

2009

Impact Of Business And Information Strategies Alignment On Business Performance

Björn Johansson

Copenhagen Business School, bj.caict@cbs.dk

Sudzina Frantisek

Copenhagen Business School, frantisek@sudzina.com

Andreja Pucihar

University of Maribor, Andreja.Pucihar@fov.uni-mb.si

Follow this and additional works at: <http://aisel.aisnet.org/mcis2009>

Recommended Citation

Johansson, Björn; Frantisek, Sudzina; and Pucihar, Andreja, "Impact Of Business And Information Strategies Alignment On Business Performance" (2009). *MCIS 2009 Proceedings*. 89.

<http://aisel.aisnet.org/mcis2009/89>

This material is brought to you by the Mediterranean Conference on Information Systems (MCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in MCIS 2009 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

IMPACT OF BUSINESS AND INFORMATION STRATEGIES ALIGNMENT ON BUSINESS PERFORMANCE

Johansson, Björn, Copenhagen Business School, Howitzvej 60, 2000 Frederiksberg, Denmark,
bj.caict@cbs.dk

Frantisek, Sudzina, Copenhagen Business School, Howitzvej 60, 2000 Frederiksberg, Denmark,
fs.caict@cbs.dk

Pucihar, Andreja, University of Maribor, Kidriceva 55a, 4000 Kranj, Slovenia,
andreja.pucihar@fov.uni-mb.si

Abstract

Alignment between business strategy and information strategy has been in focus for several years. It can be stated that the research suggests different explanations and differs in how alignment influences firms' performance. In this paper, we present results from an investigation among firms in Slovenia in which we asked about how they perceive that their business strategy and information strategy were aligned to each other. Respondents' statements about alignment were then checked against the firms' turnover growth. One conclusion, which is possible to draw from the analysis, is that there is a significant relationship between alignment and turnover growth.

Keywords: *Information Strategy, Business Performance, Empirical Study*

1 INTRODUCTION

There is and has been a great extent of research done about the relation between business processes and information strategies (Luftman, Kempaiah et al. 2006) which often focus on alignment, and how alignment improves business performance - some studies provide a rather anecdotal evidence, such as (Plomp and Batenburg 2009; Smits, Fairchild et al. 2009), while others, such as (Chan, Sabherwal et al. 2006), a more substantial one. Our research question is motivated by the controversial statement delivered by Renaud and Kalika (2008) about their research, which they presented at MCIS 2008. What they (Renaud and Kalika 2008) propose is that it is not the co-alignment in itself that is a performance factor but rather firms' ability to mediate between alignment and non-alignment, and between their strategy and their structure that is of importance. This statement could be interpreted as lack of alignment (in our interpretation – bad alignment of business and information strategies) leads to better performance. However, Tallon (2007) (and majority of papers discussed in the literature review section) presents a counter argument and he states that there is a positive relationship between alignment and perceived IT business value. From this discussion we formulated the following research question: Does alignment of business and information strategies have impact on firms' business performance? If so, is it a positive or a negative one?

Our interest is to further explain statements from Renaud and Kalika (2008) as well as from Tallon (2007) and from empirical data investigate whether alignment between business strategies and information strategies influences firms' business performance. The conceptual reason for the need of the investigation is also, as Marchand and Raymond (2008) put it, the fact that e.g. as opposed to a performance measurement system, which is conceptually based on a performance measurement framework, which is ideally aligned with a company's business model and performance information needs, whereas this notion of "strategic alignment", crucial in explaining the performance outcomes of information systems, is not as evident in the conceptualization of enterprise information systems (in our terminology, of ERP systems). Of course, we acknowledge that organizational (e.g. trust/mistrust (Allen and Wilson 2003)) and environmental factors (e.g. environmental uncertainty (Aldrich 1979; Dess and Beard 1984)) have a potential to strengthen or weaken the effects of alignment on firms' performance. To be able to do this, we

analyze a data set, which contains data on alignment and turnover development from 131 firms operating in Slovenia.

The rest of the paper is organized as follows: First we give a short overview on alignment research with the aim of defining how we use the term alignment in the paper. After that follows a description of the data sample and the methodology used. The fourth section then contains the results from the analysis of the data. Section 5 then discusses limitations and the final section then presents some conclusions future research.

2 A LITERATURE REVIEW ON ALIGNMENT

The literature on alignment describes different dimensions of alignment: strategic, structural, social, and cultural (Chan and Reich 2007). In this paper, we focus on the strategic dimension of alignment. Strategic alignment is to what degree the business strategy and business plans and the IT strategy and plans complement each other. Even if strategic alignment is the dimension that most often is said influence performance (Henderson and Venkatraman 1993), Simonsen (2007) emphasizes on the operational alignment between business needs and IT solutions and he claims that top management and how they perceive that business value are gained from IT solutions is of importance for how they see alignment is fulfilled.

Henderson and Venkatraman (1993) describe strategic alignment from two building blocks. The first is functional integration, which basically is what they label strategic integration and that is described as the link between business strategy and IT strategy. The second is strategic fit, which is also labeled operational integration and that is the link between organizational infrastructure and IT infrastructure.

Chan et al. (2007) state that both strategic and structural alignment influence performance. There is critic of alignment research that state that since strategy is not a clear concept, which is also influenced by turbulent unpredictable circumstances, alignment does not succeed (Vitale, Ives et al. 1986). In fact, it can be stated that there are at least three different types of situations when trying to align IT with business strategy is more problematic. The first is when a firm tries to align IT with business strategy that is not internally consistent, and the result of this is then misalignment. The second is when the innovation in the firm reaches stagnation and if alignment then takes place, this results in IT stagnation. The third is when firm's getting more globalized, which means that special scale and cultural difficulties for alignment shows up (Chan and Reich 2007).

Chan et al. (2007) emphasizes on the fact that alignment has been conceptualized in various ways, however, most definitions state that alignment is the degree to which the mission, objectives, and plans contained in the business strategy are shared and supported by the IT strategy. This is in line with the definition that Henderson and Venkatraman (1993) give when they define alignment as: the degree of fit and integration among business strategy, IT strategy, business infrastructure, and IT infrastructure. Tallon (2007) states that alignment is not just about having a "tight" fit but instead it should be understood as aiming for having the "right" fit between a specific mix of processes and activities comprising the business strategy.

Two recent research surveys conducted in the Netherlands (Plomp and Batenburg 2009; Smits, Fairchild et al. 2009) also support the notion of positive relationships between alignment of business and information strategies, although it is necessary to mention that the sample size was rather limited.

Renaud and Kalika (2008) state that there exists a consensus – both in literature and in practice – that alignment between IS structure and/or strategy and business strategy impact performance positive. However, in their investigation they did not find support of this, instead it was found that the more the firms' prospecting characteristics are important the less alignment impacts firm's performance.

Chan et al. (2007) describe three different directions on alignment research: 1) alignment of business plan and the IT plan, 2) examining the fit between business needs and information systems priorities, 3) alignment and thereby ensuring congruence between business strategy and IT strategy. The research reported in this paper deals with the latest described direction. The next section describes the sample and methodology used in the study.

3 DATA AND METHODOLOGY

This exploratory paper is based on a questionnaire survey conducted in Slovenia in May and June 2007. Questionnaire forms accompanied by cover letters were mailed to randomly selected companies. Lists of addresses and information about the number of employees were retrieved from the Statistical Bureaus. Regarding the random sample, 600 questionnaires were sent to small, 300 to medium enterprises, and 300 to large companies. The number of questionnaires mailed to small companies was double the number of medium and large companies because small companies constitute the highest proportion of companies and based on our personal experience, they are less likely to respond. In total, there were 131 responses out of 1200 mailings, i.e. the response rate was 10,9 %. The sample size, the response rate, and the research methodology deployed are comparable to (Johansson and Sudzina 2009).

The research question is whether the alignment of business and information strategies matters when it comes to firms' business performance. In order to answer the question, we investigate the relationship between the alignment and the turnover development. Turnover development is relatively easy to measure and, at the same time, it describes the business performance reasonably well. Turnover development, not turnover in a particular year, was chosen in order to observe company growth and to make numbers comparable. Accounting only for turnover would most likely lead to biased results, since we would compare turnovers of companies of different sizes. (The company size may correlate with the alignment fit of business and information strategies.) Maybe net profit development would describe the performance even better but companies are usually not too willing to share this information. Moreover, the value might be significantly influenced by the tax optimization rather than only by the actual performance. Figure 1 describes the investigation setting.

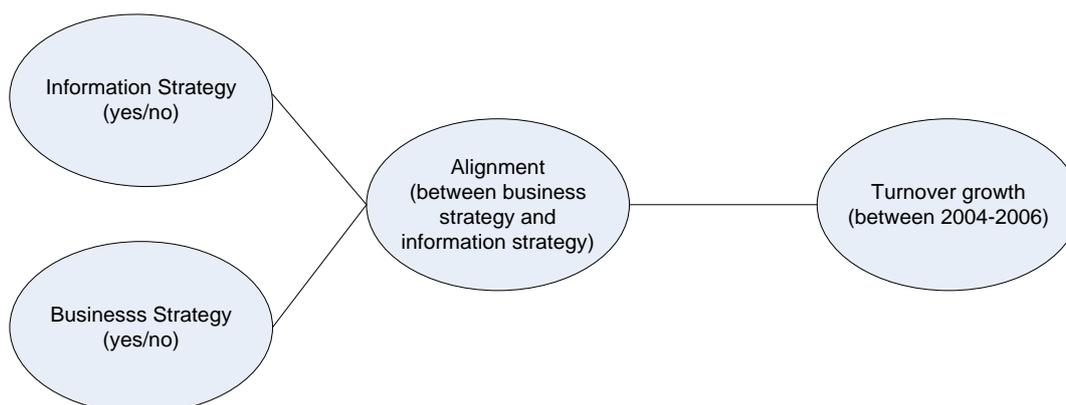


Figure 1. The investigation setting

The definition of company size, which we used, states that companies from 10 to 49 employees are considered to be small, companies from 50 to 249 employees are considered to be medium-sized enterprises, and companies having 250+ employees are considered to be large companies. This definition is consistent with how the European Commission (European Commission 2003) defines SMEs. According to this definition, there were 27 small, 36 medium, and 68 large companies in the research sample.

Out of the 131 companies, 58 stated that they have information strategy. The fact that only 44 % of companies have information strategy after over a decade that the article titled “Information Systems Strategy: Long Overdue and Still Not Here” (Hatten and Hatten 1997) was published may be surprising but this percentage is comparable e.g. to the situation in Slovak companies estimated in (Sudzina 2006).

All of these 58 companies rated the alignment of their information and business strategies on a Likert scale 1-5, where 1 stands for very bad and 5 for very good. With the exception of five of these, respondents provided information on their turnover development over the years 2004-2006. (So, the effective sample size is 53.) The reason for accounting for the turnover development over the period of 3 years is to avoid effects of internal factors (such as tactical decisions) and of external factors (i.e. environment changes). The possible answers were (1) reduction in turnover, (2) stable turnover (i.e. zero growth), (3) turnover growth of 0-5 %, (4) turnover growth of 5-10 %, and (5) turnover growth of 10+ %. The distribution of the turnover development and alignment of business and information strategies is presented in Table 1.

Alignment\turnover	Negative	0%	0-5%	5-10%	10+%	Total
1	0	0	0	1	0	1
2	0	0	0	0	0	0
3	1	4	3	3	1	12
4	2	2	6	9	12	31
5	1	1	0	2	5	9
Total	4	7	9	15	18	53

Table 1. Turnover development and alignment of business and information strategies

Although one might conclude from this table that the value of chi-square statistics is 13,54, the related p-value is 0,331, therefore there is no significant relationship in the data, we are aware of statistical power and thus we will use another approach. The issue of statistical power in information systems research is known for at least 20 years now, when Baroudi and Orlikowski (1989) estimated that information systems researchers typically have a 40% chance of not detecting the phenomenon under study, even though it, in fact, may exist. Our approach to this problem is to merge values of the two variables, i.e. to decrease the number of groups, which we are comparing, thus to increase the statistical power. The chi-square test will be used on the confidence level $\alpha = 0,05$.

4 RESULTS

As stated in the methodology section, the research question is whether there is a significant relationship between the alignment of information and business strategies and turnover development or not but using as powerful test as possible. Given the nature of variables, the chi-square test is the most suitable option. The only way to increase the power, given the test, it to decrease the number of values of the variable(s).

Regarding the values of turnover development, we used the idea behind Mood’s median test (Mood 1954), i.e. to split the value into two groups of the same size. The closest possibility to having two groups of the same size is to merge companies with growth lower than 5% and higher than 5 %. (If we actually followed the algorithm (i.e. to put values smaller and equal to median into one group and the higher into another), not the idea, we would end up with a split at 10 %, which we lead to a larger difference in group sizes.)

Regarding the values of the alignment between business and information strategies, although alignment of 1-3 could be tagged as “low to mediocre”, we will not do so because there is only one observation of value 1, none of value 2, and we are aware of the fact pointed out e.g. in (Eckhardt, Horvath et al. 2007) that the relationship does not need to be monotonic by default. We defer from assuming anything about the low alignment this way.

Since the described mergers of values, which led to a table of 2x3 have not yield a significant relationship, we opt for a table 2x2, which has the highest statistical power for chi-square. It is presented in Table 2.

Alignment\turnover	<5%	>5%	Total
Mediocre (3)	8	4	12
High (4-5)	12	28	40
Total	20	32	52

Table 2. Turnover development and alignment of business and information strategies

There is a relationship between the alignment and the turnover development, the value of chi-square statistics is 5,24, the related p-value is 0,022. On the other hand, it should be stressed that managers should not undergo the process of aligning business and information strategies, when they cannot observe significant increase in their firm's performance. In other words, the alignment should not be a goal per se but only as a facilitator.

Another, unintended, observation is that the alignment between business and information strategies is rather high. About a decade ago (Rosa 1998; Luftman, Papp et al. 1999) pointed out that given the importance and potential benefits of alignment, the number of organizations that successfully align their information strategy with business strategy is shown to be considerably small. Probably one decade was enough for companies to understand the value that high alignment may bring along and, therefore, learned how to achieve it.

5 KNOWN LIMITATIONS

The response rate of 10,9 % is not so low for a paper-based questionnaire survey but as (Armstrong and Overton 1977) illustrate, even a response rate of 80% may lead to biased estimates. Extrapolation methods assume that subjects, who responded less readily, are more like non-respondents (Pace 1939). "Less readily" means answering later, or as requiring more prodding to answer. Since we did not remind or urge respondents to reply, our less readily respondents are only late respondents. So we compared whether there is a significant difference between early and late respondents. Altogether, we consider the first 90 responses (who answered by the time we requested) to be early responses, the remaining 41 responses are considered to be late. There is no significant difference in early and late respondents when it comes to percentage of companies with information strategy, alignment, and turnover growth. To be more specific, as for information strategy, the value of chi-square statistics is 1,17, the related p-value is 0,280; as for the alignment, the value of chi-square statistics is 1,35, the related p-value is 0,718; as for the turnover development, the value of chi-square statistics is 6,36, the related p-value is 0,174. Although it does not prove that the non-respondents would give the same answers, at least it does not suggest that they would differ significantly.

Another issue is the variables in question. We asked about the turnover development in 2004-2006, while the evaluation of alignment between business and information strategies was not explicitly specified, there it can be assume to describe the situation in mid-2007. In our opinion, the alignment does not change drastically in time, since we deal with strategic (long-term), not tactical (short-term), plans, so it does not constitute a serious problem.

Moreover, we asked only about one person's opinion per company. As for the future research, several comprehensive questions about particular aspects of the alignment (such as the ones proposed by Khaiata and Zualkernan (2009)) and asking several people per company are suggestible. This may also lead to a

lower evaluation of the alignment, what may allow for the analysis whether also very bad alignment may be connected with a high turnover growth.

On the other hand, the questionnaire survey was mainly focused on ERP systems selection and implementation, the questions analyzed in this paper appeared to be only of descriptive nature, so even if the “interest hypothesis” (Franzen and Lazarsfeld 1945; Benson 1946; Edgerton, Steuart et al. 1947; Donald 1960) proved to be true and people interested in the topic, i.e. ERP systems, would respond more likely (Rollins 1940; Suchman and McCandless 1940; Reuss 1943; Baur 1947; Larson and Catton 1959), it would have no impact on the relationship investigated in this paper.

6 CONCLUSIONS AND FUTURE RESEARCH

Our investigation of perceived alignment between business strategy and information strategy and turnover growth showed that there is a significant relationship between alignment and turnover growth in Slovenia. From this it can be concluded that the positive link that for instance Tallon (Tallon 2007) claims exist between alignment and performance was supported, while we did not find support for the counter argument that Renaud and Kalika (Renaud and Kalika 2008) claim about alignment and firms performance. One reason for why we did not find any significant relationship supporting the claim from Renaud and Kalika could be that they focus on prospective strategic behavior in firms, which means that in these firms, it is even more important to find what Tallon (Tallon 2007) describes as the “right” fit and not just a “tight” fit. From these conclusions, it can be stated that future research in this area would benefit from investigating the alignment relationship between different types of business strategy in relation to a measurement of firms performance such as turnover growth.

Future research could also account for the approach used for information strategy formulation and implementation, as described in (Salmela and Spil 2002), since it may impact the actual alignment and possibly also the business performance. There may be a difference between companies which school of thought they implicitly use - information strategy supporting business strategy, synchronization of information and business strategies, convergence of information and business strategies, etc. Another suggestion for the future research is to measure the relationship between the alignment and the performance indirectly, though it may include more and/or other constructs than innovation strategy and knowledge management, which were proposed in (Masa'deh, Hunaiti et al. 2008).

References

- Aldrich, H. (1979). *Organizations and environments*. Englewood Cliffs, NJ, Prentice-Hall.
- Allen, D. and T. Wilson (2003). Vertical trust/mistrust during information strategy formation. *International Journal of Information Management* 23 (3), 223-237.
- Armstrong, J. S. and T. S. Overton (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research* 14 (3), 396-402.
- Baroudi, J. J. and W. J. Orlikowski (1989). The Problem of Statistical Power in MIS Research. *MIS Quarterly* 13 (1), 87-106.
- Baur, E. J. (1947). Response Bias in a Mail Survey. *Public Opinion Quarterly* 11 (4), 594-600.
- Benson, L. E. (1946). Mail Surveys Can Be Valuable. *Public Opinion Quarterly* 10 (2), 234-241.
- Chan, Y. E. and B. H. Reich (2007). IT alignment: what have we learned? *Journal of Information Technology* 22 (4), 297-315.
- Chan, Y. E., R. Sabherwal, et al. (2006). Antecedents and Outcomes of Strategic IS Alignment: An empirical investigation. *IEEE Transactions on Engineering Management* 51, 27-47.
- Dess, G. G. and D. W. Beard (1984). Dimensions of organizational task environments. *Administrative Science Quarterly* 29 (1), 52-73.

- Donald, M. N. (1960). Implications of Nonresponse for the Interpretation of Mail Questionnaire Data. *Public Opinion Quarterly* 24 (1), 99-114.
- Eckhardt, A., T. Horvath, et al. (2007). PHASES: A User Profile Learning Approach for Web Search. *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*. T. Y. Lin, L. Haas, J. Kacprzyk et al. Silicon Valley, CA, IEEE Computer Society: 780-783.
- Edgerton, H. A., H. B. Stuart, et al. (1947). Objective Differences Among Various Types of Respondents to a Mailed Questionnaire. *American Sociological Review* 12 (4), 435-444.
- European Commission (2003). SME Definition: Recommendation 2003/361/EC Regarding the SME Definition.
- Franzen, R. and P. Lazarsfeld (1945). Mail Questionnaire as a Research Problem. *Journal of Psychology* 20, 293-320.
- Hatten, M. L. and K. J. Hatten (1997). Information Systems Strategy: Long Overdue and Still Not Here. *Long Range Planning* 30 (2), 254-266.
- Henderson, J. C. and N. Venkatraman (1993). Strategic Alignment: Leveraging information technology for transforming organizations. *IBM Systems Journal* 32, 4-16.
- Johansson, B. and F. Sudzina (2009). Can Both Good and Bad Alignment of Business and Information Strategies Lead to High Business Performance? *The 12th International Business Information Management Association Conference - Creating Global Economies through Innovation and Knowledge Management: Theory & Practice*, Kuala Lumpur, Malaysia, International Business Information Management Association (IBIMA).
- Khaiata, M. and I. A. Zualkernan (2009). A Simple Instrument to Measure IT-Business Alignment Maturity. *Information Systems Management* 26 (2), 138-152.
- Larson, R. F. and W. R. Catton (1959). Can the Mail Back Bias Contribute to a Study's Validity? *American Sociological Review* 24 (2), 243-245.
- Luftman, J., R. Kempaiah, et al. (2006). Key Issues for IT Executives 2005. *MIS Quarterly Executive* 5 (2), 81-101.
- Luftman, J., R. Papp, et al. (1999). Enablers and inhibitors of business-IT alignment. *Communications of AIS* 1 (11), 1-33.
- Marchand, M. and L. Raymond (2008). Researching performance measurement systems: An information systems perspective. *International Journal of Operations & Production Management* 28 (7), 663 - 686.
- Masa'deh, R., Z. Hunaiti, et al. (2008). An Integrative Model Linking IT-Business Strategic Alignment and Firm Performance: The Mediating Role of Pursuing Innovation and Knowledge Management Strategies. *Communications of the IBIMA* 2 (24), 180-187.
- Mood, A. M. (1954). On the asymptotic efficiency of certain nonparametric two-sample tests. *Annals of Mathematical Statistics* 25 (3), 514-522.
- Pace, C. R. (1939). Factors Influencing Questionnaire Returns from Former University Students. *Journal of Applied Psychology* 23 (3), 388-397.
- Plomp, M. G. A. and R. Batenburg (2009). Procurement Maturity, Alignment and Performance: a Dutch Hospital Case Comparison. *22nd Bled eConference on eEnablement - Facilitating an Open, Effective and Representative eSociety*, Bled, Slovenia, University of Maribor, Faculty of Organizational Sciences.
- Renaud, A. and M. Kalika (2008). Prospective strategic behaviour and IS coalignment, impact on performance, an alternative perspective. *MCIS*.
- Reuss, C. F. (1943). Differences Between Persons Responding and Not Responding to a Mailed Questionnaire. *American Sociological Review* 8 (4), 433-438.
- Rollins, M. (1940). The Practical Use of Repeated Questionnaire Waves. *Journal of Applied Psychology* 24 (6), 770-772.
- Rosa, J. (1998). CIOs challenged by disparate goals. *Computer Reseller News* 7 Dec. 1998, 43.
- Salmela, H. and T. A. M. Spil (2002). Dynamic and emergent information systems strategy formulation and implementation. *International Journal of Information Management* 22 (6), 441-460.
- Simonsen, J. (2007). Involving top management in IT projects. *Communications of ACM* 50 (8), 53-58.

- Smits, M., A. Fairchild, et al. (2009). Assessing Strategic Alignment to Improve IT Effectiveness. *22nd Bled eConference on eEnablement - Facilitating an Open, Effective and Representative eSociety*, Bled, Slovenia, University of Maribor, Faculty of Organizational Sciences.
- Suchman, E. A. and B. McCandless (1940). Who Answers Questionnaires? *Journal of Applied Psychology* 24 (6), 758-769.
- Sudzina, F. (2006). Information Strategy in Slovak Companies in the Period of 2003-2006. *Management* 11 (42), 52-66.
- Tallon, P. P. (2007). A process-oriented perspective on the alignment of information technology and business strategy *Journal of Management Information Systems* 24 (3), 227-268.
- Vitale, M. R., B. Ives, et al. (1986). Linking information technology and corporate strategy: An organizational view, Association for Information Technology Trust.