2006

Business and it executives ' perceptions on business and it alignment and the business value of IT

P. Lahdelma
Helsinki School of Economics, pirkko.lahdelma@vtv.fi

T. Dahlberg
Helsinki School of Economics, tomi.dahlberg@hse.fi

RESEARCH-IN-PROGRESS:
BUSINESS AND IT EXECUTIVES' PERCEPTIONS ON BUSINESS AND IT ALIGNMENT AND THE BUSINESS VALUE OF IT

Lahdelma, Pirkko, Helsinki School of Economics, Runeberginkatu 22 - 24, 00100 Helsinki, Finland, pirkko.lahdelma@hse.fi

Dahlberg, Tomi, Helsinki School of Economics, Runeberginkatu 22 - 24, 00100 Helsinki, Finland, tomi.dahlberg@hse.fi

Abstract

This paper presents first results of a study in which the perceptions of business and IT executives are compared regarding the maturity level of business and IT alignment and the business value of IT. The alignment of business and IT is investigated as alignment processes and structures. The business value of IT is examined with a multidimensional framework, which includes both the realized business value and the expected future business value of IT. The results indicate that business and IT executives perceive specifically the role of IT differently. Differences were also found in how business and IT executives perceive the alignment in operative IT-related activities. In addition, the views on IT's impact on the quality of business processes and services differed. Our results indicate that professional responsibility may play a major role in some areas.

Keywords: Business-IT Alignment, Business Value of IT, IT Executives, Business Executives

1   INTRODUCTION

The research outlined in this paper describes an on-going study on how business and IT alignment influences the business value delivery of IT. Our study falls under a more extensive research programme on IT governance. In that research programme, the alignment of business and IT is seen as the fundamental key element of IT governance.

IT governance has received attention as a research topic for several reasons. IT has penetrated heavily into almost everything that organisations do, including main business processes, products and services, and the processing of inter-organisational transactions and relations. At the same time, IT has turned out to be a vulnerable key asset providing great opportunities but also significant risks for business. With IT governance organisations aim to secure that IT delivers value to business in a transparent manner and that IT accountabilities are agreed so that this value delivery is maximal. Thus, the alignment of business and IT as a key part of successful IT governance is a topical theme.

In this study, business-IT alignment is regarded as processes and structures by which an organisation aligns its business and IT, sets targets for IT, and defines principles for organizing IT activities, resource usage, risk management, governance structures and performance measures. Alignment is impacted by organisation's competitive strategy and business objectives, executives' beliefs concerning IT, corporate governance and organisational culture, and by the perceived status of IT governance.

Since our approach to business and IT alignment is governance centric, this paper investigates senior executives, more specifically their perceptions. By senior executives, we refer to board level executives, C-level executives, such as CEOs, CIOs, and CFOs, and the heads of strategic business units. We investigate differences in the (maturity) level evaluations between business and IT executives regarding the alignment of business and IT, and the perceived business value delivery of IT. More detailed research questions answered by this paper are: Do business executives' perceptions on the maturity level of business-IT alignment match with CIOs' evaluations? Do business executives perceptions of the value delivered by IT match with CIOs' evaluations.

The theoretical background builds on combining the concepts of business-IT alignment and business value of IT. The construction of the theoretical basis and responses to the above stated questions contribute both to the theoretical and practical knowledge on how to align business and IT.

2   THEORETICAL BASIS

To establish the theoretical basis for our research, we combine the concepts of business-IT alignment and business value of IT as discussed in the subsequent parts of this section.

2.1   Alignment of Business and IT

Research on the alignment of business and IT has been conducted since 1980's (e.g. Venkatraman and Camillus, 1984). The Strategic Alignment Model (SAM) proposed by Henderson and Venkatraman (1993) has proved to be a solid platform for research. Cumulatively, there is a lot of research-based evidence about the validity of the Strategic Alignment Model. However, the research has concentrated on the relationship between the model's two external domains, i.e. business strategy and IT strategy, while leaving internal domains with less attention. This research has been mainly focused on three related research questions. The first question is; what are the antecedents, contingency factors, enablers or inhibitors that affect business-IT alignment (Sabherwal and Chan, 2001; Kearns and Lederer, 2003; Reich and Benbazat, 1996; Bassellier et al, 2003; Earl, 1993). A common feature for these studies is that alignment is not considered as an ongoing process but as an organisational

structure issue (Brown and Magill, 1994) or as an overlap in business and IT strategies (e.g. Chan et al, 1997).

The second question focuses on how business-IT alignment is carried out. Weill and Ross (2005) propose that alignment processes are in fact management techniques used to secure the widespread and effective involvement of executives in IT governance decisions and their implementation. According to Luftman and Brier (1999), business-IT alignment refers to applying IT in an appropriate and timely way in harmony with business strategies, goals and need. Sledgianowski and Luftman (2005) describe further management processes that promote alignment.

The final third question is what the outcomes of alignment are and how such outcomes could be measured. The research on the outcomes of alignment, i.e. the impact of business-IT alignment on business performance, has delivered evidence about a positive relationship between alignment and business performance (e.g. Earl, 1993; Chan et al, 1997; Tallon et al, 2000; Sabherwal and Chan, 2001; Croteau and Raymond, 2004).

We follow the proposal of Weill and Ross (2005) and regard the alignment of business and IT as activities, processes, and practices (process perspective) performed in organisations to achieve established targets (structural perspective). These activities can be carried out either very systematically and formally or on an ad-hoc basis depending on the situation.

2.2   Business Value of IT

IS researchers have defined and investigated the business value of IT from multiple perspectives. Chan (2000) compared IT value studies and discovered that the focus of these studies varied from individual level studies to organisational level studies and even to macro environmental level studies. Both quantitative and qualitative methods have been used to capture the business value of IT. We outline the business value of IT into a focal firm.

Ever since Kaplan and Norton (1992) presented the concept of a balanced scorecard, multidimensional frameworks for IT value evaluations have been developed. Van Grembergen et al. (e.g. 2003) applied a cascading approach to define IT balanced scorecards. In their approach business balanced scorecard dimensions are cascaded down, transformed to IT management dimensions, and further cascaded down the IT function. A potential risk with transformed IT measures is that IT is seen as a separate function. This may hamper the alignment and integration of business and IT in all levels of an organisation.

Perspectives that originate from Kaplan and Norton's work are the financial, customer, process, and innovation perspectives. These perspectives are applied in several IT value measurement studies (e.g. Sabherwal and Chan, 2001, and Van Der Zee and De Jong, 1999).

We apply these multiple perspectives of business value of IT in our study, yet, taking into account also the expected future value made possible by IT. We propose that by examining the diversity of business value factors in a balanced way, we can better understand how the alignment ultimately impacts business performance.

2.3   Differences between Business and IT Executives' Competences and Perceptions

It is often assumed that business executives and IT executives differ from each other in business and IT competences. IT competence refers to a set of IT-related knowledge and experience, whereas business competence is defined as a set of organisation-specific and management knowledge. Both IT competence and business competence are regarded as the antecedents for successful business and IT alignment (Reich and Benbasat, 2000; Bassellier et al, 2001; Bassellier and Benbasat, 2004).

In some earlier comparative studies, the success of business and IT alignment has been measured with interviews, in which executives have been asked to describe the business and IT objectives as well as

the long-term visions of their organisations. The success measures (similarity of responses) are based on the researchers' subjective judgment, i.e. the success level of business-IT alignment represents the researchers' perceptions over executives' answers to interviews.

An alternative approach, obviously, is to measure the level of business-IT alignment and the business value of IT based on executives' perceptions. Tallon et al (2000) applied this approach in their study on the (perceived) realized business value of IT. Tallon et al pointed out that although perceptual measures are commonly used in organisational studies, similar measures are rarely used in IS research. In addition to explicit facts, perceptions include valuable tacit knowledge, and are therefore an important source of information. We follow this approach and measure the perceptions of business and IT executives.

3 RESEARCH QUESTIONS

Based on the previous research on differences in business and IT executives' competencies and perceptions, we presume that business and IT executives see both the business-IT alignment and the business value of IT differently.

We regard the business-IT alignment as activities, processes, and practices, which can be executed more or less formally. Formal execution means the use of alignment methods, tools and mechanisms. The formality level rises with the introduction of standardised and documented alignment mechanisms. The level of formality and other antecedents most likely impacts perceptions regarding the maturity level of business and IT alignment.

In addition to the differences between business and IT executives' perceptions concerning the level of business-IT alignment, we also examine similar differences in their perceptions concerning the business value of IT with a multidimensional measure. Besides examining internal and external business value dimensions, we also include the time dimension of value. Thus, our measure captures both realized value perceptions and expected future value perceptions.

Are these topics on the perceptions on business-IT alignment and business value of IT related? We apply a framework which displays IT governance as a holistic system (Dahlberg and Kivijärvi, 2006). This framework is presented in Figure 1. According to it, the business-IT alignment impacts the business value delivery of IT. We propose that the impact is both direct and mediated. Ability to align business and IT impacts directly the business value delivery of IT, e.g., through objectives set for IT. In Figure 1, business and IT alignment also impacts IT management practices and IT performance monitoring, e.g., what is done to achieve objectives and how the achievement of targets is measured. This is the mediated effect. Please, note that this paper does not try to prove this connection, but investigates whether or not there are differences in executives' perceptions.

Figure 1 also proposes that several contingency factors influence business and IT alignment, and consequentially business value of IT. Again, that issue is beyond the scope of this paper, although contingency factors most likely impact the results.

Due to multiple contingency factors, we expect differences in executives' perceptions to exist. More specifically, we put forward the following research questions:

RQ 1:   *Will business executives' perceptions on the maturity level of business and IT alignment differ from IT executives' perceptions (yes is assumed)?*

RQ 2:   *Will business executives' perceptions on the business value delivery of IT differ from IT executives' perceptions (yes is assumed)?*
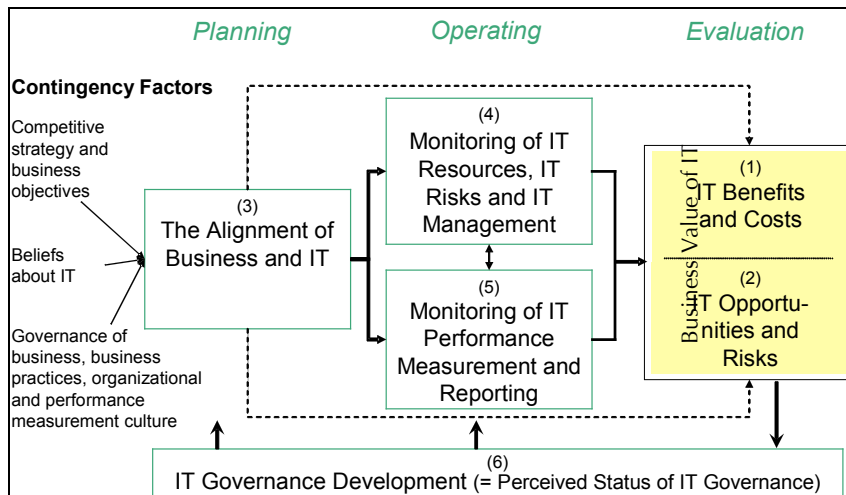
Figure 1.   The IT Governance Framework applied in our study (Dahlberg and Kivijärvi, 2006)

4   METHODOLOGY

A multi-dimensional, multi-item measurement instrument based on the framework presented in Figure 1 was developed in a multi-organisation research project funded by 27 large Finnish organisations and the Finnish Technology Agency. These organisations differ from each other by industry and size. A part of the organisations are non-profit organisations, such as governmental units or municipal offices. We collected data from 25 organisations by using the instrument. The data collection was carried out using a questionnaire in instructed group sessions where each respondent filled out the questionnaire individually from his/her point of view. Individual respondents' backgrounds vary – some are business executives, others IT executives.

The measurement instrument contains all six dimensions and 28 factors. Four of these dimensions evaluate IT governance mechanisms, and the remaining two evaluate the perceived business value of IT. One of the IT governance practice dimensions addresses directly the alignment of business and IT. We have identified six key alignment factors that the respondents are asked to evaluate. Business value of IT is divided into eight different factors.

4.1   Alignment Factors

To evaluate the maturity level of IT governance practices and hence the six alignment factors, we apply scales similar to those of the Capability Maturity Model[1] (CMM) measurement instrument. We chose to apply CMM scales because we presumed the approach to be familiar to most respondents. Many of them have used management tools that are based on CMM scales. Respondents assess their organisation's capabilities with respect to their IT governance practices by using the measurement instrument, which simultaneously offers them also directions for further improvements with maturity descriptions. Conveniently, CMM scales can be treated in a same way as Likert-scales.

The CMM scale is a six level ordinal scale from zero to five. Each level sets certain conditions that have to be met before an organisation proceeds to that level. A zero level indicates that for some reason such factor has not been recognized by an organisation or is not considered relevant. The first – initial or ad-hoc – level has no associated practices but occurs on an ad-hoc basis. The second level is

---

1 CMM and Capability Maturity Model are service marks of Carnegie Mellon University.

the repeatable level. Organisations that have reached level two will be able to repeat earlier successes in similar circumstances. On the third level, called the defined level, an organisation has defined its processes. By using common organisation-wide standard processes, the capability to deliver desired outcomes improves consistently. At level four, the managed level, organisations gain quantitative insight into their processes and to the quality of outcomes. At level five, the optimizing level, the entire organisation is focused on continuous process improvement.

In summary, the capability maturity model measures the formality and standardisation level of alignment practices.

4.2   Business Value of IT

The value of IT is evaluated by using a similar approach as the Malcolm Baldrige Award[2] or EFQM[3]. In these models, the objective is to reach excellence compared to others. Results are benchmarked both internally and externally. The reasons for this approach are similar with the reasons for using CMM scales in assessing IT governance practices.

The applied scale is a six level ordinal scale from zero to five. Similarly, to the scales of CMM, also each result level has certain prerequisites that need to be fulfilled before a result can be ranked by that level. A zero level indicates that no results are measured and reported, or that poor results are reported. At level one, a few good results are reported and there are some improvements and/or early good performance levels in some areas. Level two requires that results are reported and they can be considered satisfactory when compared to in-advance-set documented targets. On level three, a positive trend in the development of the results needs to be reported in addition to good results. The fourth level calls also for good performance as compared to competitors. The fifth level demands an excellent performance in relation to competitors showing that an organisation belongs to the top performers in that industry.

The multi-stage model used to evaluate the results requires that an organisation uses specific indicators to follow the development results over a long period. If no indicators are used, no results can be reported and the result is unknown. In that case, the measured result level is zero.

5   FINDINGS

The majority of 144 responses that we have collected represents business executives' perceptions while only 24 percent (34 responses) are IT executives' responses.

For studying the differences between the IT and business executives, we composed pairs including both IT executive's and business executive's response in a same organisation. We excluded the cases where either IT executive's or business executive's respond was missing. In this way, we achieved total 27 cases. We used a paired-samples t-test to find out if there were significant differences.

When we focus on studying how IT executives and business executives perceive the current status of the factors we are measuring, we have 28 pairs of variables. We found statistically significant differences in six variable-pairs. In all these items, business executives expressed more positive perceptions than IT executives. The detected statistically significant differences are presented in Table 1. Two of these six variable-pairs represent the factors that address directly the alignment of business and IT: "We define role and function of IT" and "We exploit IT-enabled business opportunities".

---

2 Malcolm Baldrige Award.. Baldrige National Quality Program by National Institute of Standards and Technology

3 EFQM is a service mark of European Foundation for Quality Management

When we examined the business value of IT, only one of eight factors was perceived differently: business executives perceived that IT improved the quality of their business processes and services more clearly than IT executives. However, there were no significant differences in the factors concerning the future expectations for the business value of IT.

In addition, three other factors were perceived differently. Two of these falls in the monitoring of IT resources, IT risks, and IT management, and the third is about the IT governance development.

	Mean	SD	SE of mean	t	df	Sig. (2-tailed)
Quality Benefits from IT	-0.426	0.817	0.157	-2.709	26	0.012
Role and Function of IT	-0.574	0.978	0.188	-3.051	26	0.005
Exploitation of IT-Enabled Business Opportunities	-0.481	0.904	0.174	-2.768	26	0.010
Operative IT Management	-0.389	0.974	0.187	-2.075	26	0.048
IT Communication	-0.556	1.251	0.241	-2.308	26	0.029
Development of IT Governance Competencies	-0.404	0.895	0.175	-2.302	25	0.030

Table 1. *Paired Samples T-Test Results for Analysis of Alignment Practices and Value of IT by IT Executives and Business Executives*

6   DISCUSSION

This research focuses on two main research questions. The first concerns the anticipated differences between business and IT executives' perceptions on the level of business-IT alignment. The second concerns differences in the perceived business value of IT.

So far, we have found some statistically significant differences. However, this result relates to a limited number of responses in our data. These responses originate from organisations participating in the research project. Are these organisations a representative sample of Finnish organisations? On one hand, they are a diverse set of different industries and sizes. On the other hand, these organisations may be those that are particularly enthusiastic about developing their IT governance competencies by volunteering in the research project.

In our findings, the alignment factor concerning the role and function of IT turned out to differ most between business and IT executives' perceptions. If there were no significant differences in other alignment factors, could this given factor contribute in explaining the differences in perceptions of operative activities and the quality benefits for business processes and services? If the role of IT is unclear or ambiguous, it is reasonable to expect similar differences in these particular factors. We plan to carry out a more detailed case study with these same organisations on the role and function of IT. Why is the role and function of IT perceived differently? How do the IT executives perceive it and how do the business executives see it? These tentative results encourage us to study further this topic.

References

Bassellier, G. and Benbasat, I., 2004. Business Competence of Information Technology Professionals: Conceptual Development and Influence on IT-Business Partnerships. MIS Quarterly, 28 (4), 673 – 694.

Bassellier, G., Benbasat, I., and Reich, B.H., 2003. The Influence of Business Managers' IT Competence on Championing IT. Information Systems Research, 14 (4), 317 – 336.

Bassellier, G., Reich, B.H., Benbasat, I., 2001. Information Technology Competence of Business Managers: A Definition and Research Model. Journal of Management Information Systems, 17 (4), 159 – 182.

Brown, C.V. and Magill, S.L., 1994. Aligning the IS Functions with the Enterprise: Toward a Model of Antecedents. MIS Quarterly, 18 (4), 371-403

Chan, Y.E., 2000. IT Value: The Great Divide Between Qualitative and Quantitative and Individual and Organizational Measures. Journal of Management Information Systems, 16 (4), 225 – 261.

Chan, Y.E., Huff, S. L., Barclay, D.W., Copeland, D.G., 1997. Business Strategic Orientation, Information Systems Strategic Orientation and Strategic Alignments. Information Systems Research, 8 (2), 125-150

Croteau, A-M and Raymond, L., 2004. Performance Outcomes of Strategic and IT Competencies Alignment. Journal of Information Technology, 2004 (19), 178 – 190.

Dahlberg, T., and Kivijärvi, H., 2006. An Integrated Framework for IT Governance and the Development and Validation of an Assessment Instrument. Proceedings of the 39th Hawaii International Conference on System Sciences – 2006.

Earl, M.J., 1993. Experiences in Strategic Information Systems Planning. MIS Quarterly, March, 1 – 24.

EFQM, 1992. The European Model for Total Quality Management. European Foundation for Quality Management, Brussels.

Henderson, J.C. and Venkatraman N., 1993. Strategic Alignment: Leveraging Information Technology for Transforming Organizations. IBM Systems Journal, 32(1), 4-16.

Kaplan, R.S. and Norton, D.P., 1992. The Balanced Scorecard – Measures That Drive Performance. Harvard Business Review, January – February, 71 – 79.

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

Reich, B.H. and Benbasat, I., 1996. Measuring the Linkage Between Business and Information Technology Objectives. MIS Quarterly, March, 55 – 81.

Reich, B.H. and Benbasat, I., 2000. Factors That Influence the Social Dimension of Alignment Between Business and Information Technology Objectives. MIS Quarterly. 24 (1), 81 – 113.

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

Sledgianowski, D. and Luftman, J., 2005. IT-Business Strategic Alignment Maturity: A Case Study. Journal of Cases on Information Technology, 7 (2), 102-120

Tallon, P.P., Kraemer, K.L., and Gurbaxani, V., 2000. Executives' Perceptions of the Business Value of Information Technology: A Process-Oriented Approach. Journal of Management Information System, 16 (4), 145-173

Van Der Zee, J.T.M. and De Jong, B., 1999. Alignment Is Not Enough: Integrating Business and Information Technology Management with the Balanced Business Scorecard. Journal of Management Information Systems, 16 (2), 137 – 156.

Van Grembergen, W., Saull, R. and De Haes, S., 2003. Linking the IT balanced scorecard to the business objectives at a major Canadian financial group. Journal of InformationTechnology Cases and Applications, 5 (1), 23 – 50.

Venkatraman, N. and Camillus, J.C., 1984. Exploring the Concept of "Fit" in Strategic Management. Academy of Management. The Academy of Management Review, 9 (3), 513 – 525.

Weill, P. and Ross J., 2005. A Matrixed Approach to Designing IT Governance. MIT Sloan Management Review, 46 (2), 26 – 34

Weill, P. and Vitale, M., 2002. What IT Infrastructure Capabilities Are Needed To Implement E-Business Models? MIS Quarterly Executive 1 (1), 17 – 34.