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Daniel Beimborn
University of Bamberg, daniel.beimborn@uni-bamberg.de

Frank Schlosser
University of Bamberg, frank.schlosser@uni-bamberg.de

Tim Weitzel
University of Bamberg, tim.weitzel@uni-bamberg.de

Rudy Hirscheim
Louisiana State University, rudy@lsu.edu

Andrew Schwarz
Louisiana State University, aschwarz@lsu.edu

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Daniel Beimborn, Frank Schlosser, Tim Weitzel
Chair of Information Systems and Services
University of Bamberg, Germany
{daniel.beimborn|frank.schlosser|tim.weitzel}@uni-bamberg.de

Rudy Hirschheim, Andrew Schwarz
Information Systems and Decision Sciences
Louisiana State University, USA
{rudy|aschwarz}@lsu.edu

ABSTRACT

IT business alignment is widely acknowledged as an important driver for effectively applying information systems in a business context and for increasing the performance of the supported business process. But how does this structural integration of enterprise systems and business processes change when firms outsource the provision of their IT?

We empirically compare how the value impact of structural IT business alignment on core financial processes in banks with an internal IT is different from banks that have their enterprise systems outsourced. It turns out that outsourcing substantially changes the ways operational alignment influences business process performance.

Keywords

IT Business Alignment, Process Performance, IT Outsourcing, Banking Industry

INTRODUCTION

IT business alignment has been identified as an important driver for effective IT usage and increased process performance (Chan, Huff, Barclay and Copeland 1997; Franke, Wagner and Weitzel 2005; Luftman 2001; Reich and Benbasat 2000) and, thus, contributes significantly to the business value yielded by enterprise systems. IT business alignment consists of a quite well understood strategic layer (Henderson and Venkatraman 1992) and a somewhat under-researched (Chan 2002) social or structural dimension (Reich and Benbasat 1996; Reich and Benbasat 2003) that should reflect and transform strategic goals into daily operational reality. But how does structural alignment, i.e. alignment at the operational level, change in the light of major organizational changes like outsourcing, and what are the impacts on business process performance?

Outsourcing the provision of the enterprise system transforms the IT business relationship from an intra- to an inter-organizational liaison. At the same time, the "alignment" problem of synchronizing internal IT and business units becomes, at least in parts, the challenge of an external relationship management with the vendor. The interesting question is whether and how this change impacts the very IT business relationship and its impact on overall success. Earlier research suggests that IT business alignment is worse if firms have outsourced (Beimborn, Franke, Wagner and Weitzel 2006a). In this paper, we expand upon this perspective by incorporating the success implications and also focus on the relationship between alignment and process performance. After all, a reduction of alignment is not necessarily related to a decrease in performance. Change of strategies, other substitutive measures, or performance gains due to the outsourcing deal itself and related governance activities might be able to at least partly compensate for the decrease of alignment. Our main hypothesis is that outsourcing has an impact on alignment which in turn impacts process performance. Alignment as an antecedent of organizational success has been analyzed by several authors (Chan et al. 1997; Papp 1999; Teo and King 1996). In this paper, we thus shift the focus and aim towards empirically disclosing the impact of IT outsourcing on alignment and, moreover, on its impact on process performance. Our research question is:

- *How does IT outsourcing affect the impact of IT business alignment on process performance?*

In the next section, the research model linking outsourcing to alignment and furthermore to process performance is developed based on the literature on IT business alignment and IT outsourcing. The model is empirically tested by applying PLS and group comparisons between outsourcer firms and insourcer firms. As suggested by Melville et al. (2004), we adopt a business process level approach, i.e. measurement of alignment and performance is done for a singular pre-specified business process. This allows for a more distinct analysis because the usage of a single IT system and its value in a related controllable business environment are examined.

MODEL DEVELOPMENT

Impact of IT Business Alignment on Process Performance

Many studies show the importance of alignment for IS effectiveness and achieving a business value from IT usage (Chan 2002; Chan et al. 1997; Franke et al. 2005; Papp 1999; Sabherwal and Chan 2001) and that poor alignment leads to undesirable organizational effects like poor utilization of resources, low performance of business units, and costly IS investments with too low returns (Chan 2002; Lederer and Mendelow 1987).

Alignment can be defined as "the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives and plans" (Reich and Benbasat 1996). Reich and Benbasat further distinguish between an intellectual and a social dimension of alignment. The *intellectual dimension* refines the concept of "content linkage" (Lederer and Mendelow 1989), which differentiates 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); therefore, it can be mapped to the strategic layer of the SAM, i.e. *strategic alignment*. The *social dimension* refers to the structural (or: operational) layer and describes "the level of mutual understanding of and commitment to the business and IT mission, objectives and plans". The social dimension of alignment (or: *operational alignment*) can be conceptualized by the dimensions of (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). Goal of operational alignment is to increase the effectiveness of IT usage, e.g. by faster and more successfully solving system errors, by appropriately fulfilling change requests, and to jointly identify areas for business process improvement (Wagner, Beimborn, Franke and Weitzel 2006). In our study, we focus solely on the social dimension, also called "operational alignment". We adapted and modified the social dimension from (Reich and Benbasat 1996; Reich and Benbasat 2000) in two areas. First, the second enabler, "IT implementation success" was removed as our focus is on an established and running business process environment where enterprise systems have been in place for several years. Second, the connection dimension, referring to connections between IT and business in the development phase, is omitted for the same reason. Instead, we include the cognitive dimension from (Tiwana, Bharadwaj and Sambamurthy 2003) that has been suggested to capture the rather informal social aspect of trust and mutual respect and understanding that are considered elemental for a healthy IT business interaction. Among others, Chan 2002 finds that while our understanding of strategic alignment has become quite mature, informal structures might be "the most enduring aspect of alignment". We also found strong operational alignment in a case study series that showed that banks with strong operational alignment (while most other environmental factors, including strategic alignment, were quite similar) had much better business process performance than those with lower operational alignment, because mutuality among others allowed information to cross knowledge barriers that might restrict IS usage (Beimborn, Franke, Wagner and Weitzel 2007; Wagner et al. 2006). Summarizing, we use three dimensions for measuring operational alignment (or the "social dimension" of alignment): cognition (ITBA-cog), communication (ITBA-com), and shared knowledge (ITBA-sha).

As argued above, we use a process-oriented analysis, which allows us to better control contextual factors and reduce biases which come with highly aggregated firm performance measures (Barua, Kriebel and Mukhopadhyay 1995; Melville et al. 2004). Focusing on process-based performance measures avoids compensation effects within a firm where good performing processes might outweigh low performance in others when seen from a firm level perspective. Several works have already shown this relationship (e.g. (Beimborn et al. 2007; Franke et al. 2005)). Usually, it is argued that IT business alignment does not have a direct effect on process performance (or firm performance) since it is mediated by usage, flexibility, and effectiveness of the enterprise systems used (Wagner 2007). Nevertheless, since the work on hand does not intend to explain the way that IT business alignment drives process performance, we excluded these mediation effects from our model, in order to keep it simple and straightforward. Business process performance is usually measured along three dimensions: costs, quality and time (Mooney et al. 1996). As explicated in the appendix (table 4) we measure *success* as process performance. When talking about success we thus refer to the extent to which the business process outcome helps a bank to improve its competitive position and not how well its IT and business unit are aligned.

H1+: IT business alignment (social dimension, i.e. cognition, communication, and shared knowledge) positively affects process performance (PP).

Impact of IT Outsourcing on IT Business Alignment and its Impact on Process Performance

Research on the relation between alignment and outsourcing is scarce. Some research from the IT outsourcing and governance literature (contractual governance vs. relational governance, in particular) find outsourcing success to be strongly driven by relationship factors such as communication, trust, and cooperation (e.g. (Grover, Cheon and Teng 1996; Lee and

Kim 1999)). Those attributes partly match the dimensions of operational alignment as defined above. The importance of alignment as a driver for outsourcing has been explored in a case study series by Fowler and Jeffs (1998) who found missing alignment to be a severe problem in outsourcing relationships. Willcocks et al. (2004) find that insufficient knowledge about a client's strategy can hamper significant value contributions from the provider side. Yet, drawing on Lacity et al. (1996) who found that "companies (total outsourcers) complained of a loss of alignment between business strategy and IT" (p. 15), the impact *of* outsourcing *on* IT alignment seems worthwhile to be thoroughly explored. This is supported by earlier quantitative research indicating that outsourcing does indeed reduce the level of operational alignment (Beimborn et al. 2006a) by establishing additional organizational frictions between IT and business units. Yet, one can also 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 of IT business alignment.

H2+: IT outsourcing has a positive impact on IT business alignment.

H2-: IT outsourcing has a negative impact on IT business alignment.

The main focus of this work is to examine the impact of IT outsourcing on the relationship between alignment and process performance. From the outsourcing literature, antithetic arguments can be derived for the different dimensions of operational alignment being more or less important in an IT outsourcing vs. an in-house context. For example, the literature discusses the role of trust (matching the cognitive dimension of operational alignment) in IT outsourcing which can be seen as both complementary and substitutive to contractual governance (Marcolin and Ross 2005). If there is no appropriate contractual fundament, trust will likely not appear in an outsourcing relationship (Gellings and Wüllenweber 2007). On the other hand, if there is "too much contract" and subsequent control, trust will not arise either.

The importance of structured communication will typically increase in case of outsourcing for two reasons. First, the distance between the IT provider and the business unit will usually be larger than between business unit and an internal IT unit. Thus, the provider staff will not get certain information directly from being present in the client firm, but needs to be informed by explicate communication channels. Second, the bilateral relation of IT and business unit will change to a trilateral constellation, since, typically, a liaison unit will take over the role of an intermediary function between the different business units and the IT provider (Joha 2003). Communication quality becomes a critical issue, since loss of information becomes more likely (Chinese whisper phenomenon) (Lee and Kim 1999).

The importance of shared knowledge, as the third dimension of operational alignment, may also differ in an outsourcing vs. insourcing context. First of all, IT outsourcing often takes place with less critical and more technical infrastructures. Hence, shared knowledge about the business domain is less relevant in this context, which therefore could bias an empirical analysis. To avoid this issue, we focus on a particular business process and, furthermore, on a particular part of the IT infrastructure in order to ensure reliability as much as possible. Nevertheless, outsourcing will usually come along with a "commoditization" of the IT service. General knowledge about the business needs will still be necessary on the IT side, but knowledge about the specific client firm's particularities and demands will more or less take a back seat and become less relevant (Schultze and Boland 2000). As a counter-argument, one has to consider that due to a loss of shared knowledge in an outsourcing relationship, the impact becomes even stronger in a statistical sense, since some IT providers will be aware of this issue and attach importance to it. Because shared knowledge has an important positive impact on process performance, this could lead to an even stronger impact on the group of outsourcer firms. A second argument for shared knowledge becoming more important in outsourcing relationships can be drawn from the differentiation between tacit and explicit knowledge. Within the firm, more knowledge is made explicit (e.g. process documentations, norms, guidelines etc.). Thus, it can be accessed by each employee if needed and thus may reduce the demand for actual "shared knowledge" of individuals from different firms.

Consequently, the following generic hypotheses can be postulated:

H3+: IT outsourcing positively moderates the impact of IT business alignment on process performance.

H3-: IT outsourcing negatively moderates the impact of IT business alignment on process performance.

As a summary of this section, the following figure shows the resulting research model:

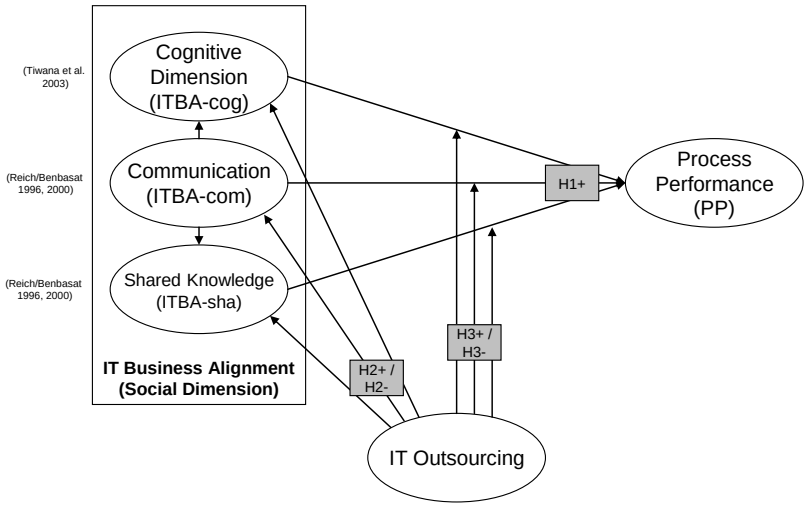

Figure 1: Research model

UNIT OF ANALYSIS

Following the suggestions of (Barua et al. 1995; Melville et al. 2004), we focus on a specific business process instead of conducting a firm level analysis. The focus of this research is further narrowed to a single industry (banks) to control unwanted side effects as suggested by Chiasson and Davidson (2005). Accordingly, we chose the banking industry and, more precisely, the business process of granting and managing credits for SME investments ("SME credit process") as the unit of analysis. This choice was made for five reasons: (1) banking processes are highly IT reliant. In fact, IT represents, aside from people, the only "production resource" of banks. Consequently, IT business alignment is a principal success factor. (2) Credit processes represent a "primary process" from a bank's perspective, i.e. they are part of the firm's value chain (Porter 1985) and will, thus, receive high management attention. (3) SME credit processes are not completely automatable (compared to highly standardized automated payment processes or securities administration) and require human business competencies and alignment between IT and business units. (4) Focusing on a particular credit product increases homogeneity and reduces bias from contextual factors, since 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. (5) Frequent regulatory changes in the financial services industry and subsequent changes in workflow and products require strong IT flexibility and alignment between business and IT. In many banks, the credit process is supported by a comprehensive credit management system, which usually represents a major application and thus an enterprise system. In our analysis, we focus on this particular system when considering IT and IT outsourcing.

METHODOLOGY

We used a cross sectional survey to gain broader insights on key alignment phenomena in different banks, following a series of case studies that proved to be a very instructive way to understand some particular alignment phenomena (e.g., (Beimborn et al. 2007; Franke et al. 2005; Wagner et al. 2006; Wagner and Weitzel 2008)). In 2007, a questionnaire consisting of around 160 mainly closed questions was sent to the largest 1,500 US banks (according to total assets reported to FDIC in 2006). The questionnaire was refined in several pre-tests and expert interviews. Before the mailout, the managers responsible for the banks' SME credit processes were identified and individually contacted by phone. If they agreed to participate in the survey, the questionnaire was sent to them via their preferred channel (postal mail, fax, or email). Overall, 149 questionnaires were returned from 1213 banks that initially agreed in participating, leading to a response rate of 12.3%.

For testing the model, we measured process performance and all dimensions of operational alignment by three indicators each. All indicators are derived from previous literature (cf. appendix), but – since we focus on a specific business process in a specific industry – adaptations of the original indicators to the specific business domain had to be carried out.

"IT outsourcing" is measured as a single binary item which is used to split the sample into two groups: those that have outsourced the provision of the credit management system (termed "outsourcers") and those that have not (termed "insourcers"). For both groups a PLS model, representing the direct links of the alignment dimensions on process performance (H1) has been calculated 500 times by using the bootstrapping algorithm. For all calculations, SmartPLS, Release 2.0.M3 was used (Ringle et al. 2005). The resulting set of path coefficients was then used to conduct group

comparisons for testing the differences between insourcers and outsourcers (H2) and (H3). For group comparison, both t-tests and Mann-Whitney tests have been used.

RESULTS

Demographics

The following table gives an overview of the different groups of banks, used in the analysis. Unfortunately, many banks claimed not to have a major credit management system supporting the SME credit process, at all. The remaining number of outsourcers and insourcers shows to be quite balanced, with 43 insourcers and 28 outsourcers in the sample.

Number of insourcers in sample	43 (28.9%)
Number of outsourcers in the sample	28 (18.8%)
Number of banks stating to use no major SME credit management system	49 (32.9%)
No answer or "don't know"	29 (19.5%)
Total	149 (100%)

Table 1: Demographics

Test of Hypotheses

The results from calculating the basic PLS model (i.e. neglecting moderating effects H2 and H3) are shown by Figure 2. In order to ensure consistency with the subsequent analyses, we not only tested the model with the entire sample but also with the sub sample, which only consisted of insourcers and outsourcers. Data sets containing missing values were skipped for the PLS calculation, except in the group of outsourcers, where four missing values where replaced by group means (only one per indicator) in order to conserve the small group size.

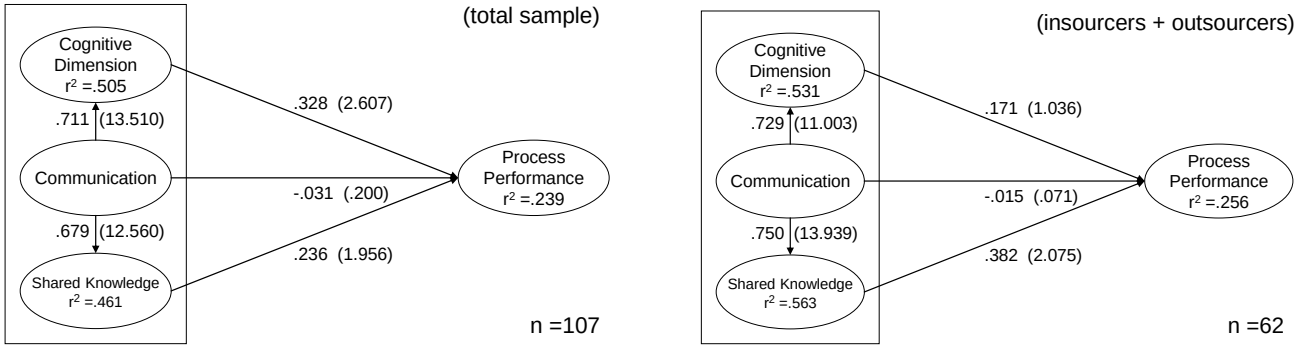

Figure 2: PLS results for testing the basic model (neglecting moderating effects). Values represent path coefficients, t-values in parentheses.

As hypothesized above, cognitive dimension and shared knowledge positively affect process performance (although the relationship is not significant in one case). By contrast, communication shows no direct effect but, nevertheless, is strongly related to cognition and shared knowledge.

In a second step, we conducted a group comparison between insourcers and outsourcers. The PLS model was tested with both groups (insourcers vs. outsourcers), separately. We calculated 500 bootstraps and compared the resulting distribution of latent variable scores (for testing H2) and path coefficients (for testing H3). The following tables show the results.

Construct (latent scores from PLS calculation)	Mean / St. dev.		T test for mean equality		Mann-Whitney test	
	insourcers	outsourcers	T	p	Z	p
ITBA-sha	2.9, .93	3.2, .96	.854	.396	-.908	.364
ITBA-com	3.0, 1.0	3.4, 1.1	1.385	.172	-1.587	.113
ITBA-cog	3.4, .97	3.7, .90	1.100	.276	-1.287	.198
PP	3.5, .87	3.7, .77	.864	.391	-.924	.356
n	34	28				

Table 2: Test of H2 (Direct impact of IT outsourcing on alignment)

In contrast to our previous study (Beimborn et al. 2006a), we could not find any significant difference in the level of construct scores. Neither do insourcers show more alignment nor do they show higher process performance. By contrast, there is a slight tendency of outsourcers showing better alignment and performance. But, since it is not significant we have to discard both H2+ and H2-.

Path coefficient (from	Mean / St. dev.		T test for mean equality		Mann-Whitney test	
	insourcers	outsourcers	T	p	Z	p
ITBA-sha → PP	.319, .30	.386, .26	3.782	.000	-4.101	.000
ITBA-com → PP	-.247, .27	.244, .31	26.546	.000	-20.736	.000
ITBA-cog → PP	.515, .21	-.100, .27	-40.056	.000	-25.330	.000
n	500	500				

Table 3: Test of H3 (Moderating impact of IT outsourcing on *Alignment → Process Performance*)

Table 3 shows the results from testing the moderator hypothesis H3. Here, we can find strongly significant differences between both groups. The impact of shared knowledge on process performance is slightly (but significantly) higher in outsourcer firms. Stronger differences can be found for the impact of communication on process performance, where a negative relationship appeared in the insourcer sample, but a positive relationship in the outsourcer sample. By contrast, the direction of difference changes when focusing on the relationship between cognition and process performance, where a strongly positive relationship in the insourcer sample stands in contrast to an insignificant to slightly negative effect in the outsourcer sample. For all three paths, the differences are significant, when comparing the group data with both a t-test and the Mann-Whitney test.

In conclusion, we can summarize that IT outsourcing leads to a dual change in the impact of operational alignment. The impact of shared knowledge and communication becomes stronger in outsourcing relationships while it significantly drops in case of the cognitive dimension of operational alignment. Consequently, H3+ can be accepted for shared knowledge and communication, while the opposite Hypothesis H3- holds true in case of the cognitive dimension.

DISCUSSION AND LIMITATIONS

Using data from 43 insourcing and 28 outsourcing US banks it could be shown that outsourcing has an impact on the ways IT business alignment affects process performance. Precisely, while, in contrast to earlier surveys with German banks, we could not find a direct impact of outsourcing on the level of alignment, outsourcing turns out to moderate the effect of different dimensions of alignment on success. While the shared knowledge dimension of alignment, as expected, has a rather consistent positive impact on performance, which becomes even more important for outsourcers, the positive impact of cognitive linkages turns negative when outsourcing. At the same time, a surprising negative path from communication to performance in insourcing banks becomes positive with outsourcers. There are different possible explanations for these phenomena.

Shared knowledge helps to bring the IT services closer to process needs. Business knowledge of IT staff is considered particularly important. As vendor firms are mostly from other industries, this shared knowledge is especially critical; hence the even stronger impact of shared knowledge on success for the outsourcers. Moreover, the transfer of explicit knowledge (e.g. documentations, norms and guidelines) is more difficult, since it happens more often and more easily within the firm instead of crossing the organization's borders. Hence, shared knowledge of individuals becomes more important.

While communication is widely expected to improve alignment, the reality in firms is often characterized by bad or no communication and strong silo thinking and acting. As experience with outsourcing has grown, outsourcing firms now regularly implement relationship management practices that aim at establishing communication links between vendor and client. Even though these realized communication links might be smaller in number than the potential links within a firm (e.g. relationship manager to key accountant vs. all IT to all business staff), these formalized linkages enable better communication

between these two firms than is usually found within a single firm, where cross-departmental work and communication are rarely formalized, or explicitly required. Our analyses show that less than 1 in 4 banks have a dedicated internal liaison unit, and only 1 in 10 have explicit incentives rewarding good internal interaction. One thus might expect a stronger relevant structural linkage in outsourcing relations. But, as data never reveals a causality direction, there might also be cases where very bad alignment comes along with increased communication as, for example, crisis meetings are held frequently. Similarly, the number of meetings, which is a common item to measure communication, does not necessarily imply a quality output of meetings. Accordingly, the PLS results above showed communication primarily to be an enabler of shared knowledge and cognitive linkage (figure 2).

As we are only beginning to understand the ways how the cognitive dimension of alignment influences success and also the other alignment dimensions, we see the strong relationship between cognition and communication (fig. 2) as a promising way to further disclose how operational alignment really works. Supported by ongoing case studies, we expect communication to be a precondition for cognition, as without communication, trust and mutuality can hardly be expected. But we also see a possible feedback in that once a certain level of cognition linkage is reached, communication and knowledge sharing might improve. A recent longitudinal case reveals that having improved cognitive linkage enabled a firm to survive a severe crisis as for the first time IT and business worked together to solve problems; this is something never done before because of a mutual perception that working with the other side just would not be beneficial. Looking at the impact of cognition on the impact of outsourcing on alignment, one should consider that mutual trust and respect need time to develop. As mutual transparency in client vendor relations is likely weaker than within a firm and restricted to a smaller number of interaction partners, e.g. relationship manager to key accountant, we expect to find stronger cognitive linkage in insourcer firms. But quite surprisingly, the cognitive linkage turns slightly negative and becomes insignificant when looking at the outsourcers. We can only speculate if too much closeness might imply less strict formal and informal relationship management. Indeed, there is research indicating that financially intertwined in- and outsourcers often have worse contracts (Gellings and Wüllenweber 2006).

As already noted, the results also differ from a previous survey with German banks. Regarding hypothesis 2, the current study shows no significant relationship between state of sourcing and level of alignment. One possible explanation is structural differences in the sourcing provider market. In Germany, most banks are organized in two national banking associations (i.e. the public savings banks and credit cooperatives, which account for more than 80% of the German banking industry (in terms of number of banks)). Within these associations, the members founded joint data centers which deliver most of the IT services to the banks. Thus, it is not a really competitive market, although the members theoretically are free to choose third party vendors as well. Nevertheless, this structure has two effects. First, the low degree of competition which the provider subsidiaries within these associations are faced with, might lead one to expect less "motivated" providers. On the other side, their services are specifically dedicated to their clients' needs because an IT provider in the sector of savings banks will typically only serve savings banks which offer quite homogenous banking products and services. Thus, the IT providers know the business and the organizational structure of their client banks quite well. Furthermore, the sourcing relationships are very long-term oriented and existing relationships which are older than 2-3 decades are not uncommon. But, as the results showed, the negative impact resulting from the data centers being less "customer-oriented" due to missing competition might be stronger.

Aside from the typical limitations of empirical work (limited representativeness of the sample, limited transferability of findings to other systems, processes, industries, and nations), three particular shortcomings of our work should be noted that might also contribute to some of the counter intuitive results discussed. First, the data sample is small for group analyses and is, in the case of the outsourcer group, slightly below the heuristic minimum requirements for sample size that are typically specified for PLS analyses ((Chin 1998): in our case we should have had at least 30 instead of 28 samples). Although we tried to restrict the used set of statistical methods to those which are traceable and rather non-sensitive and although the results are highly significant, there is a potential bias due to small group sizes. Second, the small sample size did not allow testing the sensitivity of the results to control variables. Especially, bank size may have an influence on the results as the smaller bargaining power of small bank might make them less important to outsourcing providers. Fortunately, testing the PLS model with the overall sample showed no influence of firm size. Finally, a cross-sectional group comparison does not allow for explicitly testing the causality of the hypotheses. Instead, observing the firm outsourcing activities and resulting alignment impacts would offer much more precise insights. Another limitation is that we incorporated neither the banks' strategy nor strategic alignment as we wanted to avoid a too complex model. There is evidence that strategy type has an impact on how alignment works (Beimborn, Franke, Wagner and Weitzel 2006b) and that operational alignment might indirectly drive strategic alignment (Wagner and Weitzel 2006). By the same token, one should expect that considering strategic alignment as well might influence our results. As we simply do not yet know enough about the interplay of strategic

and structural alignment, we suggest this as a highly interesting avenue for future alignment research that would particularly profit from longitudinal research.

CONCLUSION

Concluding, in this paper we propose to integrate some findings of the outsourcing and IT business alignment literature. We could show a diverse impact of IT outsourcing on IT business alignment in a core enterprise system in banks and its impact on process performance. The results hint at a trade-off associated with outsourcing that might be interesting to explore in more detail. From a theoretical perspective, our works can serve as a step towards integrating the major research strands on IT business alignment and outsourcing.

Also, the results indicate a concrete and possibly important challenge for the design of IT outsourcing arrangements in emphasizing alignment as a significant area of concern for internal and external relationship management in general and a retained organization, in particular. For insourcers, it might be worthwhile to explore the idea of an internal vendor management. Few banks we spoke with have internal control and governance mechanisms and processes that can bear a comparison with a dedicated outsourcing relationship management; and few do have an IT unit that acts like a – if internal – service provider and other units that act like customers.

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APPENDIX – DESCRIPTION OF INDICATORS AND COMPARISON OF MEANS

Indicator and literature source	Description	Construct	Loadings		Construct quality criteria *(composite reliability and average variance extracted)*	
			n = whole sample	n = only insourcers + outsourcers	n = whole sample	n = only insourcers + outsourcers
ITBA_com_1 b,c,e	The IT unit and the business unit frequently consult each other.	ITBA-com (comm-unication)	.859**	.867**	Comp. rel.: .93 AVE: .75	Comp. rel.: .93 AVE: .82
ITBA_com_2 b,c,e	Periodical meetings for discussing process improvements		.932**	.916**		
ITBA_com_3 b,c,e	Periodical meetings for ensuring efficient and effective changes		.927**	.930**		
ITBA_sha_1 b,e,g	The employees of the IT unit are able to interpret business-related problems and develop solutions.	ITBA-sha (shared knowledge)	.886**	.848**	Comp. rel.: .86 AVE: .68	Comp. rel.: .87 AVE: .69
ITBA_sha_2 b,e,g	The employees of the IT unit know the SME credit business process.		.819**	.839**		
ITBA_sha_3 a,f	IT employees inform the credit back office about IT-specific issues using a non-technical and business-related language.		.765**	.802**		
ITBA_cog_1 d,g	There exists a lot of mutual trust and respect between IT unit and business unit.	ITBA-cog (cognitive dimension)	.875**	.854**	Comp. rel.: .90 AVE: .75	Comp. rel.: .92 AVE: .80
ITBA_cog_2 d,e	Business unit and IT unit are equal partners.		.857**	.889**		
ITBA_cog_3 b,c,e	IT and credit back office consult each other.		.869**	.888**		
PP_1	Our SME credit process allows us to sustain a competitive advantage.	PP (Process Performance)	.893**	.897**	Comp. rel.: .92 AVE: .79	Comp. rel.: .91 AVE: .77
PP_2	Our SME credit process allows us to differentiate from our competitors.		.905**	.886**		
PP_3	Compared to our competitors, the design of our credit process is much worse … better.		.869**	.852**		
Literature sources: a =(Bassellier and Benbasat 2004), b= (Broadbent and Weill 1993), c=(Chung et al. 2003), d=(Luftman 2001), e=(Reich and Benbasat 1996), f=(Reich and Benbasat 2000), g=(Teo and King 1996)						
Level of significance: **= p<.01						

Table 4. Alignment Indicators (Scale: 5 – Totally Agree to 1 – Totally Disagree, except otherwise noted)