SHARING A VISION: COMPARING BUSINESS AND IS MANAGERS' PERCEPTIONS OF STRATEGIC ALIGNMENT ISSUES

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ABSTRACT

This paper compares the perceptions of business and IS managers regarding the issues known to affect the achievement of alignment of IS with the business. Previous work has identified Information Systems (IS) managers' organisational position, IS business partnerships, and IS managers' understanding of business respectively, as being critical to attaining IS alignment. On these issues, the findings of this research are encouraging, and suggest that progress has been made in the past fifteen years. The paper's main contribution is in identifying a new focus for alignment research – the exploration of three, interrelated issues: the extent to which business and IS managers share a vision of the alignment profile of information systems, the extent to which they have a common understanding of the time lags required to achieve such alignment; and the need to educate business managers regarding the strategic potential of IS.

INTRODUCTION

This paper compares the perceptions of business and IS managers regarding the issues known to affect the achievement of alignment of IS with the business, and then frames new research questions in the context of the results of the research.

Alignment has been shown to be critical to maintaining business value. (Henderson and Venkatraman 1992; Henderson and Venkatraman 1993, 1999; Henderson and Venkatraman 1994; Chan, Huff et al. 1997; Hirschheim and Sabherwal 2001; Sabherwal and Chan 2001; Sabherwal, Hirschheim et al. 2001; Chan 2002; Ward and Peppard 2002; Peppard and Breu 2003) It has also been shown to be difficult, both to conceptualise (Ciborra 1997; Scott 2005; Silvius 2007) and to achieve (Chan 2002; Scott 2005). Several models of alignment have been discussed in the literature. Early models took a "top down" approach, where IS strategy was developed from business strategy,

using IT strategic planning methodologies (Peppard and Breu 2003; Silvius 2007). A much cited development was that of an alignment model which suggested that the four domains of business strategy, IT strategy, IS infrastructure and processes, and organisational infrastructure and processes, should all be kept in alignment (Broadbent and Weill 1993; Henderson and Venkatraman 1993, 1999). Several other studies have further developed this approach – see for example (Chan, Huff et al. 1997; Sabherwal and Chan 2001; Chan 2002)

More recently, two different approaches to alignment have been suggested. The first approach develops the four domain model into an alignment maturity model which can be used to assess an organisation's current ability to attain alignment, and to indicate how it could maximise alignment enablers and minimise alignment inhibitors (Luftman 2000). The second approach suggests that "one size does not fit all" and develops a contingency model with three types of alignment profile: technical resource, business enabler or strategic weapon (Weiss, Thorogood et al. 2006)

The first approach, the Alignment Maturity Model identifies six maturity criteria. Three of these; namely governance, partnership, and communications, are directly related to IS and business managers' roles and status, respective knowledge, and working partnership. This emphasis on IS and business managers comes from the original empirical study of enablers and inhibitors on which the alignment maturity model is based (Luftman and Brier 1999). Many other empirical studies support this emphasis. See for example (Stephens, Ledbetter et al. 1992; Gottschalk 1999; Ross and Feeny 2000; Enns, Huff et al. 2001; Enns, Huff et al. 2003; Preston 2004) on status, (Taylor-Cummings 1998; Peppard and Ward 1999; Preston 2004) on relationships, and (Pervan 1998; Armstrong and Sambamurthy 1999; Ross and Feeny 2000; Basselier, Benbasat et al. 2003; Broadbent and Kitzis 2005) on knowledge. In addition (Ross and Feeny 2000; Broadbent and Kitzis 2005) suggest that there have been shifts in all these areas over the last fifteen years.

The first contribution of this paper, therefore, is to provide current benchmarks regarding IS and Business Managers influences on the maturity of alignment within their organisation.

The first research question, therefore, is as follows:

1. How do IS and business managers perceive their own and each others' contribution to the alignment maturity of their organisation.

The second approach, the Alignment Contingency Model suggests that an organisation's alignment profile will affect the way in which IS and business managers need to influence alignment. An organisation with a "technical resource" profile requires little in terms of relationships between IS and business managers, and in terms of senior management involvement in IS. An organization with a "business enabler" profile requires partnership between the most senior IS manager and the CEO; and a CEO who is aware of and supports IT. An organisation with a profile that uses IS as a "Strategic Weapon" requires the CEO to take personal responsibility for exploiting IS, and requires a CIO to be a valuable member of the executive team.

This leads to an interesting, new area of investigation. If an organisation's requirements of its IS and business managers can vary so radically depending on its alignment profile, then it is important that IS and business managers ensure that they are working together towards the same goal. This leads to the second research question:

2. Do IS and business managers agree on the alignment profile of their organisation?

The paper describes a quantitative and qualitative study designed to address the two research questions. It then uses the results to identify new areas of research in three, linked areas; the differences in perceptions of IS and business managers respectively regarding the alignment profile of their organisation; differences in perceptions of the time that it takes to implement new systems

to improve that alignment, and the need for more education of business managers informed by the framework of different alignment profiles.

LITERATURE REVIEW

The business impact of alignment

A recent, comprehensive Australian study named the alignment of IS with the business as one of four factors affecting returns on investment in organisations (Gregor, Fernandez et al. 2004). The reasons why alignment is important are explained by Ward and Peppard (2002: p47) who describe the problems that occur without it, including systems investments which do not support business objectives; a lack of systems integration resulting in a lack of coherence in the information resource; and systems with a shorter than expected business life requiring considerable IS spend to redevelop more frequently than should be necessary. Several studies of alignment have reinforced its importance to the success of an organisation (Sabherwal and Chan 2001; Chan 2002). Reflecting its importance, a number of surveys of Chief Information Officers (CIOs) have shown alignment to be one of their top areas of concern (Watson 1990; Hollands 2005; Luftman 2005).

Theories of alignment

Models of alignment were first put forward in the early 1980s, when both strategic alignment – the alignment of business and IS strategy, and structural alignment – the alignment of the IS structure and business structure – were defined. At that time, the view was that IS strategy was a response to business strategy, and that the IS structure should mirror the business structure. The implementation of this alignment model was by means of methodologies, and focussed on large bespoke information systems (Silvius 2007). For a review of these early models, see Ward and Peppard (2002), and Peppard and Breu (2003). An extensively cited model, and the one which still underpins much work on alignment today, is that developed by Henderson and Venkatraman (1993, 1999). They modelled four domains: business strategy, information technology strategy, information systems infrastructure and processes, and organizational infrastructure and processes, and defined alignment as being a dynamic, interactive process between all four. Broadbent and Weill (1993) suggested a similar, four domain model. Luftman (1996) expanded on the four domains to describe twelve dimensions in more detail. Chan, basing her analysis on a model similar to that of Henderson and Venkatraman, states that there are aspects of alignment that are still not well understood, particularly some of the informal organisational aspects. (Chan 2002). The internal dynamics of alignment, again using a four domain model, has been set within the context of rapid change in the external business environments, represented as a punctuated equilibrium model (Sabherwal, Hirschheim et al. 2001).

The effect on alignment of rapid change to the external environment has been modelled as a coevolutionary process (Peppard and Breu 2003; Benbya and McKelvey 2006a). Based on chaos and evolutionary theory, this work is still in early stages of development. Other approaches include that of Scott, who urges us to think in terms of the multiple business planning profiles which affect the approaches taken to, and problems and issues with, IT planning. (Scott 2005).

Current thinking on alignment can be categorised into two approaches. The first approach is that taken by Luftman, who develops an Alignment Maturity Model (Luftman 2000). By assessing its

alignment maturity, an organisation can establish whether it is at the level of maturity it requires to reach its organisational goals, and can identify any enablers that it could improve, or inhibitors that it could minimise. The Alignment Maturity model is developed using earlier work on the four domains and twelve components of alignment (Luftman 1996), and on its enablers and inhibitors (Luftman and Brier 1999). Luftman develops six strategic alignment criteria, and a five level maturity process model which depends on the level of maturity of each of the six criteria. This is illustrated in Table 1 below (Luftman 2000).

	1. Intial / ad-hoc	2.Committed	3.Established/ focussed	4. Improved/ managed	5. Optimised
Communications	Increasing levels and pervasiveness of business /IT understanding →				
Competency/ value	Increasingly comprehensive measures of efficiency, effectiveness and value →				
Governance	Increasingly formal and pervasive governance processes →				
Partnership	Relationships between IS and business increasingly integrated →				
Scope and architecture	Increasingly integrated systems across the organisation and with partners →				
Skills	Increasingly shared risk and reward taking for IS/IT →				

Table 1: The Alignment Maturity Model (Luftman 2000)

The second approach to alignment is that described by Weiss, Thorogood et al (2006), who have developed an Alignment Contingency model. This model draws on the work of Porter, and of Earl and Feeny (Earl and Feeny 2000; Porter 2001), and suggests that businesses vary with regard to their requirements for IS alignment. If a business is merely using IS as a technical resource, then its alignment requirements are minimial. Where IS is a business enabler, significant alignment is required, and where it is a strategic weapon their needs to be very high levels of integration. Table 2 provides a summary of this approach:

Business objective / Dimension	**Technical resource**	**Business enabler**	**Strategic Weapon**
Internal business – IT integration	Low	Medium	High
External market - IT integration	Low	Medium	High

Table 2 The Alignment Contingency Model (Weiss, Thorogood et al. 2006)

There are links between the two approaches: an organisation using IS as a technical resource will be at a significantly lower level of alignment maturity than an organisation which is using IS as a strategic weapon.

Implications of alignment for IS and business managers.

This paper does not seek to evaluate models of alignment. It takes the viewpoint that both the alignment maturity model and the alignment contingency model can help organisations in the complex and difficult task of defining and achieving alignment.

With regard to the first research question, namely How do IS and business managers perceive their own and each others' contribution to the alignment maturity of their organisation, Table 3 indicates the areas within the Alignment Maturity Model where IS and business managers have a direct impact, and associates it with the requirements for each of the three alignment profiles in the Alignment Contigency Model.

Table 3 is used as the basis to define the exact areas of enquiry for research question 1. They are as follows:

- Governance: Position of IS managers in organizational and governance structures
- Partnership: Nature of the partnership between IS and business managers
- Communication: Levels of understanding of IS by the business, and of business by IS managers

Table 3 also indicates that there are major differences in requirements of IS and business managers, depending on the alignment profile of their organisation. This emphasises the importance of the second research question

2. *Do IS and business managers agree on the alignment profile of their organisation?*

This was explored by asking two specific questions:

- Level of shared understanding of the role of information systems
- Nature of understanding of the role of information systems

Alignment maturity model criteria	Implications for IS and business managers	Effect of a contingency approach on the nature of the requirement
Governance Reporting levels Steering committees	Reporting levels of CIO CIO involvement with senior executive	**Technical resource** IS manager does not need to report at a senior level **Business enabler** CIO partners with CEO **Strategic Weapon** CIO is a valuable member of the senior management team
Partnership Relationship/trust style Business perception of IT value	Nature of the partnership between IS and business managers	**Technical resource**: No partnership required **Business enabler** CIO partners with CEO **Strategic Weapon** CIO is a valuable member of the management team.
Communication: Understanding of business by IT Understanding of IT by business	Levels of understanding of business and IS by IS managers and business managers should be appropriate to organisational need	**Technical resource**: IS and business need minimal awareness of each other's activities **Business enabler** Senior managers need to be aware of and support IS. Knowledge transfer required between business and IS. **Strategic Weapon** CEO needs to exploit IT as a first order thinker.

Table 3 Relationship between the benchmark questions for IS managers and business managers, and the alignment maturity and alignment contingency models

In the section below, previous empirical research on each of the areas of enquiry is discussed.

Organisational and governance position of IS managers

Improved business alignment is likely to occur in situations where the Chief Information Officer (CIO) works directly with the Senior Executive (Preston 2004). Based on a summary of the technological forces, executive attitudes and applications portfolio affecting the CIO, it has been postulated that external factors have led to the evolution of the role from functional head, who must deliver on promises, to strategic partner, aligning IT with the business, to business visionary, who drives strategy (Ross and Feeny 2000). Empirical studies lend weight to the assertion that in some organisations the CIO is a senior executive, and part of the senior management team. (Stephens, Ledbetter et al. 1992; Gottschalk 1999; Luftman 2000; Enns, Huff et al. 2001; Enns, Huff et al. 2003)

IS Business Partnerships

Several studies have discussed the importance of IS and business managers' relationships in understanding alignment (Reich and Benbasat 1996; Rockart, Earl et al. 1996; Armstrong and Sambamurthy 1999; Reich and Benbasat 2000; Sabherwal and Chan 2001; Preston 2004; Preston, Karahanna et al. 2006)There has been some discussion regarding problems with the IS manager – business manager relationship. Taylor-Cummings refers to a "deeply ingrained belief" that there is a culture gap between IS professionals and other executives, and asserts that it is constantly referred to as a gap in understanding: IS managers do not understand the business, and business managers do not understand technology (Taylor-Cummings 1998). Other work suggests that culture is "an excuse for rather than a cause of ineffective application of IT for business benefits and value" (Peppard and Ward 1999 p 29). Assertions that the gap may be closing are based on circumstantial evidence such as job tenure rates, and backgrounds of CIOs (Broadbent and Kitzis 2005). Luftman (2000) found that out of 25 Fortune 500 companies, none viewed the relationship as either a valued partnership or valued service provider, with most seeing the relationship as primarily transactional, and several seeing it as a minimal or conflict ridden relationship.

Business and IS managers understanding of IS and business

Alignment is also dependent on the levels of knowledge of IS and business managers. Businesses achieve better outcomes from their IS investments when business managers have a good understanding of information systems issues (Armstrong and Sambamurthy 1999; Basselier, Benbasat et al. 2003; Broadbent and Kitzis 2005). Working with "IT-savvy" business managers, the CIO also needs to have good business knowledge in order to be able to put forward a visionary agenda (Ross and Feeny 2000; Broadbent and Kitzis 2005) Despite this, Pervan (1998) found that CIOs "see a greater need for the IT education of senior management than do the senior managers themselves" (ibid p 101). Luftman (2000) also found that the understanding of business by IT ranked more highly than the understanding of IT by business.

IS and business managers views on levels of alignment

The question whether IS and business managers agree on the level of alignment they have obtained has not been directly, quantitatively addressed in other studies.

IS and business managers shared visions on the alignment profile

In a study conducted ten years ago, Pervan (1998) indicated that, while senior executives viewed information systems as important to their organisation, their views on the importance of key issues differ from those of IS managers. Chief Executive Officers were "greatly concerned with 'the bottom line'" (ibid p 102), and were concerned that their data resources and software development were effective, and seen to be so. Both CEOs and IS managers considered competitive advantage to be important to the organisation. IS managers put greater emphasis on educating senior management, increasing the understanding of the IS role, and aligning the IS organization with the enterprise.

Previous research, then, emphasizes the key role that IS and business managers have in achieving alignment, and indicates that there may be some important differences in perceptions between the two groups which may be affecting the ability of organisations to achieve alignment.

METHOD

The research questions were explored both quantitatively and qualitatively.

The quantitative data was constructed from previously validated questions used with the authors' permission (Preston 2004). These questions were incorporated in a postal survey consisting of two parallel questionnaires: one for the top IS managers (CIOs) in an organisation, and a similar but shorter one for senior executives (SEs). The question areas and their relationship to the research questions are summaries in Table 4 below.

Due to the personal nature of some of the questions being asked, strict anonymity was preserved. However, it is possible to match the response of any individual CIO with the response of the Senior Executive in their organisation. This is because the whole mailout package for each organisation was sent to the most senior IS manager. The package consisted of a CIO questionnaire, and a Senior Executive questionnaire contained in an unsealed envelope. There was a message on the envelope inviting the CIO to pass it to a member of their Senior Executive, and ask them to return the survey sealed in the envelope. The CIO combined this with his/her own completed survey and sent the whole package back to the researchers.

Despite the anonymity, some cross-checking of responses was possible, because respondents were also able to request copies of results, and indicate an interest in further study. While these requests could not be linked to individual survey results, they did allow some confirmation that the survey respondents were, indeed the CIOs within their organisations. In addition, respondents were asked for their job title, meaning that a visual scanning of the data also provided confirmation of the role of the respondents.

The survey used a Fairfax Business Research database (Fairfax 2004), which contained the mailing details of CIOs for all firms with more than 1,000 employees, and for any particularly IS intensive firm, within Australia. CIOs had been defined as the most senior IS executive in the organisation, and Fairfax had checked the status of each entry. There were 5,386 CIOs so defined, and the survey was sent to all of them.

Research area	Survey question areas	CIO survey	SE survey
Research Question 1: How do IS and business managers perceive their own and each others' contribution to the alignment maturity of their organisation.			
1. Position of IS managers in organisational and governance structures	Reporting levels of the CIO	X	
	Involvement with the senior executive	X	
	Frequency and type of communication with the top management team	X	
	CIO demographics	X	
	Senior executive demographics (for comparison)		X
2. Nature of the partnership between IS and business managers	CIO's communication skills, credibility and track record	X	X
	CIO's communication and education techniques	X	
3. Business and IS managers levels of understanding of IS and business respectively?	CIO's knowledge of business and IS	X	X
	Senior executive levels of knowledge of applications of IS	X	
Research Question 2: Do IS and business managers agree on the alignment profile of their organisation?			
4. IS and business managers views on levels of alignment	Strategic alignment of systems with the business	X	X
5. IS managers and business managers vision of the alignment profile in their organisation	Level of shared understanding of the role of information systems	X	X
	Nature of shared understanding of the role of information systems	X	X

Table 4: Quantitative survey: question areas and their relationship to the research questions

In addition, qualitative data was obtained by interviews with survey respondents who indicated that they would be willing to take part in further investigations. Four organisations were involved in the qualitative survey. The first (Org 1) is based in Australia and New Zealand. It distributes plumbing and electrical supplies. Its operations are divided into four business lines. Interviews were conducted with the Chief Information Officer and the Chief Financial Officer. The second organisation (Org 2) is global, highly dispersed and organised as a matrix. It operates on approximately a thousand sites, and is divided into ten regions which are spread through Europe, Africa, America, Asia and Australia. Its headquarters are in Geneva, Switzerland. It specialises in inspection, verification, testing and certification and its business is divided into ten lines. The CIO for the Asia Pacific region was interviewed. The third organisation (Org 3) is the distribution arm of an Australian publishing company. Interviews were conducted with the IT manager, the marketing manager, and the general manager for a subsidiary company specialising in merchandising. The fourth (Org 4) was an Australian public sector organisation, where an interview was conducted with

a senior director of operations. The purpose of the interviews was to deepen understanding of the findings of the quantitative survey, and to provide new insights into the area under investigation. All respondents were therefore asked to trace the "story" of one or more strategic activities which they considered significant, with minimal prompts from the interviewer. In addition, they were asked to comment on the relationship between themselves and their counterpart (IS managers were asked about their relationships with business managers, and vice versa).

QUANTITATIVE RESULTS

365 CIOs responded to the survey – a 6.77% response rate. This is within the expected response rate for such senior executives (Chan, Huff et al. 1997; Pervan 1998; Enns, Huff et al. 2003) Of those 365 CIOs, 94 returned a survey from a matched senior executive. There was no significant difference (at a level of 0.05) between the responses of the 271 CIOs who returned a single survey, and the 94 who also returned a senior executive response, for any of the survey question areas requiring a response from both parties. Appendix 1 gives detailed results of the quantitative survey. The findings for each of the research questions are given below:-

Organisational and governance position of IS managers

The majority of CIO respondents report at one level below the CEO. However, 33% report directly to the CEO, and only 8 % report at two levels or more below the CEO. It was possible to show that this represents a significant increase over time of CIOs reporting to the CEO. by comparing reporting levels with those in a 1989 survey, also conducted in Australia, (Watson 1990). In 1989 only 14% of top IS managers reported to the CEO.

46% of IS managers identified themselves as members of the Senior Executive, with a further 28% stating that they were frequently involved with the Senior Executive team. 20% had occasional involvement. Only 4.5% said their involvement with the Senior Executive team was rare, and 2% said they had no involvement.

90% of CIOs had informal contact with the Senior Executive at least weekly, and of these 44% were in daily contact. Formal communication was also frequent, with weekly or more frequent face to face meetings for 71% of respondents, telephone communication for 64% of respondents, and email for 84%. Interestingly, the figures for socialising with the Senior Executive were low: only 11% of CIOs socialise on a weekly or more frequent basis with the senior executive.

IS Business Partnerships

This was obliquely tested by asking senior executives about their CIOs' interpersonal skills, credibility and track record, and asking CIOs the same questions about themselves. Statistics regarding the CIOs' communication skills were encouraging. Most Senior Executives agree that their CIO can read contentious situations accurately, act with tact, be an effective communicator, be articulate with the senior executive. CIOs were also regarded as having a good track record. On a scale from strongly agree (5) to strongly disagree (1) the median result was agree (4), and the mean was above 4 in all cases. Notably, results were better than the CIO self evaluations, which returned a mean of slightly below 4. Matched pairs of scores (from a CIO and senior executive in the same organisation) did not show a significant difference, when compared using the Wilcoxon Signed Rank Test. The CIOs were asked some additional questions regarding their communication and education techniques with the Senior Executive. They largely agreed that they provide insight into

emerging IT, assist with computer literacy, and manager senior executive expectations regarding IS. They do not tend to agree that they share common interests with the senior executive.

Business and IS managers understanding of IS and business

A surprising finding from this survey was that Senior Executives rated their CIO's knowledge of the business of the firm, and of the industry's practices generally, at a similar level to their CIO's knowledge of how to use IS infrastructure to suit the business. On a scale of extremely well informed (5) to not very well informed (1) they returned medians of 4 (well informed) and means of 3.7 and 3.8 for both business and IS knowledge. By contrast, CIOs believed they were better informed about IS than about the business. However, the general level of ratings in all these areas was high. However, perhaps reflecting Pervan's findings that CIOs believe senior executives should have a higher level of understanding of IS than senior executives believe they need, (Pervan 1998), and corroborating Luftman's findings in this area (Luftman 2000), the ratings of CIOs regarding the IS knowledge of their Senior Executive were relatively low – between "somewhat informed" (2) and "well informed" (3).

IS and business managers views on levels of alignment

The response to the questions on strategic alignment was remarkable both because they were so positive, and because there was such close agreement between the CIO and Senior Executive. On a scale of strongly agree (5) – strongly disagree (1) the general response was between "agree" and "strongly agree". There was no significant difference between the matched pair response of CIOs and Senior Executives.

IS and business managers shared visions on the alignment profile

Results indicate that there are some differences in the way in which Senior Executives and the CIO understand alignment profiles. As the results of the Wilcoxon Signed Rank tests in Appendix 1 show, this is the one area where CIOs and "matched" Senior Executives show significantly different views. The research therefore explored this further by performing cross tabulations and regression analysis on the responses to the following three questions:

3. The CIO/Senior Executive and I have a shared understanding of the role of IS in our organisation
4. The CIO/ Senior Executive and I have a shared understanding of how IS can be used to increase productivity in our organisation's operations.
5. The CIO/ Senior Executive and I have a shared view of the role of IS as a competitive weapon in our organisation

The results were as follows:

For Senior Executives: $A = 1.06 + 0.43*B + 0.24*C$; $R^2 = 0.43$

For CIOs: $A = 0.69 + 0.42*B + 0.39*C$; $R^2 = 0.54$

(A – role; B – productivity; C - competitiveness)

This analysis indicates that CIOs regard a shared understanding of the role of IS to be as much about its potential to enhance productivity (reflecting the technical resource and/or business enabler profiles of alignment) as about its potential as a competitive weapon (reflecting the strategic weapon profile). Senior Executives, by contrast, see shared understanding of productivity as more significant than their shared understanding of IS as a competitive weapon, thus indicating a vision

of IS which is more focussed on IS as a technical resource and/or business enabler than as a strategic weapon.

QUALITATIVE RESULTS

The qualitative data reinforced the findings of the quantitative data on the first four research questions, and produced different but possibly complementary findings to the fifth research question. Findings are discussed question by question below. Table 5 summarises the interviews and organisations, for ease of reference

All IS/IT managers had senior roles, and overall responsibility for IS within their organisations. While their duties and responsibilities varied, they were specifically asked to focus on strategic projects relevant to the whole organisation.

Organisation	Industry	Interviews conducted	Strategic initiative discussed
Org 1	Pipelines, plumbing and electrical supplies (Australia and NZ)	Chief Information Officer (CIO) Chief Financial Officer (CFO)	Consolidation of ERP implementation
Org 2	Inspection, verification and testing (global)	CIO Asia Pacific	Implementation of a global WAN. Introduction of project management methodologies
Org 3	Distribution arm of an Australian publishing company	IT manager Marketing manager Merchandising manager	Web based marketing materials
Org 4	Tertiary Education	Senior operations manager	ERP implementation

Table 5: Qualitative interviews

Organisational and governance position of IS managers

The CIOs of Org 1 and Org 2 had high status in the organisation, and specifically discussed new initiatives for IT governance and the way in which this would further empower them. . Org 1's CIO, reported, as is typical at "one below" the CEO, but also had a "very strong dotted line through to the CEO", and had recently got promoted to the newly formed executive management team. Org 2's CIO was a regional IS manager in a highly dispersed organisation. He sat on the global IT council, which had recently been given more powers to mandate project management methodologies. Org 3's IT manager described himself as part of the executive team. Org 4's CIO was also part of the senior executive team.

IS Business Partnerships

Interviews showed evidence of close working relationships between IS and business managers. Indeed, interviewees were often at pains to stress how good this working relationship was: "We see

very much eye to eye on just about everything" (Org 1 CIO of Org 1 CFO). The operations manager of Org 4 spoke of her CIO as "a great mentor".

Business and IS managers understanding of IS and business

All IS managers contextualised their discussions in terms of the business without prompting. None of the business managers interviewed mentioned problems with the IS managers' understanding of the business. Indeed, they specifically referred to the business knowledge of IS managers in some instances: "[The CIO] could understand the business, listen to what the business managers were saying, but also understand the system requirements". (Org 1 CFO of Org 1 CIO). IS managers, by contrast made clear that they needed business managers to have a good understanding of IS issues, and that this was sometimes a problem. For example Org 1's CIO talked of being able to work well with both the CFO and CEO of the organisation, because of their "IT savviness". However, for some other managers this was problematic. He linked this particularly with whether managers had grown up with IS as part of the business; where they did not have this background they tended to have a limited view of his job as "keeping some hardware running".

IS and business managers views on levels of alignment

There were no major discrepancies between business managers and IS managers views of whether their information systems were aligned with the business. Managers agreed on the problem areas within their respective organisations, and also agreed on where things were working well.

IS and business managers shared visions on the alignment profile

The most striking difference of opinion between business managers and IS managers was on the time it would take to implement strategic initiatives. Indeed, interviewees in three of the four organisations stress it was the major point of contention between the business and IS:

> *"He's generally supportive but … he's impatient for the pace at which we can do things. I don't think we've ever had a major disagreement to be honest, but where we certainly have some disagreements is around the pace of change" (Org 1 CIO describing relationship with CEO)*
>
> *"He wants to fix a bunch of things and he's frustrated with the pace of change because I've got the classic CIO dilemma of I've got unlimited demand limited supply of resource and cost. The view is these guys are doing a great job but it's just too slow" (Org 1 CIO describing relationship with line manager)*
>
> *"Because of (the IT manager's) insistence, we actually prepared a very, very good document. However, the downside is that it's taken a long time to do it" (Org 3's marketing manager)*
>
> *"She helped enormously by being able to understand that the business was the prime reason for having a system, rather than the system being the prime reason for having the business. ….Now there were conflicts between her and me…and that is where something was happening at the business interface which was creating strife and causing all sorts of negative feedback. My requirement of those people was to fix it. ..if there was a bad problem which they said would only take six weeks to fix and I*

said it had to be done in two days" (Org 4's operations manager describing relationship with IS manager).

CONCLUSION

Regarding the first research question, "How do IS and business managers perceive their own and each others' contribution to the alignment maturity of their organisation", results were encouraging. IS managers' organisational status has improved over time, most of them are heavily involved in governance mechanisms, and IS managers and business managers also believe that their partnerships with each other work well. In addition, business managers perceive their IS managers to have good levels of business knowledge.

With regard to the second research question, "*Do IS and business managers agree on the alignment profile of their organisation?"* the findings were interesting, and more mixed. IS and business managers agreed regarding the level of alignment in their business. However, three, interrelated problems have been identified.

1. Business managers tend to view their organisation's alignment profile as a "technical resource" or "business enabler", improving productivity. Unlike their CIOs, they do not necessarily envision the potential of IS as a competitive weapon
2. Business managers do not have the level of understanding of IS that IS managers believe they should have
3. Business managers disagree with IS managers regarding the time required to obtain advantages from strategic initiatives.

Interviewees indicated some connections between issues 1 and 2: managers who had little background experience of IS, and therefore a poor understanding of its requirements were more likely to see IS purely as a means of cost-cutting – productivity – rather than as a means of gaining more comprehensive competitive advantage.

The literature on competitive advantage discusses the role of time lags in competitive advantage – an organisation implementing an IT based strategic initiative sustains a competitive advantage during the time lag before other organisations implement the same initiative. See Piccoli and Ives for a review of this literature (Piccoli and Ives 2005). Business managers who do not fully understand the competitive advantage that information systems can bring may also be unaware of the time lags involved.

It is suggested that further investigation of IS and business managers' perceptions of the advantages to be obtained from IS based strategic initiatives would be beneficial. The results could then be used to design a specific programme of IS education for business managers, focussed specifically on a framework of the three different alignment profiles of technical resource, business enabler and strategic weapon. Such an education programme would have the potential to improve alignment within organisations.

REFERENCES

Armstrong, C. P. and V. Sambamurthy (1999). "Information Technology Assimilation in Firms: The Influence of Senior Leadership on IT Infrastructures." *Information Systems Research* **10**(4): 304 - 327.

Basselier, G., I. Benbasat, et al. (2003). "The Influence of Business Managers' IT Competence on Championing IT." *Information Systems Research* **14**(4): 317 - 336.

Benbya, H. and B. McKelvey (2006a). "Using coevolutionary and complexity theories to improve IS alignment: a multi-level approach." *Journal of Information Technology* **21**: 284-298.

Broadbent, M. and E. Kitzis (2005). *The New CIO leader: Setting the Agenda and delivering the results*, Harvard Business School Press.

Broadbent, M. and P. Weill (1993). "Improving business and information strategy alignment: Learning from the banking industry." ***IBM systems journal*** **32**(1): 162-179.

Chan, Y. E. (2002). "Why haven't we mastered alignment? The importance of the informal organization structure." *MIS Quarterly Executive* **1**(2): 97-112.

Chan, Y. E., S. L. Huff, et al. (1997). "Business Strategic Orientation, Information Systems Strategic Orientation, and Strategic Alignment." *Information Systems Research* **8**(2): 125-150.

Ciborra, C. (1997). "De Profundis? Deconstructing the concept of strategic alignment." *Scandinavian Journal of Information Systems* **9**(1): 67-82.

Earl, M. J. and D. F. Feeny (2000). "How to be a CEO for the Information Age." *Sloan Management Review* **41**(2): 11-23.

Enns, H. G., S. L. Huff, et al. (2001). "How CIOs obtain commitment to strategic IS proposals: barriers and facilitators." *Journal of Strategic Information Systems* **10**: 3 - 14.

Enns, H. G., S. L. Huff, et al. (2003). "CIO Lateral Influence Behaviours: Gaining Peers' Commitment to Strategic Information Systems." *MIS Quarterly* **27**(1): 155 - 176.

Fairfax (2004). *Fairfax Business Research MarketBase*, Fairfax Business Media Pty Ltd.

Gottschalk, P. (1999). "Strategic Management of IS/IT functions: the role of the CIO in Norwegian organisations." *International Journal of Information Management* **19**: 389-399.

Gregor, S., W. Fernandez, et al. (2004). *Achieving Value from ICT: key management strategies.*

Henderson, J. and N. Venkatraman (1992). Strategic Alignment: A model for Organizational Tranformation through Information Technology. *Transforming Organisations.* T. A. Kochan and M. e. Useem. Oxford, Oxford University Press**:** 97-117.

Henderson, J. and N. Venkatraman (1993, 1999). "Strategic alignment: Leveraging information technology for transforming organisations." *IBM systems journal* **32 (1993); 38 (1999)**(1 (1993); 2&3 (1999)).

Henderson, J. and N. Venkatraman (1994). Strategic Alignment: A Model for Organizational Transformation via Information Technology. *Information Technology and the Corporation of the 1990s: Research studies.* T. J. Allen and M. S. Scott Morton.

Hirschheim, R. and R. Sabherwal (2001). "Detours in the Path toward Strategic Information Systems Alignment." *California Management Review* **44**(1): 87-108.

Hollands, M. (2005). Delivering IT's contribution: The 2005 CIO Agenda, A Gartner Group presentation to the Australian Computer Society, Australia.

Luftman, J. (1996). *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*. New York, Oxford University Press.

Luftman, J. (2000). "Assessing Business-IT Alignment Maturity." *Communications of the Association for Information Systems* **4**.

Luftman, J. (2005). "Key issues for IT executives 2004." *MIS Quarterly Executive* **4**(2): 269-285.

Luftman, J. and T. Brier (1999). "Achieving and Sustaining Business-IT Alignment." *California Management Review* **42**(1): 109-122.

Peppard, J. and K. Breu (2003). Beyond Alignment: A coevolutionary view of the information systems strategy process. *Twenty-fourth International Conference on Information Systems.*

Peppard, J. and J. Ward (1999). "'Mind the Gap': diagnosing the relationship between the IT organisation and the rest of the business." *Journal of Strategic Information Systems* **8**: 29-60.

Pervan, G. (1998). "How Chief Executive Officers in large Organizations view the Management of their Information Systems." *Journal of Information Technology* **13**: 95-109.

Piccoli, G. and B. Ives (2005). "Review: IT-dependent strategic initiatives and sustained competitive advantage: A review and synthesis of the literature." *MIS Quarterly* **29**(4): 747-776.

Porter, M. E. (2001). "Strategy and the Internet." *Harvard Business Review:* 62-78.

Preston, D. (2004). *Shared Mental Models between the Chief Information Officer and Top Management Team: Towards Information Systems Strategic Alignment,* University of Georgia. PhD: 178.

Preston, D., E. Karahanna, et al. (2006). "Development of Shared Understanding Between the Chief Information Officer and Top Management Team in US and French Organizations: A Cross-Cultural Comparison." *IEEE Transactions on Engineering Management* **53**(2): 191 - 206.

Reich, B. H. and I. Benbasat (1996). "Measuring the Linkage between Business and Information Technology Objectives" *MIS Quarterly*, 20:1, pp. 55-81

Reich, B. H. and I. Benbasat (2000). "Factors that influence the social dimension of alignment between Business and Information Technology Objectives." *MIS Quarterly* **24**(1): 81-113.

Rockart, J. F., M. J. Earl, et al. (1996). "Eight Imperatives for the New IT Organisation." *Sloan Management Review.*

Ross, J. W. and D. F. Feeny (2000). The Evolving Role of the CIO. *Framing the Domains of IT management: Projecting the future through the past.* R. W. Zmud and M. F. Price. Cincinatti, Ohio, Pinnaflex Educational Resources**:** 385-402.

Sabherwal, R. and Y. E. Chan (2001). "Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders." *Information Systems Research* **12**(1): 11 - 33.

Sabherwal, R., R. Hirschheim, et al. (2001). "The Dynamics of Alignment: Insights from a Punctuated Equilibrium Model." *Organization Science* **12**(2): 179-197.

Scott, G. M. (2005). "Still not solved: the pertistent problem of IT strategic planning." *Communications of the Association for Information Systems* **16**: 904-936.

Silvius, G. A. J. (2007). Business and IT alignment in theory and practice. *Proceedings of the 40th Hawaii International Conference on Systems Sciences - 2007*. Hawaii.

Stephens, C. S., W. N. Ledbetter, et al. (1992). "Executive or Functional Manager? The Nature of the CIO's Job. ." *MIS Quarterly:* 449 - 467.

Taylor-Cummings, A. (1998). "Bridging the user-IS gap: a study of major information systems projects." *Journal of Information Technology* **13**: 29-54.

Ward, J. and J. Peppard (2002). *Strategic Planning for Information Systems:* Third Edition. Chichester, John Wiley and Sons Ltd.

Watson, R. T. (1990). "Influences on the IS Manager's Perceptions of Key Issues: Information Scanning and the Relationship with the CEO." *MIS Quarterly:* 217-231.

Weiss, J. W., A. Thorogood, et al. (2006). "Three IT-business alignment profiles: technical resource, business enabler, and strategic weapon." *Communications of the Association for Information Systems* **18**: 676-691.

APPENDIX 1: STATISTICAL DETAILS

	From survey	Min	Median	Max	Mean	SD	Z	Asymp sig
CIOs communication skills, credibility, *strongly agree(5) – strongly disagree (1)*								
Can accurately read contentious situations	CIO	2	4	5	4.0	0.6	-0.425	0.671
	SE	2	4	5	4.0	0.8		
Can act with tact	CIO	2	4	5	3.9	0.7	-0.019	0.985
	SE	2	4	5	4.0	0.9		
Can develop good rapport	CIO	3	4	5	4.2	0.5	-1.042	0.298
	SE	2	4	5	4.1	0.8		
Is an effective communicator	CIO	2	4	5	4.0	0.6	-0.009	0.992
	SE	1	4	5	4.0	1.0		
Is articulate with the senior executive	CIO	1	4	5	4.1	0.6	-1.691	0.091
	SE	2	4	5	4.2	0.7		
Has high credibility with the senior executive	CIO	1	4	5	4.0	0.7	-1.643	0.100
	SE	2	4	5	4.1	0.8		
Has a good track record	CIO	1	4	5	4.2	0.7	-1.173	0.241
	SE	2	4	5	4.3	0.7		
CIOs communication techniques with SE, *strongly agree(5) – strongly disagree (1)*								
Shares interest with SE	CIO	1	3	5	2.9	1.0	Not applicable	
provides insights on new IT	CIO	1	4	5	3.9	0.7		
Assists computer literacy	CIO	1	4	5	3.7	0.8		
Educates on IS	CIO	1	4	5	3.9	0.7		
Manages expectations	CIO	1	4	5	4.1	0.7		
Gives realistic expectations	CIO	1	4	5	4.3	0.7		
CIOs knowledge of business and IS *extremely well informed(5) – not well informed (1)*								
Firm's products	CIO	2	4	5	3.6	1.0	-2.043	0.041
	SE	1	4	5	3.8	0.9		
Industry's practices	CIO	2	4	5	3.6	0.9	-1.144	0.253
	SE	2	4	5	3.7	0.9		
Firm's competitors	CIO	1	3	5	3.3	1.0	-1.112	0.266
	SE	1	3	5	3.2	1.0		
Competitors application of IS	CIO	1	3	5	3.0	1.1	-0.467	0.641
	SE	1	3	5	3.0	1.1		
How to utilise IS infrastructure to suit the business need	CIO	1	4	5	4.0	0.9	-1.072	0.284
	SE	2	4	5	3.8	1.0		
How to identify emerging IS for firm	CIO	1	4	5	3.6	0.8	-0.153	0.878
	SE	1	4	5	3.6	1.0		
How to guide the firm's decisions on timing and level of investment	CIO	1	4	5	3.6	1.0	-0.699	0.485
	SE	1	4	5	3.6	1.0		

Senior executive levels of knowledge of IS *extremely well informed(5) – not well informed (1)*								
IS limitations	CIO	1	3	5	2.8	0.9		
Next generation of IS	CIO	1	2	5	2.0	0.7		
Competitors' IS	CIO	1	2	5	2.3	0.8		
Level of shared understanding of the role of IS, *strongly agree(5) – strongly disagree (1)*								
Shared understanding of role of IS	CIO	1	4	5	3.5	1.0	-6.539	0.000
	SE	2	4	5	4.3	0.7		
Shared view of IS as a competitive weapon	CIO	1	3	5	3.3	1.0	-5.540	0.000
	SE	3	4	5	4.0	0.7		
Shared understanding of IS contribution to productivity	CIO	1	4	5	3.6	0.9	-4.309	0.000
	SE	2	4	5	4.1	0.7		
Common view of prioritisation	CIO	1	4	5	3.5	0.9	-2.763	0.006
	SE	2	4	5	3.8	0.8		
Common language	CIO	1	3	5	3.3	0.9	-4.997	0.000
	SE	2	4	5	4	0.8		
CIO uses business terminology	CIO	1	4	5	3.9	0.9	-0.577	-1.528
	SE	2	4	5	3.9	0.9		
CIO avoids jargon	CIO	1	4	5	4.1	0.8	-1.528	0.564
	SE	2	4	5	3.9	0.7		
Strategic alignment of systems with the business *strongly agree(5) – strongly disagree (1)*								
IS strategy congruent with business strategy	CIO	1	4	5	4.0	1.0	-0.501	0.616
	SE	2	4	5	4.0	0.8		
IS planning decisions tightly linked to organisation's strategic plan	CIO	1	4	5	3.8	1.0	-0.187	0.852
	SE	2	4	5	3.8	0.9		
Business and IS strategy closely aligned	CIO	1	4	5	3.7	1.0	-0.374	0.708
	SE	2	4	5	3.8	0.9		