projects are assessed in the same process and not done because of an instruction from senior management/board
17. Get more business involvement
18. Need benefit delivery measures post project completion
19. More ownership within the business community
20. Project review

Question no 22
Current IS/IT practices to ensure business benefits delivery

1. None
2. All projects have a charter & benefits are listed on it. At the end of large projects & then 1 yr later these benefits are reported back based on original charter. & how the realised benefits measure up. & If not why.
3. Identify benefits and then quantify financially by inspired process in other benefits, ie, integration on setting base for future benefits
4. We do not manage this process
5. Did the system work when it was delivered + was IT on time + Does IT do what was expected
6. ADhoc - depends on the Project manager and the owner driving the full benefits. Brief after implementation to check all benefits have been obtained against the plan.
7. Following the approved Project Methodology and now also a formation of an IT steering committee.
8. Some projects are subjects to post-project reviews conducted by business areas & internal audit
9. Depends on activities
10. Projects are evaluated when put forward
11. Post-implementation reviews/benefits
12. Monthly meetings
13. Benefits are articulated with formal measures and these are reported against quarterly.
14. Through project management & Project reports
15. project management
16. Review expected benefits in budgets/KPIs
17. Definition in the planning phase, Implementation and Sign off
18. It is not done
19. Reviews + other ...

20. Following the business plan that was written as part of the business case, that should realise the benefits
21. Usually by informal feedback with business + users
22. Don't
23. Pre and post implementation checkpoints
24. Partnership with business. It is responsible for delivery to budget /time/quality. The business is responsible for exploiting the technology

Question no 28a
Experiences with the current benefit realisation framework: Positive

1. Accountability is maintained at the level of original charter
2. priorities overview as to whether project makes good sense
3. The process can be slow
4. Provides good framework & control mechanism
5. IT/IS is driven by the benefits it will deliver to the business
6. Project structure/standard to enable comparison
7. Internal understanding of resulting business opportunities
8. Forces a discipline on business value, not simply IT driven.....
9. Clear unambiguous prioritisation of projects communicated to all stakeholders
10. Systemises approach
11. It works
12. Time consuming, resource intensive
13. Not always relevant
14. Relevant to participants, financial controls, accurate reporting
15. Inconsistency across organisation
16. Sometimes things outside the charter have direct impact that can be overlooked
17. Business perceptions of beauracracy
18. Comes down to fully complying with frameworks
19. Our framework does not take account of changing scope and how this impacts on delivery to business benefits
20. No mechanism for overall portfolio review
21. Lack of understanding, lack of follow up that the benefits were realised.

Question 28 b
Experiences with the current benefit realisation framework: Negative

1. Sometimes things outside the charter have direct impact that can be overlooked
2. Lack of understanding, lack of follow up that the benefits were realised.
3. Inconsistency across organisation
4. Not always relevant
5. Relevant to participants, financial controls, accurate reporting
6. Our framework does not take account of changing scope and how this impacts on delivery to business benefits
7. Comes down to fully complying with frameworks
8. Time consuming, resource intensive
9. Business perceptions of beauracracy
10. No mechanism for overall portfolio review

Question no 29
Changes to the current model

1. Review period to 6 months
2. nil
3. Greater focus on post project implementation review
4. Greater consistency for all IS/IT projects, greater awareness of the impact of the new project, appreciation of current business rules which might over-complicate IS/IT project specifications unnecessarily
5. Procedures must be relevant to situation in which it is used
6. Not much. works pretty well
7. Incorporate impact on benefits to any scope change documents
8. Longer strategic planning sessions involving executives, Post implementation review , feedback into planning loop
9. More grasp on the intangible benefits and the link to business strengths in empirical theory.
10. More business ownership

Question no 32
Other reasons for not using the formal BR models

1. Just have never used
2. Cost and time to implement it
3. Historical, may do going forward
4. Current process works
5. Low on priority list/ Time

Question no 33
Changes required to follow any one of the models

1. Be convinced the process will add value
2. Get more information on what is available. Then measure the pros and cons of each and make a decision
3. More structure to the process but then this delays future projects by putting past projects into a framework
4. A wider knowledge and appreciation of the framework by senior mgt.
5. IT expenditure
6. Organisational culture swings to risk management focus
7. Need to be more relevant to defence
8. To be convinced of the benefits ... what we already do
9. Our own developed in house methodology to fit the process
10. Failure of IS/IT projects, so do not expect on ....
11. Evidence of superior outcome
12. IT to accept one and advise it to be used , for manage the process
13. Frameworks need to be a means to aim end and not an end in themselves.
14. Executive buy-in
15. Knowledge of what is available(other response)
16. Be better informed
17. I Would need to understand the benefits & applications