Aligning IT to Corporate Objectives:

Organisational Factors in Use

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Abstract

The purpose of this research was to explore the factors that organisations use to align IT with their corporate objectives. Although this topic has been of importance to organisations since the 1980s, there appeared to be few rigorous studies in this area.

The research was undertaken using a multiple case study method – examining five medium to large organisations in Australia to identify if and how they used IT to support their corporate objectives. The research was not intended necessarily to compare the use of IT against the financial performance of the organisations, but to ascertain what the organisations themselves considered was required for this support / alignment. The research included interviews with senior management and analysis of a variety of source documents from each organisation.

The research found that there are twenty-one factors that organisations use or have present to align their IT with their corporate objectives. In addition, the factors can be clustered into three groups, and a hierarchy of relationships between the factors was identified. In addition some factors are inter-dependent i.e. they are dependent on each other for successful use in the organisation.

The three groups of factors are management & planning, business and technology. The management & planning factors provide the foundation for all the other factors. If they are not present in the organisation, or are not actively assisting the organisation to align its IT to its corporate objectives, the effect of the other factors will be minimal or at least have far less influence in aligning the IT. They provide the framework for how the business factors will be used in the organisation. These in turn dictate the way in which the technology factors are used or are present in the organisation.

1. Introduction to the Thesis

1.1 Introduction

According to Hind (2001a) Australian organisations on average spend between 1% and 6% of their annual revenues on Information Technology (IT). In large organisations this can amount to $100 million or more, but how well is this money spent?

Over the last ten years there has been a considerable amount of research into whether the money invested in IT by organisations is beneficial and whether or not IT has been able to assist the organisation in achieving its goals and objectives. This latter area of research has been commonly referred to as "aligning IT with the corporate objectives", something which has been a major concern of organisations since the 1980s (Brancheau, Janz & Wetherbe, 1996).

One of the first questions that arises when examining this area is: what is meant by "aligning IT with the corporate objectives"? In reviewing prior research, it was found that most researchers treated the concept of alignment as something that was already well understood, i.e. they did not define or explain the concept of IT alignment.

Chan & Huff (1993) provided an explanation of the concept of IT alignment in organisations. They stated that organisations achieve alignment of their IT with their corporate objectives through three levels of alignment:

1. <u>Awareness</u>, where IT professionals become aware of the need to have IT more focused on and connected with the business;

2. <u>Integration</u>, where senior IT management of the organisation recognise the need to have "a meshing of the organization's operational plans and those of IS" (Chan & Huff, p52). This is performed either by having the IT plans developed following the creation of the organisation's strategic plans, in parallel with those strategic plans, or in some cases actually have the IT plans developed first and then formulate the organisation's strategic plans based on the IT plans.

3. <u>Alignment</u>, where the concept of integration is taken one step further, i.e. IT is integrated "with the organization's fundamental strategies and core competencies" (p52).

In a subsequent study, Chan (2001) summarised the concept of alignment across these three levels: "Strategic alignment is viewed as the degree of congruence between business and IS strategic orientation (or strategy)" (p2).

There are very good reasons why organisations consider aligning IT to be important. In their research into business strategy and IS (Information Systems) strategy Chan, Huff, Barclay & Copeland (1997) found:

> *"Companies that appear to perform best are companies in which there*
> *is alignment between realized business strategy and realized IS*
> *strategy" (p142).*

If the two sets of strategies are aligned then it could be assumed that IT itself would be aligned with the corporate objectives, and that this alignment would therefore provide performance benefits to the organisation.

The results of the research into IT alignment and IT investment versus organisational performance however are mixed. For example Brynjolfsson & Hitt (1998) found in their research into the benefits of IT investment that:

> *"While the average returns to IT investment are solidly positive, there*
> *are huge variations across organizations, some have spent vast sums*
> *on IT with little benefit, while others have spent similar amounts with*
> *tremendous success"* (p50).

Jordan (1992) on the other hand found that research into the benefits of carrying out planning for IT had not established any link between the IT plans and organisational success. By way of contrast Weill (1990) carried out a study of organisations comparing their performance over a six year period against the value of investment in strategic IT projects. His study found that investing more money in strategic IT areas actually depressed sales growth for the first three

years, while there was no correlation between IT investment and organisational performance for the second half of the study period.

These studies indicated the difficulty that researchers have experienced in trying to establish a relationship between IT and the benefits, if any, that an organisation may have derived from the use of IT in the organisation. In particular it has appeared to be difficult to provide a good correlation between IT alignment and improved organisational performance. As Sabherwal & Chan (2001) indicated, "empirical research on the performance implications of this alignment has been sparse and fragmented" (p11).

Based on this uncertainty, it was decided to explore the relationship, if any, between the use of an organisation's IT and the achievement of its corporate objectives – specifically to explore how organisations align their IT with their corporate objectives.

1.2 Aim of this Research

The aim of the research undertaken for this thesis was to answer the question: what are the factors that organisations use to align their IT with their corporate objectives? In reviewing previous studies into the alignment of IT with an organisation's corporate objectives (refer Appendix G), it was found that there was no common term for the variable which caused or influenced the alignment. Of the twenty-five studies analysed, seven used the term "factor" as either: "factor" (one study), "key organisational factor" (one study), "success factor" (two studies) or "critical success factor" (one study).

The Macquarie Dictionary defines a factor as "one of the elements that contribute to bringing about any given result". As such, it was determined that "factor" would be the most suitable term for this research. For the purposes of this research, a factor was defined as any procedure, methodology, behaviour, policy or activity which an organisation used, or was present in the organisation, and was used by the organisation to align its IT with its corporate objectives.

Although this topic has been of importance to organisations since the 1980s (Janz, Brancheau & Wetherbe, 1996), and one of the top concerns of the 1990s (Plowman, 1998), there appeared to be few definitive studies to identify what were the factors which either

determined or were a prerequisite for the alignment of IT with the corporate objectives of the organisation. As pointed out by Reich & Benbaset (1996):

> *"There are few studies of how companies perceive the linkage issue or*
>
> *how they actually organize and act to achieve it" (p56).*

This was supported by Hirschheim & Sabherwal (2001), who pointed out that:

> *"Insufficient research has been conducted on how such alignment is achieved and*
>
> *sustained over time" (p87).*

As such, it was considered that if the factors that organisations used for IT alignment could be identified, there could be some substantial benefits to organisations with regards to assisting them to use IT more effectively and efficiently in the achievement of their corporate objectives.

1.3 Importance of the Research

A substantial body of literature emphasised the importance of IT to the organisation and of aligning IT with the business objectives of the organisation. Boar (1994) for example states:

> *"In response to ever growing worldwide competition, the business needs to*
>
> *use IT to build, sustain and extend competitive advantage . . . Most major*
>
> *strategic thrusts require the crafted use of IT to succeed* (p16)*".*

Khandelwal (2001) concurs when he states:

> *"It is clear that for enterprises to achieve their corporate objectives the*
>
> *information systems supporting the business processes have to give*
>
> *right management information, at the right time" (p23).*

To do this he says, "IT in an enterprise must align with the organisational objectives".

From the published research, it was apparent that the way in which IT has been used in an organisation might have a significant effect on its financial performance. For example, Hitt & Brynjolfsson (1996) found that "IT investment may be one way to pursue a cost leadership strategy" (p139). At the same time however, they cautioned: "IT spending alone is not determinative of success". Sabherwal & Chan (2001) clarified this view in their research:

"Alignment affects perceived business performance but only in some organizations. Alignment seems to influence overall business success in Prospectors and Analyzers but not in Defenders" (p11).

(The concept of Prospectors, Analyzers and Defenders was taken by Sabherwal & Chan from Miles & Snow's (1978) well-established typology of business strategy.) Sabherwal & Chan considered the concept of alignment as "aligning IS (information systems) strategy with business strategy" (p11), which was similar to the concept of alignment that this research question is exploring. Luftman & Brier (1999) also saw the benefit of aligning IT with an organisation's corporate objectives:

"Companies that have achieved alignment can build a strategic competitive advantage that will provide them with increased visibility, efficiency and profitability to compete in today's changing markets" (p121).

There has been substantial research examining the benefits and / or needs of aligning IT with the organisation's corporate objectives. This research indicated that aligning IT with the strategic plans / business requirements / goals and objectives of the organisation was either important or essential for a variety of reasons. Weill & Broadbent (1998) provided one of those reasons:

"Information Technology is the single largest capital expense in many firms today and integral to achieving business goals" (p vii).

Kent & Hall (1999) outlined ten reasons why it is important that IT should be aligned with an organisation's corporate objectives including to "Ensure that the IS function supports organizational goals and activities at every level" and to " Enable better exploitation of opportunities to use IT for strategic purposes" (p171). Other reasons provided by research into this area included: reducing costs, improving the ability to achieve the organisation's goals and objectives, increasing flexibility to make alternate strategic choices and, in some cases, gaining competitive advantage through the direct use of IT as a competitive weapon (Synnott, 1987).

According to Henderson & Venkatraman (1993), IT has become closely linked with the business strategies of organisations as a fundamental part of running their business:

> *"Across a wide spectrum of markets and countries, I/T (information technology) is transcending its traditional 'back office' role and is evolving toward a 'strategic' role with the potential not only to support chosen business strategies, but also to shape new business strategies" (p4).*

Similar results were found by Delisi, Danielson & Posner (1998), and Khandelwal (2001). Their surveys found that CEOs considered IT was critical for the success of their organisations. Goldman (1999) also found similar results in his studies, and found that, in some cases, organisations questioned the requirement for a role within the organisation if it did not require the use of a computer.

In essence, the research indicates that aligning IT with an organisation's corporate objectives is essential to the organisation if it wants to succeed in the future. Identifying the factors that influence that IT alignment is also therefore important. If senior management know these factors and make use of them, they can ensure their IT is aligned with their corporate objectives and:

> *"Build a strategic competitive advantage that will provide them with increased visibility, efficiency and profitability to compete in today's changing markets"* (Luftman & Brier, 1999, p121)*.*

1.4 Aligning IT is a Concern to Management

A substantial amount of literature indicated that aligning IT to the corporate objectives is one of the major concerns of management. The Society for Information Management (Brancheau, Janz & Wetherbe, 1996) found in their 1994-95 survey of the most critical issues in IS management that the issue "Aligning the IS organization within the Enterprise" has "remained consistently important over the last 15 years" (p233). In the 11th Annual Critical Issues of Information Systems Management Study conducted by Computer Sciences Corporation in 1998 it was revealed that 72 percent of the 594 information technology executives polled ranked "Aligning IT and Corporate Goals" as their top concern

(Plowman, 1998). This was the fourth consecutive year the alignment of corporations' business strategies and IT priorities had been rated as the top challenge in the survey. In addition, Khandelwal (1999) found in his survey into the misalignment between CEOs and IT Managers that " 'IT for competitive or significant advantage' and 'reengineering of business processes' had both been ranked among the top quartile CSFs (Critical Success Factors) by the CEOs" (p23). Both CSFs were considered essential by CEOs for the successful alignment of IT with the corporate objectives.

1.5 How Well do Organisations Plan?

According to Gray (1986), most organisations handle strategic planning poorly. Although Gray's research was carried out in the mid 1980s, the problems he found with regards to planning in organisations appeared to be still prevalent in business today. The main problems cited by Gray ranged from poor preparation of managers involved and faulty definition of the business units concerned, to vaguely formulated goals and inadequate linkages of the strategic plans with other control systems. According to Gray's research, strategic planning, if it was done at all, would be carried out in a very piecemeal fashion by many organisations. It would be long-winded, tedious and would usually degenerate into financial planning, more accurately referred to as budgeting. Glaister & Falshaw (1999) for example found that one of the most commonly used tools or techniques used in strategic planning was the spreadsheet. In addition, the strategic plan would usually be developed with little review or analysis and would then be put on a shelf for display purposes while the organisation carried on with its activities, which may not have any similarity with the strategic plan.

Chan, Huff & Copeland (1998) had similar comments regarding the ways in which organisations plan their business:

> *"All organizations have strategies, although not all organizations have formalized strategies. Some write their strategy down, some just talk about their strategy, while others never even mention the word" (p273).*

At the same time, Chan, Huff & Copeland recognised the importance not only of strategic planning but that it was "important for companies to execute their strategies as well as possible" (p273).

When management have tried to align their IT with the organisation's corporate objectives, the task has appeared to be a formidable one. Luftman & Brier (1999) pointed out that:

> *"What is not clear is how to achieve and sustain this harmony between business and IT and what impact the misalignment might be on the firm" (p110)*

According to their research and the research of others (Pant & Hsu, 1999; Reich & Benbasat, 1996), if the corporate objectives are not clear, concise and cover all the aspects of the organisation's business, then it is unlikely that the IT would be successfully aligned with them. The purpose of this research question however, was not to measure the quality or success of an organisation's corporate objectives, but to assume they would at least be adequate and thus see how the organisation's IT supported the successful implementation and execution of those corporate objectives.

1.6 Outline of the Research

According to various researchers (Reich & Benbaset, 1996; Luftman & Brier, 1999; Sabherwal & Chan, 2001) although there had been substantial research into various areas of IT usage and investment in the organisation, there appeared to be little prior rigorous research in the specific area of the alignment of IT with the organisation's corporate objectives. In selecting an appropriate research methodology, it was originally thought that the best results would be obtained through the use of a survey instrument. A questionnaire was prepared based on the results of the literature review and the researcher's own experiences in the area of IT alignment. Following several pilot tests of the questionnaire, the questionnaire was mailed to the top 1,000 organisations in Australia, measured by revenue (refer Appendix H for a copy of the questionnaire).

The response rate to the questionnaire was around 1% - in other words useless for the purposes of this research. A review of the poor response was carried out: maybe senior

management weren't really interested in aligning their IT to the corporate objectives of the organisation. Or was there another reason?

Hind (2001) presented a possible answer in one of his articles. He wrote that, as one of the researchers for the magazine (CIO), he was finding that people in the IT industry, especially CIOs, were becoming more resistant to answering questionnaires. His normal response rate to questionnaires was approximately 10%, well down from the 20% plus he used to receive.

Chetty (1996) found similar resistance when she conducted a survey as part of her research concerning small to medium sized firms in New Zealand, as well as finding other problems with this type of quantitative research. In her research, Chetty found that firms in New Zealand were being over researched and such were becoming more resistant to yet another survey – one organisation she contacted indicated that they had been asked to participate in surveys ten times in the previous year.

To properly explore the chosen area of research, an analysis of the available research methodologies was undertaken to see which would be the most suitable for achieving the desired outcomes of the research. From this analysis, it appeared the case study method would yield the best results. Thus it was decided to undertake a qualitative approach using a multiple case study method – examining five medium to large organisations to identify how they use IT to support their corporate objectives.

A suitable definition of the case study method was given by Hussey & Hussey (1997): "an extensive examination of a single instance of a phenomenon of interest". Yin (1994), however, felt that case study research as a qualitative method was under-utilised and not appreciated for its methodological strength: "most people use it as a method of last resort, and even then they use it with uneasiness and uncertainty" (p15).

Eisenhardt (1989) is also an advocate of the case study approach, and developed a process for building theories from case study research. The process contains eight steps, Getting Started; Selecting Cases; Crafting Instruments and Protocols; Entering the Field; Analysing Data; Shaping Hypotheses; Enfolding Literature and Reaching Closure. Eisenhardt considered that this process added strengths to the case study method by allowing the

researcher to continually test, evaluate and build on the theories being explored during the entire process, by moving forward and backward through the steps as necessary:

> *"For example, an investigator may move from cross-case comparison,*
>
> *back to redefinition of the research question, and out to the field to*
>
> *gather evidence on an additional case"* (p546).

One of the aims of this research was to identify as many factors as possible that organisations use for aligning IT with their corporate objectives. Eisenhardt's process appeared to provide the possibility of achieving that aim.

This research was not intended necessarily to examine the financial performance of the organisations relative to their IT alignment, but to ascertain what the organisations themselves considered was required or important for this support / alignment. This approach was supported by Dess & Robinson (1984) who found in their survey of chief executives and top managers that measuring organisational performance by objective measures e.g. financial data, or by subjective measures e.g. by the perception of the respondent, would yield similar results. Bergeron & Raymond (1995) also provided support to this approach with the findings of their research in an information technology environment.

A protocol was developed for undertaking the case study research (detailed in Appendix D). As part of the protocol, an analysis of each of the five organisations was undertaken including interviews with senior management. From that analysis, common themes were identified and tested, constructs developed to define and refine the themes, and following further testing and comparison with the research literature, possible factors were proposed. As part of this analysis, the personal experience of the researcher gained from over 35 years of being in the IT industry was also used. This experience has included: working in the IT departments of medium to large organisations; as a senior manager and CEO of international IT vendors; and, since 1983, self-employed as an IT management consultant advising senior managers in both end user organisations and IT vendors on the optimal use of IT.

Prior to commencing the case studies, a comprehensive review of the literature was conducted with two aims. The first was to identify any prior rigorous research into the area

of IT alignment to the corporate objectives, as well as provide further supporting evidence regarding the importance of the research question. The second aim was to see whether any possible factors could be identified from any research that had been conducted into this area of IT investment / organisation performance. As the case studies were conducted, and most importantly, the analysis carried out, the case studies were examined to see whether the possible factors identified during the literature search were also present in the case studies.

1.7 Use of Case Studies

During the literature review, it was found that almost all of the studies into the alignment of IT with an organisation's corporate objectives had made use of surveys, questionnaires and the like. Various studies hypothesised that one or a few possible factors could be important, however these studies did not always agree with each other. Some studies indicated that certain factors were important while other studies indicated that other factors were important. The usual methodology employed by these studies was to prepare a set of questions and send them out to several hundred senior managers of organisations, typically using a 5 or 7 point Likert scale to rank their response. The selection of the factors for these studies was then based on the questions which scored highest in the aggregated responses.

From this review it was ascertained that, although a positivist approach would be suitable, a quantitative methodology would not be appropriate to produce the results the research was trying to achieve. The primary aim of the research was to discover all the possible factors that organisations used or were present. Using a quantitative methodology might limit the set of factors being explored, and could possibly omit important factors.

A multi-case study approach was chosen therefore as the most appropriate methodology for the research. The research used an amalgamation of the methods recommended by Eisenhardt (1989) and Yin (1994) as the one that would give the best results for the research. Eisenhardt's case study research process recommended that at least four organisations should be selected in a multiple case study approach. In accordance with this process, five organisations were chosen in different areas of business. The selection methodology, and reasons for using this approach, are provided in more detail in Chapter 3.

1.8 Remainder of the Thesis

The rest of this thesis is divided into five chapters as follows:

- **Chapter 2 – Literature Review**. In this chapter a comprehensive review of the literature is documented with regards IT, strategic planning, the importance of IT alignment and the results of research into whether investment in IT benefits the organisation. The chapter also documents the research that has been conducted by other researchers into how organisations align IT with their corporate objectives and identifies possible factors that had been identified by them. With some of the prior research, limitations with respect to this research were identified. These limitations have been tabulated in Appendix G.

- **Chapter 3 – Proposed Methodology.** This chapter documents a review of the available methodologies, and looks at the relative merits of each methodology with regards its appropriateness for the research in question. The various methodologies were compared and a rationale has been provided for selecting the multi-case study approach as the methodology that would be most closely suited to providing the best results.

- **Chapter 4 – Data Gathering.** The chapter provides details of the five case studies that were selected for the research. These details include: an overview of the organisation; their methods and extent of strategic planning and IS planning; the details of their IT infrastructure; and how they use IT in their business. The information was gathered from a variety of sources including: annual reports; sales and marketing material; IT review reports; Expression of Interest (EOI) and Request for Tender (RFT) documents; interviews with senior executives; and attendance at management meetings of the case studies.

- **Chapter 5 – Analysis and Findings.** This chapter documents the analysis of the case studies, both within-case and cross-case to identify what factors, if any, the organisations used or were present in aligning their IT with their corporate objectives. This chapter also tests whether the possible factors identified during the literature review were present in each case study. In the cross-case analysis, the factors

present across multiple case studies were identified and analysed. Where a factor was not present across all five case studies, an analysis was carried out as to why, and what other factors may have been involved. An analysis was also carried out of the impact on the organisation of the factor not being present.

- **Chapter 6 – Conclusions.** This chapter provides a brief summary of the findings, the implications of the findings on organisations and how they could use them to improve the way they align IT to their corporate objectives. The weaknesses and limitations of the research have also been identified as well as the implications for further research the findings may have

In order to enhance the flow of the thesis, substantial amounts of important detailed material have been relocated to appendices. These critical parts of the thesis are essential to the total research but are so substantial that their placement in a strictly sequential format would detract from the exposition of the thesis.

6. Summary and Conclusions

6.1 Introduction

The purpose of this research was to ascertain how organisations aligned their IT with their corporate objectives. In particular, the aim of the research was to ascertain the factors that organisations use to achieve this. From the researcher's own experiences in the IT industry over the last twenty years and the review of the literature for this research, it was seen that this was an area that had been of concern to senior managers in organisations around the world since the early 1980s.

Researchers have indicated that aligning IT with the organisation's corporate objectives is important to the organisation. Their research found that many organisations have become almost entirely dependent on IT for their business. They also emphasised that organisations must use IT to achieve their corporate objectives and particularly to "build, sustain and extend competitive advantage" (Boar, 1994). The problem that most researchers experienced however, was trying to discover just how did organisations align their IT with their corporate objectives, and just what benefits, if any, did they gain from that alignment.

A significant amount of research has been conducted over the last fifteen years into determining whether any benefits have been derived from the substantial investments that organisations have made in their IT. Most of this research however, has been directed towards seeing whether the organisation had benefited financially by seeing whether or not there was any correlation between IT investment and corporate performance. The findings from the majority of this research have been mixed and in many cases contradictory. Research in the last few years has found however, that organisations which did align their IT with their corporate objectives, performed financially better than those that did not. Successfully aligning IT with the organisation's corporate objectives was therefore an important issue.

In considering the topic for this research, it was felt that the main problem with the existing research into the IT alignment / corporate objectives area was that it did not look closely at how organisations attempted to carry out IT alignment. This research examined the

procedures, methodologies, behaviours, policies and activities that organisations used to align IT with their corporate objectives by looking at the factors, if any, organisations used or were present in assisting them to align their IT in order to achieve their corporate objectives. The analysis of five case studies revealed significant findings about how organisations align their IT with their corporate objectives, which are summarised below.

6.2 Summary of the Findings

The five case studies were chosen for this research based on their diversity. This diversity was twofold, not only diverse by industry segment but also geographically, with the case studies spread over four Australian states. In addition, none of the case studies was considered to be leading edge in the use of IT in their organisations. Although the case study organisations were already known to the researcher, the selection of the case studies was made from a much larger list of organisations with whom the researcher had conducted prior consulting activities, and were selected to minimise any possible bias due to similarity of industry or influence due to geographic closeness.

Even with this diversity, the case studies displayed a high degree of similarity in their presence and use of factors for aligning IT with their corporate objectives. Fifteen of the twenty-one identified factors were found in at least four of the case studies. Where the factor was not present or used, there was either a good reason for its absence, or it was found that, because of that absence, the organisation's corporate objectives were not being achieved.

Four of the five case studies were found to have been largely successful in their attempts to align IT with their corporate objectives. The fifth case study, Victoria Police, was less successful in their attempts to align IT with their corporate objectives, due to the absence of the factors: Sourcing Methodology, IT Services Management, Standard Service Definitions and Service Level Agreements. This was admitted by senior management of Victoria Police, and they also indicated at the time of the case study, that steps were underway to overcome this deficiency.

The research found that there are twenty-one factors that these organisations use or have present to align their IT with their corporate objectives. Twelve factors came from the fifteen

possible factors identified in the literature review. The other nine came from the observations and analysis of the five case studies chosen for this research. A significant finding from this research was that there is a hierarchy of relationships among the factors, which appears to be essential if they are to be effective in an organisation. In addition some factors are inter-dependent i.e. they are dependent on each other for success.

It was also found that the factors could be clustered into three groups which are hierarchical in nature. The groups and the factors in those groups are:

1. Management & Planning:

   - CEO Attitude

   - CEO / CIO Relationship and Reporting Structure

   - CIO Management Style

   - Strategic Planning Quality, and

   - IT Planning Methodology

2. Business:

   - Standards & Policies

   - Information Management

   - IT Services Management

   - Sourcing Methodology

   - Program Management

   - Stakeholder Management

3. Technology:

   - IT Infrastructure Management

   - Internet Usage

   - Intranet Usage

   - Integrated Information System

   - Data warehousing

   - Information Modelling

   - Reporting & Analysis Tools

   - E-Mail Usage

- Standard Service Definitions

- SLAs

The following diagram illustrates the factors by hierarchy:

Diagram 8. - Factor Relationship Diagram showing Factor Hierarchy

The Management & Planning factors provide the foundation for all the other factors. If they

are not present in the organisation, or are not actively assisting the organisation to align its

IT with its corporate objectives, the effect of the other factors will be minimal or at least have

far less influence in aligning the IT. Of particular importance are the factors: CEO Attitude, which the analysis found to be the most significant factor of all; and IT Planning Methodology, which provides the framework for how the Business factors such as Information Management, Program Management, etc. will be used in the organisation. These in turn dictate the way in which the Technology factors are used or are present in the organisation.

In addition to the hierarchical relationship amongst the factors, there are some factors which are dependent on other factors within a group. For example, it was found that Program Management is dependent on both Stakeholder Management and IT Planning Methodology. Programs, which are related sets of projects, are set up within the organisation according to the requirements of the stakeholders, an activity which is carried out as part of Stakeholder Management. The projects within each program planned for implementation are typically prioritised and resources allocated according to the IT Planning Methodology and to the business requirements of the stakeholders.

This research also found that some factors were mutually dependent on each other. For example, IT Services Management and Sourcing Methodology are factors used together to identify which services should be offered (according to the IT Planning Methodology), the makeup of those services (according to the Standard Service Definitions), including service levels (according to the SLAs), and subsequently from where they should be sourced according to the Sourcing Methodology.

This research also found that the factors are essential in two respects if organisations are to successfully align their IT to their corporate objectives. The factors must not only be present to support the organisation's objectives but also must be used according to a set of characteristics which were identified during the research. If both of these criteria are not met then the organisation will find it much harder to align its IT with its corporate objectives.

6.3 Implications for Organisations

The identification of these factors has important implications for organisations wanting to improve the way they use IT. The factors have even greater importance if an organisation wants to successfully use IT to support the achievement of their corporate objectives or to

use IT to build sustainable competitive advantage. Numerous researchers have identified the importance for having individual factors present in an organisation if it wishes to improve performance, gain competitive advantage, etc. If all the factors are present in an organisation, it follows that the organisation should be more successful than if it merely had one or two factors present.

It is possible that the lack of certain factors in an organisation could explain why the extensive research into IT investment over the last fifteen years has not been able to demonstrate a correlation with the financial performance of the organisation. An example of this could be seen in one of the case studies – Victoria Police. The organisation lacked the identified characteristics of Stakeholder Management, Sourcing Methodology and Services Management factors including Service Definitions and Service Level Agreements. The result of this, according to their CIO, was a significant overrun of their IT budget.

One possible way organisations could benefit from the results of this research, is for them to carry out an analysis of whether each factor identified from this research is present in their organisation. If the factor is present, then they can compare how it is being used against the characteristics identified in this research as being essential for good alignment. For example, what is the CEO's attitude towards IT? What type of management style does the CIO have? To what extent are Standards and Policies used in the IT department? Each factor can then be ranked according to how well it assists the organisation in aligning its IT with its corporate objectives. Once the analysis has been completed and the factors ranked, those factors which are absent or are ranked low can be targeted for implementation and/or improvement.

6.4 Implications for Further Research

This research has identified a set of factors that influence the alignment of IT with an organisation's corporate objectives. The identification of these factors provides a good base for other researchers to explore further the concept of IT alignment with corporate objectives. For example, further research could include identification of the importance of this alignment according to the factors, and what benefits could be gained by an

organisation by more closely examining the influences that these factors have on the organisation.

Several areas where further research can be carried out include:

- The research into the benefits of IT has had mixed results i.e. does an increase in IT investment correlate with an increase in the financial performance of the organisation? A possible area of research would be to see if the presence or absence of various factors has any effect on this financial performance. This could ascertain the relative importance of each of the factors in terms of how much it influences the alignment of IT with the organisation's corporate objectives.

- Sabherwal & Chan's research (2001) established that:

  "Alignment affects perceived business performance, but only in certain organisations. Alignment seems to influence overall business success in Prospectors and Analyzers but not in Defenders" (p11*).*

  Research could be carried out to see the extent of factor usage by the business types used in Sabherwal & Chan's research – Prospectors, Analyzers and Defenders – to see what influence they have on the "overall business success" by type.

- It is well known that technology changes rapidly. For example Moore's Law (Edwards, 1994) state that computing power will double approximately every two to three years. It is very possible therefore that some of the factors identified in this research may have a different emphasis in the future. Certainly some of the technology oriented factors such as Internet Usage and Intranet Usage would not have been present in the early 1990s. A possible area of research could be a longitudinal analysis over, say, the last five to ten years to see what changes, if any, there have been to the

presence and use of factors in terms of their effect on aligning IT with the organisation's corporate objectives.

- Another possible area of research would be for a researcher to select a different set of case studies and see whether the same factors are present in those case studies. In addition, a researcher could see whether the potential factors, which had been identified in the literature review but were not present in the case studies, were in fact present in their case studies.

- An area for further research could be whether the factors identified by this research differ by industry or by country e.g. are some factors used in different ways by organisations in the airline industry? Are factors used differently between organisations in, say, Australia and New Zealand?

- E-mail usage was identified as a factor in aligning an organisation's IT with its corporate objectives. A review of the literature however, revealed that there appears to be very little research into the use of e-mail in organisations. The volume, content, type and usage of e-mail by organisations could be a significant area of research.

6.5 Weaknesses & Limitations of the Research

The conclusions drawn with respect to identifying the twenty-one factors were based on the analysis of five case studies of medium to large organisations. The number of case studies could be considered a weakness – more case studies may have added strength to the analysis and may have also introduced other factors. The number of case studies for this research was limited however, by the time constraints allowed for this research, and the resources available to the researcher.

The selection of the case studies could also be considered a weakness in that the selection was not random. All the case studies were already known to the researcher and there were no organisations selected that could be considered leading edge with regards IT, or low level users of IT. At the same time however, the case studies were chosen from several dozen organisations with whom the researcher has carried out various consulting

activities over the last fifteen years, and the selection from that set was made to minimise any bias while at the same time maximise the opportunity for good research of the topic in question.

In the introduction to this thesis, it was stated that the research would assume that the organisation's strategic plans in the form of goals and objectives would be at least adequate, so that the alignment of IT with them could be possible. This could have been a weakness in the research if the goals and objectives were in fact, not clear and concise, nor sufficiently adequate for any aspect of IT to align with them successfully.

The fact that the researcher was already known to the senior management of the organisations to be studied could also have been considered as detrimental to this research. It was possible this familiarity could have biased the researcher's exploration of the organisations, having already worked with management within the organisations over an extensive period of time. In addition, this familiarity could be considered to have influenced the researcher's assessment of the organisations' methods and strategies for aligning IT with its corporate objectives, particularly where the researcher's consulting organisation may have given recommendations for implementing certain technology which could be considered as assisting the organisation in aligning its IT with its corporate objectives. This prior knowledge of the organisation, its structure and operations was considered however, an advantage to this research, due to the fact that it facilitated much of the data gathering, and added a further dimension of understanding to the data gathered.

The two methods of classifying variables as factors, direct and indirect, were based on the researcher's observations and analysis, which by their nature, were subject to personal interpretations. For example, a variable was considered in this research to be a factor if, on the balance of probabilities, a direct relationship was observed between the presence or use of the factor and one or more corporate objectives. A variable was also considered to be a factor if there was an indirect relationship to one or more corporate objectives, e.g. CEO Attitude was a factor that was found to be indirectly linked to the organisation's corporate objectives.

Although extensive research was carried out and a significant amount of data gathered, the identification of the factors was based on the data that had been gathered by the researcher, the analysis of that data, interviews with senior executives, and the researcher's own knowledge of the IT industry. In addition, there were some potential factors that were not present in any of the case studies, e.g. e-commerce. It is possible that a different set of case studies in other industries may identify these as factors.

6.6 Conclusions

From the findings of this research it can be seen that the process of aligning IT with an organisation's corporate objectives is not a simple task. It requires an organisation to be aware of twenty-one factors that can affect IT alignment, and for the organisation to ensure they are present or used not only according to a set of characteristics, but also according to inter-relationships and dependencies between certain factors. It is no wonder therefore, that researchers have had difficulty in the past with this topic and the other areas of research related to it. It is hoped that the results of this research will provide organisations with a better understanding of how they can align their IT with their corporate objectives, and provide the foundation for further research into this important area of business.

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