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The Impact of Outsourcing on IT Business Alignment and IT Flexibility: A Survey in the German Banking Industry

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ABSTRACT

The ability to outsource IT has been suggested as a major driver of IT productivity. At the same time, the literature on the business value of IT suggests that IT business alignment and IT flexibility are important drivers for the performance of IT. But what is, then, the impact of outsourcing on these key value drivers? In this paper, we empirically show that firms with internal IT exhibit significantly better IT business alignment and IT flexibility.

Keywords

IT Business Alignment, IT Outsourcing, IT Flexibility

INTRODUCTION

Recent literature on the business value of IT suggests a rather indirect and complex relation between IT and its business value (Lee 2001). Especially IT business alignment and IT flexibility have been identified as important drivers of IT value. Another important strand of IS literature analyzes how outsourcing IT and/or business processes can contribute efficiency improvements by rearranging the value chain. Here, the ability to outsource IT has been suggested as a major driver of IT productivity (Kirkpatrick 2002). But what is the impact of outsourcing on the key value drivers IT business alignment and IT flexibility?

Our main hypothesis is that outsourcing has an impact on alignment and flexibility which, as related literature suggests, in turn drives the business value of IT (Figure 1). Alignment as an antecedent of organizational success (Chan, Huff, Barclay and Copeland 1997; Papp 1999; Teo and King 1996) as well as the impact of flexibility on business value have been analyzed by many authors (Byrd and Turner 2000; Byrd and Turner 2001). In this paper, we refrain from replicating these insights and instead focus on empirically disclosing the scarcely investigated impact of IT outsourcing on alignment and flexibility. Our research questions thus are:

- *Q1: How does IT outsourcing affect IT business alignment?*
- *Q2: How does IT outsourcing affect the flexibility of IT?*

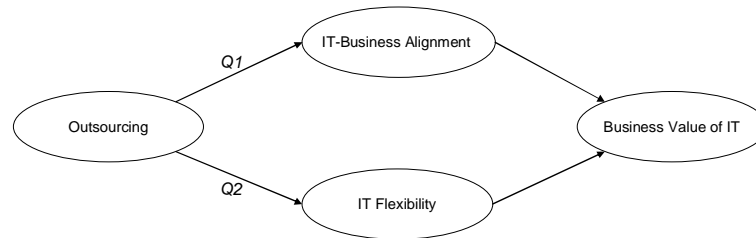


Figure 1: Nomological Network of Relationships among Constructs

The paper is structured as follows: Based on a literature survey on IT business alignment and IT flexibility, we introduce our research model that links outsourcing to alignment and flexibility. The model is then empirically tested. For this purpose, we first describe details of the underlying empirical survey, unit of analysis, and statistics used. Finally, empirical results, limitations, and implications are discussed.

RELATED LITERATURE

IT Business Alignment

Many studies have emphasized the importance of alignment for business value (Chan et al. 1997; Papp 1999; Teo and King 1996). Starting with the Strategic Alignment Model (Henderson and Venkatraman 1993), research has focused either on antecedents or enablers and inhibitors of alignment (Luftman, Papp and Bries 1999) and the relevance for practitioners (Luftman and McLean 2004). According to (Reich and Benbasat 1996), alignment is “the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives and plans”. They model alignment as consisting of an intellectual and a social dimension. The intellectual dimension is a refinement of content linkage as defined by Lederer and Mendelow (1989), differentiating between internal consistency (IT mission is internally consistent with business mission) and external validity (plans are comprehensive and valid with respect to external business and IT environment). The social dimension describes “the level of mutual understanding of and commitment to the business and IT mission, objectives and plans”. The social dimension of alignment is driven by 1) shared domain knowledge between business and IT executives, 2) IT implementation success, 3) communication between business and IT executives, and 4) connections between business and IT planning processes (Reich and Benbasat 2000).

Prior research has identified two primary consequences of IS alignment: increased IS effectiveness (Chan 2002; Chan et al. 1997) and increased firm performance (Chan et al. 1997; Sabherwal and Chan 2001). In contrast, IS misalignment has been found to lead to undesirable organizational effects like poor utilization of scarce organizational resources, sub-optimal performance of business units and the organization, a cyclical relationship between higher IS spending and expectations for success, costly IS investments with low yield returns, missed identification of high potential IS applications, and lack of capitalization of first-rate technology-related ideas (Chan 2002; Lederer and Mendelow 1987).

IT Flexibility

In uncertain and changing business environments, flexibility is a crucial aspect of success (Ybarra-Young and Wiersema 1999). IT plays a vital role in ensuring this ability to readjust and reconfigure. Accordingly, Byrd and Turner (2000; 2001) propose a direct link between IT flexibility and competitive advantage with IT flexibility consisting of technical infrastructure (choices pertaining to applications, data, and technology configurations) and human infrastructure (experience, competencies, commitments, values, norms of IT personnel). Evans (1991) underlines that “the overarching issue underlying any application of the principle of flexibility is the aligned development of assets and capabilities in pursuit of dynamic objectives derived from evolutionary policy goals”. Furthermore, Kumar (2004) introduces a framework for analytically assessing the business value of an IT infrastructure that explicitly considers IT flexibility and shows that the flexibility of an IT infrastructure can have a distinct impact on infrastructure business value, especially in turbulent environments.

MODEL

We now introduce our research model and derive testable hypotheses for the research questions outlined above.

Among the very few authors investigating the relation between alignment and outsourcing, Grover et al. (1996), though not explicitly using the term alignment, find a strong positive correlation between outsourcing success and outsourcing partnerships that are based on communication, trust, satisfaction, and cooperation. Those attributes partly match the enablers of the social dimension of alignment. The importance of business alignment as a driver for outsourcing has been explored in a series of case studies by Fowler and Jeffs (1998). Their interview partners reveal frequent misalignment of business and IS as a key issue in IT outsourcing relationships. Willcocks et al. (2004) argue that many service providers fail to deliver

promised innovations and value added due to a lack of knowledge about the outsourcer's long-term business strategy. Nevertheless, research explicitly addressing the impact of outsourcing on IT alignment seems non-existent. One notable exception is Lacity et al. (1996) reporting that "companies (total outsourcers) complained of a loss of alignment between business strategy and IT" (p. 15).

One can thus argue that the formalization of the interaction between outsourcer and service provider when preparing an outsourcing contract and establishing a retained organization to manage the service provider results in an increase in IT business alignment. This consideration leads to the first hypothesis:

H1a: IT Outsourcing has a positive impact on IT business alignment.

Then again, IT outsourcing may decrease the level of alignment by establishing additional organizational frictions between IT and business units. This hypothesis is supported by Lacity et al. (1996) for total outsourcers.

H1b: IT Outsourcing has a negative impact on IT business alignment.

Literature explicitly relating outsourcing to flexibility is rare despite identifying "outsourcing as a means to gain flexibility" as the third most important outsourcing motive, just after operational cost savings and focusing on core competencies (Quelin and Duhamel 2003). Singh and Walden (2003) propose a model relating cost and flexibility in bilateral outsourcing contracts. The interplay of flexibility and control in managing the outsourcing relationship is discussed in (Lacity, Willcocks and Feeny 1995).

A potential gain in IT flexibility due to outsourcing may result from the superior performance of the sourcing provider, as IT is likely an IT provider's core competence (Clark, Zmud and McCray 1998). This potential positive impact of outsourcing on IT flexibility leads to hypothesis 2a:

H2a: IT Outsourcing has a positive impact on IT flexibility.

In contrast, the outsourcing firm may also encounter a loss in organizational flexibility and innovation capacity when an external provider is not as flexible and easily controllable as an internal business unit (Earl 1996; Lacity et al. 1995; Young and Hood 2003). This leads to the alternative hypothesis 2b:

H2b: IT Outsourcing has a negative impact on IT flexibility.

Both sets of hypotheses are now challenged in an empirical survey with Germany's 1,020 largest banks.

UNIT OF ANALYSIS

There is evidence in the literature that the business value of IT should be measured on process level (Barua, Kriebel and Mukhopadhyay 1995; Melville, Kraemer and Gurbaxani 2004). Hence, we focus on a specific business process, i.e., "actions that firms engage in to accomplish some business purpose or objective" (Ray, Barney and Muhanna 2004). The rationale is that a firm comprising several business processes may excel in some and is average or below average in other processes, which leads in total to some net effect at firm level. The focus of this research is further narrowed to a single industry (banks) to control for unwanted side effects as suggested by Chiasson and Davidson (2005). Accordingly, we chose a bank's business process of granting and managing credits for SME investments ("credit process") as the unit of analysis for four main reasons: 1) the credit process is a primary/core IT reliant bank process with a direct value contribution and a potential source of competitive advantage. The SME credit business on average accounts for 49.7% of the total credit portfolio of a bank; 2) there are some non-automated activities (compared to highly standardized automated payment processes or consumer credits) requiring human business competencies and alignment between IT and business units; 3) homogeneity, as there are different credit processes designed for different classes of customers (e.g., SME, retail, large enterprise) with varying requirements for IT support or skills; 4) regulatory changes and changes in workflow and products require IT flexibility and alignment between business and IT. In many banks, the SME credit process is supported by a comprehensive core application. For a detailed description of the credit process see (anonymous). Considering IT and IT Outsourcing, we focus on the core application supporting the credit process.

METHODOLOGY

In 2005, a paper-based questionnaire consisting of 30 mainly closed questions was sent to the German Top 1,020 banks (according to total assets). The questionnaire was refined in several pre-tests and expert interviews. The managers responsible for the banks' credit processes were identified and individually contacted by phone prior to sending out the questionnaire. Overall, 136 analyzable questionnaires were returned (response ratio of 13.3%).

Methodological Approach

In our sample we identified two groups of banks, those that have outsourced the provision of the core application (termed “outsourcers”) and those that have not (termed “insourcers”). It has to be noted that we follow a broad definition of IT outsourcing which incorporates IT provision by joint ventures or subsidiaries, such as shared data centers within a banking association etc.

To capture the essence of alignment and flexibility in their various dimensions, no single measure is available. Instead, we used a number of manifest variables or indicators to measure alignment and IT flexibility as multi-dimensional constructs or latent variables. We applied Principal Component Analysis (PCA)¹ and Partial Least Squares (PLS)² to derive latent variable scores for alignment and flexibility. Those latent scores for different dimensions of alignment and flexibility as derived from the PCA as well as a global measure incorporating all dimensions of alignment, modeled as a second-order model in PLS have been used as input for the comparison of the insourcer and outsourcer group.

To test the hypotheses, we compare the distributions of construct scores between outsourcers and insourcers as well as the distributions of the indicator values themselves. We consistently apply the non-parametric Mann-Whitney throughout this work for all tests. Furthermore, the Kolmogorov-Smirnoff test shows that not all of the calculated construct scores sufficiently resemble a normal distribution, rendering a T-test based comparison of score means non-appropriate. The level of significance for rejecting the statistical null hypotheses (α -error) has been chosen as $p=0.05$.

Construct Specification

In developing the questionnaire, we strived to use established scales and indicators. Since we focus on a specific business process (granting and administering SME loans) in a specific industry (banking), adaptations of the original indicators to the specific business domain were carried out.

The concept of IT business alignment is based on and influenced by a large number of factors. For this study, based on the works of Reich and Benbasat (Reich and Benbasat 1996; Reich and Benbasat 2000) we adapt the distinction between the social and intellectual dimension of alignment. The intellectual dimension is evaluated as a single item measure, as applied in recent studies (Tallon, Kraemer and Gurbaxani 2000). The social dimension with its four sub-dimensions as suggested by Reich and Benbasat (2000) is applied with two modifications. First, in this survey the second enabler, “IT implementation success”, is not relevant since the core application has been used for several years. Second, for the same reason, the connection dimension, referring to connections between IT and business in the development phase is not taken into account. Instead, we add a cognitive dimension capturing mutual understanding of IT and business unit consistent with (Tiwana, Bharadwaj and Sambamurthy 2003). Each of these dimensions of social alignment (shared knowledge, communication, cognitive dimension) has been measured using three indicators. Indicators derived from authors other than Reich and Benbasat have been matched to the categories for social alignment as described before. All indicators are described in the appendix.

Regarding flexibility, due to a lack of indicators explicitly used in prior empirical studies, the indicators used here are based on the conceptual work of Evans (1991) and have been inspired by two additional empirical studies. In research on supply-chain flexibility, Gosain et al. (2004) applied indicators to assess “offering flexibility”, which closely resembles ex post offensive flexibility, by assessing the ability to rapidly deploy new products. Analyzing strategic flexibility in IT alliances, Young-Ybarra and Wiersema (1999) used indicators to assess the responsiveness to business-driven changes. All indicators have been adapted to the banking domain based on expert interviews and insights from pre-tests.

¹ SPSS 11.5 (www.spss.com) was used to conduct the PCA and all statistical tests in this paper.

² PLS-Graph 3.0, build 1126 from W. Chin (www.plsgraph.com) was used to generate the scores of the latent variable “IT business alignment - social dimension”.

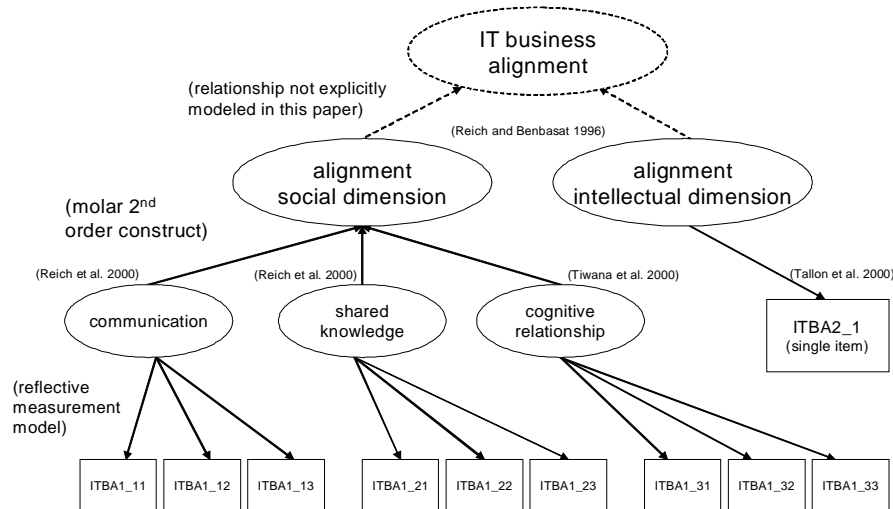


Figure 2. Development of the Alignment Construct

RESULTS

Demographics

The German banking environment comprises three sectors: private commercial banks, publicly owned savings banks, and credit cooperatives. The savings banks are owned by municipalities, county governments, or federal states. Savings banks and credit cooperatives typically have a strict regional focus, serving only clients within a specified region, while commercial banks usually operate in a national context. Table 1 gives an overview about the size of the sectors and the number of insourcers and outsourcers in each sector.

Sector	Commercial banks	Public savings banks	Credit cooperatives	Total
Number and relative size in Top 1,020	79 (7.7%)	476 (46.7%)	465 (45.6%)	1020
Number and relative size in sample	10 (7.3%)	47 (34.6%)	79 (58.1%)	136
Number of insourcers in sample	4	7	5	16 (11.8%)
Number of outsourcers in the sample	4	30	65	99 (72.8%)

Table 1. Demographics

Most German banks are universal banks, offering a comprehensive range of financial products and services. Within their sectors, savings banks and credit cooperatives run several shared IT data centers to support the IT needs of the individual group members. As indicated in Table 1, most German Top 1,000 banks have outsourced their credit processing core applications. Four respondents stated insourcing as well as outsourcing the core application while the remainder (17 participants) gave no answer. Both groups have not been considered in the following analysis, reducing the data sample to 115 banks.

Test of Hypotheses

The analysis of the hypotheses offers distinctive results. Overall, firms with internal IT show significantly better alignment and IT flexibility.

Regarding the impact of outsourcing on alignment (H1a, H1b), outsourcers rate IT business alignment significantly worse than insourcers for both the intellectual (Table 2) and social dimension (Table 3). On a 5-point Likert scale, outsourcers rated the item on average 0.68 points worse than insourcers did. The distributions of insourcers and outsourcers differ significantly as the Mann-Whitney test ($p \leq 0.016$) shows.

Indicator	Description	Construct	Insourcers: mean, S.D. (n)	Outsourcers: mean, S.D. (n)	Mann-Whitney-Test (Z score, P)
ITBA2_1	IT strategy is aligned with business strategy	ITBA—intellectual dimension	3.55, 1.13 (11)	2.87, 1.11 (69)	-2.419, .016

Table 2. Intellectual Alignment Indicator and Comparison of Means (Scale: 5 – Totally Agree to 1 – Totally Disagree)

The second-order construct “alignment—social dimension” also shows strong significant differences (Table 3). Because of the latent scores having been extracted with PLS and therefore being highly aggregated we also tested for differences between insourcers and outsourcers on sub-construct level (Table 3) and on indicator level (Table 5 in the appendix).

Construct	Scores generation	Insourcers: mean, S.D. (n)	Outsourcers: mean, S.D. (n)	Mann-Whitney test (Z score, P)
IT business alignment—social dimension	Scores extracted from PLS analysis	.846, 1.114 (16)	-.243, .867 (97)	-3.504, .000
IT business alignment—social dimension—communication	PCA (principal component analysis)	.470, 1.060 (14)	-.185, .871 (88)	-2.335, .020
IT business alignment—social dimension—shared knowledge	PCA	.292, .951 (14)	-.077, 1.010 (88)	-.792, .429
IT business alignment—social dimension—cognitive relationship	PCA	1.102, .855 (14)	-.274, .922 (85)	-4.107, .000
IT flexibility	PCA	.958, 1.049 (14)	-.2463, .893 (86)	-3.976, .000

Table 3. Constructs and Comparison of Means
(shaded row indicates insignificant difference between insourcers and outsourcers)

On the level of the 1st-order constructs, in particular the results for “cognitive relationship” clearly differ between both groups. As Table 5 in the appendix depicts, all indicators show large differences in means (≥ 0.98 on a 5-point Likert scale). Within the “communication” construct, two of the three indicators measuring the frequency of communications between IT unit (resp. outsourcing provider) and business unit do not significantly differ between both groups. Nevertheless, the “communication” construct itself shows significantly better scores for the insourcers ($p < 0.02$). The only 1st-order construct of social alignment that does not exhibit significant differences, is “shared knowledge between IT and business domain”. Table 5 shows the means of the indicators themselves as well as the results of the Mann-Whitney test on indicator level.

Concerning IT flexibility, the last row in Table 3 shows that outsourcing the core application of the credit process again leads to significantly worse results for outsourcers ($p < 0.16$). As Table 4 in the appendix shows, all indicators display the same significant differences, the means (again on 5-point Likert scale) differing by at least 0.71 points.

Hypotheses	Result of analysis
H1a: IT Outsourcing has a positive impact on IT business alignment.	Refuted
H1b: IT Outsourcing has a negative impact on IT business alignment.	Supported
H2a: IT Outsourcing has a positive impact on IT flexibility.	Refuted
H2b: IT Outsourcing has a negative impact on IT flexibility.	Supported

Table 4: Results of Analysis

Based on the analysis we can summarize that banks insourcing their IT exhibit both better alignment between IT and business unit as well as higher IT flexibility, supporting hypotheses H1b and H2b while refuting H1a and H2a (Table 4).

DISCUSSION AND LIMITATIONS

Based on an empirical survey among 1,020 banks we could show that IT outsourcing leads to worse IT business alignment and worse IT flexibility compared to using an internal IT unit. Even when implementing a retained organization, which should effectuate efficient and effective coordination processes, outsourcing implies a form of complication of communication and a reduction of connections between business unit and IT which is consistent with the findings of Lacity et al. (1996) with "total outsourcers" complaining of a loss of alignment. Interestingly, one factor of the social alignment dimension – shared knowledge – is not negatively affected by outsourcing because IT providers for industry applications usually are highly specialized in servicing this industry and have developed business-specific knowledge over many years. Also, in our survey IT outsourcing is associated with decreased IT flexibility. This can at least partly be explained by higher coordination efforts between the IT provider and its clients compared to internal IT units. It is comprehensible that an internal IT unit can much easier react to change requests than a service provider offering the same system to multiple clients and thus provides evidence that the stated risk of flexibility losses (Earl 1996; Lacity et al. 1995; Young and Hood 2003) actually materializes. Nevertheless, many managers responsible for the credit process of banks with outsourced IT also state that the IT provider is rather not capable of realizing particular changes - irrespective of possibly higher change duration and coordination efforts.

Besides the typical limitations of empirical work (limited representativeness of sample, limited transferability of findings to other systems, processes, industries, and nations), three main shortcomings of our work should be noted. First, the insourcer group was comparably small. Although we tried to restrict the set of statistical methods applied here to those which are traceable and rather non-sensitive and although the results are highly significant, there is a possible bias due to this small group. Second, there might be hidden factors explaining the results but ignored by us. For example, insourcing banks are significantly larger (Mann-Whitney test: $p \leq 0.010$). A smaller bank size might also account for worse alignment and flexibility as smaller banks usually have less bargaining power and therefore play a minor role from an IT provider's perspective. Another factor influencing flexibility could be the age of the core application. However, the age of deployed systems does not differ significantly for in- and outsourcers. Further, a rigid IT infrastructure may lead to the intention to outsource to purchase flexibility from a provider. Third, a cross-sectional group comparison, as conducted in this paper, does not allow for an explicit measurement of the direction of the relationships explored here. Instead, a longitudinal investigation of banks' outsourcing activities and corresponding alignment and flexibility evaluations would be required for ex ante to ex post comparison. Unfortunately, the small and decreasing number of banks which still insource their IT in Germany will most probably lead to an insufficiently small data sample. Increasing the comparability within one dataset was another reason why we focused our research on one particular application of the banking business, which provides quite similar functionalities in all banks. Nevertheless, we will reconsider the actual results in future surveys to achieve data for inter-temporal comparison.

CONCLUSION

Concluding, in this paper we propose to integrate some findings of the outsourcing and IT value literature. We could show a negative impact of IT outsourcing on IT business alignment and flexibility which are considered key success drivers for a firm's IT. The results hint at an essential trade-off associated with outsourcing that might be interesting to explore in more detail. Also, the results indicate a concrete and possibly important challenge for the design of outsourcing arrangements in emphasizing alignment and flexibility as major areas of responsibility for internal and external relationship management in general and a retained organization in particular. In this paper, we treated flexibility and alignment as independent constructs; further research will disclose the interrelationship of both as e.g. one could argue that better alignment might lead to higher flexibility (or vice versa). Further research also will explore IT flexibility as a multi-dimensional construct to examine the interrelationship between outsourcing, alignment and different flexibility dimensions. From a theoretical perspective, this paper could be a first step in bringing together investigations of outsourcing and alignment research, which as we have shown seem strongly interrelated.

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APPENDIX – DESCRIPTION OF INDICATORS AND COMPARISON OF MEANS

Indicator	Description	Insourcers: mean, S.D. (n)	Outsourcers: mean , S.D. (n)	Mann-Whitney- Test (Z score, P)
ITF1	The IT unit is able to alter the loans processing systems for reconsidering new loan products.	2.93, 1.00 (14)	2.22, .95 (89)	-2.521, .012
ITF2	The IT unit is able to realize workflow changes within the loans processing systems.	2.86, 1.03 (14)	2.05, .86 (88)	-2.815, .005
ITF3	The IT unit reacts flexible to change requests from the business unit.	3.29, .91 (14)	1.99, .76 (93)	-4.554, .000
ITF4	The IT unit realizes change requests from the business unit in appropriate time.	3.00, .88 (14)	2.14, .79 (92)	-3.502, .000
Indicators adapted from (Evans 1991; Gosain et al. 2004; Young-Ybarra and Wiersema 1999)				

Table 5. Flexibility Indicators and Comparison of Means (Scale: 5 – Totally Agree to 1 – Totally Disagree)

Indicator and literature source	Description	Construct	Insourcers: mean, S.D. (n)	Outsourcers: mean , S.D. (n)	Mann-Whitney- Test (Z score, P)
ITBA1_11 a,b,d	Periodical meetings for discussing process improvements	communication	2.06, 1.06 (16)	1.80, .93 (89)	-968, .333
ITBA1_12 a,b,d	Periodical meetings for ensuring efficient and effective changes	communication	2.06, 1.00 (16)	1.73, .85 (85)	-1.302, .193
ITBA1_13 a,b,d	The IT unit and the business unit frequently consult each other.	communication	3.25, 1.13 (16)	2.01, .88 (90)	-3.906, .000
ITBA1_21 a,d	The IT unit implements change requests according to the requirements of the business unit.	shared knowledge	3.71, .91 (14)	3.01, .85 (88)	-621, .535
ITBA1_22 a,d,e	The employees of the IT unit are able to interpret business-related problems and develop solutions.	shared knowledge	3.00 , 1.07 (15)	2.94, .96 (86)	-170, .865
ITBA1_23 a,d,e	The employees of the IT unit know the SME credit business process.	shared knowledge	2.64, .93 (14)	2.80, 1.05 (82)	-536, .592
ITBA1_31 c,e	There exists a lot of mutual trust and respect between IT unit and business unit.	cognitive relationship	3.87, .62 (16)	2.89, 1.02 (94)	-3.611, .000
ITBA1_32 a,b,d	A change is implemented in close interaction between business and IT unit.	cognitive relationship	4.00, 1.11 (14)	2.36, .94 (86)	-4.557, .000
ITBA1_33 c,d	Business unit and IT unit are equal partners.	cognitive relationship	3.31, 1.20 (16)	2.33, 1.14 (94)	-2.946, .003
a=(Broadbent and Weill 1993), b=(Chung et al. 2003), c=(Luftman 2003), d=(Reich and Benbasat 1996), e=(Teo and King 1999)					

Table 6. Alignment Indicators and Comparison of Means (Scale: 5 – Totally Agree to 1 – Totally Disagree) (grey rows indicate insignificant differences between insourcers and outsourcers)