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BUSINESS PROCESS OUTSOURCING

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ABSTRACT

Business Process Outsourcing (BPO) represents an organizational change which results in an e-Business relationship between a firm and an outsourcing service provider. This paper analyzes whether and how a modular IT architecture - service-oriented architecture (SOA), in particular - contributes to the potential of BPO by increasing the benefits and reducing the costs. This research question is investigated using a multi-case study approach based on six different firms which have adopted SOA. Three of them have already made BPO experiences based on SOA and all confirm SOA's positive impact on BPO. Besides identifying success factors, counter intuitive results and new research opportunities are identified.

Keywords: Service-oriented architecture (SOA), business process outsourcing (BPO), B2B integration, business value, multiple case studies.

INTRODUCTION

Nowadays, IT and the Internet offer manifold opportunities to engage in outsourcing of business activities which do not belong to a firm's core competencies. This business process outsourcing (BPO) leads to an e-Business partnership between the firm and its BPO service provider since the activities of the two parties need to be integrated electronically in order to make BPO an efficient organizational redesign. Examples for BPO, which have become quite common, are bill presentment and payment, accounts payable and receivable administration, HR administration, and industry-specific activities such as loans proposal assessment and servicing in the financial industry. According to Umar, e-Business deals with "running the entire business through Internet technologies" [27, p. 218] and thereby highlighting the important role which web technologies and the Internet play for e-Business. At the same time, SOA is seen as a possibility to reshape the entire IT landscape of an organization by replacing large monolithic systems with modular services, which can directly be assigned to single business processes and activities in them respectively. Thus, while most e-Business literature focuses on the role of technology for B2B integration (so-called interorganizational systems, IOS), we aim at investigating the firm's *internal* IT architecture's contribution to facilitate BPO in terms of whether and how the resection of business activities and their transfer to the provider can be supported. In particular, we are interested in service-oriented architecture's (SOA) role for increasing the potential and value of BPO. Our research question is: *How can SOA contribute to the effectiveness of BPO?*

We conducted six case studies, which help to answer this question and to advance existing research investigating especially the intersection of these two phenomena (i.e., BPO and SOA). Moreover, practitioners considering their organization to move more into e-Business, but lack critical competence regarding some business processes necessary for e-Business, will see possible solutions for leveraging BPO in order to successfully engage in e-Business.

The remainder of this paper is structured as follows: First, related research on BPO and SOA is presented. Next, the applied research methodology is described and an overview about the six organizations investigated is offered. Afterwards, the organizations are analyzed with respect to the impact SOA has on BPO potential and effectiveness in each organization. Last, the identified relationships are discussed, limitations and opportunities for further research are highlighted, and conclusions are presented.

RELATED RESEARCH

Business Process Outsourcing (BPO)

BPO is defined as the delegation of a business activity (i.e., an entire business process or just part of it) to an external BPO provider, which includes the necessary resources [11] and thus can also include the supporting IT systems. However, BPO is about delivering a business process result (with or without the IT), such as "accounts receivable processing/administration" but not like IT outsourcing, which just provides the operations of IT systems. Thus, the BPO provider is only responsible for delivering the desired business process outcome and thereby can freely decide *how* the process outcome will be produced (e.g., extent of IT usage, usage of certain systems) [6]. Although many information intensive processes (e.g., procurement, or HR administration, finance & accounting) would be ideal candidates both from a strategic and a cost perspective, the adoption rates of BPO are still quite low in comparison to IT outsourcing (cf. e.g., TPI outsourcing index at www.tpi.net).

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Most research on BPO has followed the established IT outsourcing research paths and has investigated inhibitors and drivers of BPO adoption [11, 12], evaluated the business impact of BPO [28], or revealed success factors for BPO [29], e.g., governance and control structures [15, 19], BPO readiness [20], or effective sourcing mechanisms [26].

However, the role of IT for the success of BPO has not been investigated in greater detail, yet, which is interesting as especially standardized interfaces between IS are supposed to ease BPO [7]. Also, empirical results have shown that organizations using more IT also outsource more services [1]. Thus, our research will extent the previous knowledge by investigating the role of SOA for BPO in particular.

Service-Oriented Architectures (SOA)

SOA has become a widely accepted major trend, leading to many different definitions, conceptualizations and hypes around the basic concept. We will draw on one of the well-established definitions, which defines SOA as "framework for integrating business processes and supporting IT infrastructure as secure, standardized components - services - that can be reused and combined to address changing business priorities" [5, p. 5]. Although SOA is often seen as not being new because it mainly leverages already existing principles, the combined use of the service-oriented principles is a promising basis to enhance the BPO activities of organizations. The most important of those principles are: loose coupling, stateliness, abstraction from underlying logic, and the division of reusable logic into services [5, 10, 14].

Moreover, modular services, which are loosely coupled and reflect a decomposable part of a business process, do have exactly such degree of modularity which is necessary for decisions regarding BPO. Also, service orientation offers a basis for the flexibilization of firm borders [22], where services can be used easily regardless whether they are located inside or outside of an organization [16].

Comprehensive studies for investigating SOA are still quite rare [e.g., 3, 17, 18, 22, 25]. As conceptualizing SOA for quantitative research is one of the key problems, qualitative research has been applied more often. However, even case studies have not investigated the role of SOA for BPO, yet, but instead focused mainly on SOA adoption [e.g., 13, 21, 31] or the overall business impact of SOA [e.g., 2, 23]. A first conceptual model investigating SOA's role for BPO is provided by Beimborn et al. [4] to guide this research avenue.

RESEARCH METHOD

Due to the relatively immature body of literature regarding the intersection of the two phenomena (i.e., BPO and SOA), we applied an exploratory multi-case study approach [8, 24, 30]. In particular, the use of a case study approach will support us in identifying *why* certain organizations outsource business processes supported by SOA as well as in revealing factors for *how* BPO based on SOA can be done (more) successfully. Thus, we can leverage the case studies to explore the investigated phenomena.

In total, we have conducted six case studies with firms operating in the German service industry. While the first four organizations operate in the financial industry, the other two companies work in other service sectors (cf. Table 1).

A semi-structured interview guideline with open-ended questions was used for conducting the interviews. Except in Firm 2, all interviews were tape-recorded and afterwards transcribed. All interviews were done in German by two researchers. This way, one researcher could concentrate on conducting the interview according to the interview guideline, while the other researcher could make notes and ask additional questions.

All interviews were encoded using MAQXQDA 10. Additionally, memos were used to structure the information. Further sources of evidence (presentations and documentations provided by the firm) were used to increase the validity of the case study analysis [30].

Firm	Industry	Interviewees
1	Bank	- Head of Architecture
2	Bank	- Head of Enterprise Services
3	Bank	- Head of the IT department responsible for SOA
4	Fund management	- Managing IT director - Two enterprise architects
5	Recycling services	- CIO by deputy
6	Media	- CIO

Table 1. Overview about case studies.

All of the six firms have already implemented SOA. Firms 1, 5, and 6 have adopted SOA broadly across all of their business areas. However, Firm 1 especially highlights that even though different SOA projects are conducted in various business areas, it is not the goal to strategically change the entire IT landscape, but to adopt SOA only where it makes sense from a business perspective. This approach is similar to Firm 2, which moves to SOA whenever applications have to be adapted, but not without an external need to change the functionality. Historically, the SOA approach of Firm 2 as well as of Firm 6 has resulted from previous enterprise application integration (EAI) initiatives and is not triggered from the top, but rather from the bottom. Hence, first applications will be integrated ser-

vice-oriented and then more and more parts of the functionality will be available as services and thus the applications itself are vanishing. In contrast to this, Firm 5 uses SOA as a strategic means to harmonize processes and finally to establish standardized processes. Last, Firms 3 and 4 begun implementing SOA to support the different channels offered to its customers (i.e., branch, mobile sales, call-center and internet). Thus, these two organizations wanted to reduce or even eliminate redundantly implemented functionality at the different channels and to set up a consistent multichannel management.

ANALYSIS: IMPACT OF SOA ON BPO

This section describes each of the six case studies with respect to the investigated relationship between SOA and BPO.

Firm 1 has not gained experience regarding BPO based on SOA. Moreover, the interviewee is critically regarding SOA's impact on BPO:

> "*I believe that the BPO business will not gain a big boom from SOA.*"

However, while he basically argues that BPO was already possible before SOA and that SOA will not have a large impact on BPO activities, he acknowledges that SOA facilitates the BPO transition, if a firm has decided to outsource business processes. But according to him, a decision for BPO itself will not be made sooner only because SOA is available:

> "*I believe that SOA can help us. I believe that this will come for sure later somewhere along the way.*"

Firm 2 has experienced advantages regarding BPO after implementing SOA. After having adopted SOA, the organization has already outsourced its payments processing activities. According to the interviewee, their business processes could be easier outsourced based on SOA because loose coupling, independence of the used technology as well as standardization of services facilitated the "resection" of the relevant parts of the IT infrastructure during the BPO transition. As a consequence from this positive experience, a further project has been initiated to outsource more activities such as securities processing.

Additionally, SOA is used by the bank to link its processes to foreign stock exchanges and clearing houses.

Firm 3 emphasized that their SOA provides BPO opportunities because of its inherent design principles, but that currently outsourcing is not part of its business strategy:

> "*We would be able to do that [BPO], but at the moment it is not in our focus. According to our business strategy, we think very carefully whether we should keep the service in-house, or whether we should outsource it. [...] I confirm that a service-oriented architecture would ease this [BPO]. Yes. That is always the case. If I am clearly structured, I will be able to perform those things [BPO] better.*"

Thus, the bank has decided not to engage in BPO, yet. However, they use their SOA in other B2B arrangements, for example including service intermediaries in the retail banking market. Those sales intermediaries sell products of the focal bank, and vice-versa the bank also sells products of other financial service providers, such as insurance firms. These B2B arrangements are implemented by using the SOA, which reduced the effort for offering a product of another company via different channels (branch, phone, web etc.) without redundantly implementing it. Moreover, the integrated services could easily use services already available in the SOA of the bank, which provide common functionality such as history of contacts, save points for continuing the process, etc.

The fund management organization, Firm 4, has outsourced business processes, such as address validation, to an external BPO-provider. According to them, a key advantage of using SOA for BPO is that the outsourced business processes can be monitored more easily than before when data interfaces instead of process interfaces where used to integrate large systems:

> "*I think that we can do it more easily because we have represented the process on a certain level using orchestration. For example, the process 'creation of a depot' involves the following systems or provider and I can say which process I have to monitor. [...] I believe that this eases the administration. In the past, when we have integrated five large systems using no process interfaces, but data interfaces and others, it was relatively difficult to establish monitoring on the process layer.*"

In addition, switching from one provider to another is a lot easier than before, because the large monolithic systems have been replaced by clearly separated services. This has not only reduced the initial efforts for changing providers but also reduces the effort for operating and maintaining the systems, which in turn requires less interfaces and no data replication:

> "*Our job is only to say to the new provider, who implements this new workflow system: 'This is how the services look like, that is the interface of the service, that is how the fault handling looks like. Do it.' And we can lean back and support them during the integration, i.e., testing, but we do not have*

an active part anymore. […] Instead, when I think about how it was before, when we integrated every system separately and additional interfaces had to be build, data to be replicated, operations were very expensive."

Additionally, Firm 4 highlights the eliminated need for service redundancy. Using SOA for integrating services from external providers into own processes has the great advantage that once integrated it is readily available for the entire organization without the need to create further interfaces.

"We have integrated the functionality of an external provider (a geo-localization service), which we have made available for the entire organization by making the functionality available as internal service."

Firm 5 (recycling services) agrees that SOA and its inherent design principles help to outsource business processes:

"According to the basic principles, of course. I can confirm this to 100%. In particular, SOA concepts are able to ease the standardization and logging of interfaces. Both are very important tasks."

However, this firm is still in the beginning of adopting SOA and thus is not ready for BPO based on SOA yet. However, outsourcing of non-core activities is seen as a future move of the entire service industry and perceived to be only a matter of time:

"We have not made enough progress in order to outsource business processes, yet. However, this is an absolutely interesting opportunity in certain areas, if you consider that we print many thousands of invoices, which we would then no longer need to envelop, stamp, etc. by ourselves. If such processes are reasonably stable, one could outsource them and this is definitely a topic, which will massively appear in the service industry."

Moreover, Firm 5 already used SOA to enhance B2B integration outside the BPO paradigm. Based on SOA, three different channels are offered to business partners for exchanging business documents (e.g., delivery notes or weight notes), which are directly validated, and business partners get an immediate reply confirming the validity of the transmitted documents for the particular business process.

In contrast to the five previous organizations, Firm 6 has a different view on SOA's role in the BPO context. The media company has a long history regarding BPO as large parts of its operating business had been outsourced in the past. For example, call-center operations, pre-pro-

duction, broadcasting, and the production of the own newspaper are outsourced to separate providers. The CIO stated that BPO decisions were made quickly without considering the IT or planning for preparing the IT. Instead, he as the CIO has to prepare the IT for future BPO arrangements. Thus, the primary benefit of SOA is that it helps him to modularize the IT to a degree which allows him to efficiently support BPO decisions.

"My IT has to be modular to a degree that when business processes are outsourced an efficient IT is able to stick everything together. It is not our explicit goal to first modularize the IT in order to outsource in a second step. But, if outsourcing is ordained by God [i.e., by the business side], we will have to be ready for that. […] At that time, it has to be done and the more efficiently I have prepared for that, the fewer problems I will have that something is not working."

DISCUSSION

After describing the single cases, they will now be jointly examined in a cross-case analysis. Three of the six cases showed experience with BPO based on SOA (i.e., Firms 2, 4 and 6).

All of the six investigated organizations have confirmed, that SOA and its inherent design principles, such as loose coupling, independence of technology, standardization of services, facilitate BPO.

Although agreeing that SOA eases BPO, the interviewee of Firm 1 also doubts that SOA will increase the BPO activities of the organizations. Thus, he claims that the decision regarding outsourcing business processes is more or less unaffected by the availability of SOA. Consequently, even though an organization might have a higher BPO readiness due to adopting SOA, this will only be a minor benefit and thus no decision-relevant factor.

Firm 3 is an example for an organization which perceives substantial potential of SOA for BPO, but has no experience regarding BPO as outsourcing is not in line with its business strategy.

Firm 4 has added another benefit when BPO happens based on SOA. It emphasized that the effort for switching from one BPO provider to another is reduced a lot. Thus, SOA not only facilitates BPO at the beginning, but also when an existing BPO arrangement is changed.

Interesting is also a comparison of the statements of Firms 5 and 6. The former sees BPO on the basis of SOA as a definite topic, which needs to be debated, but first of all the business processes need to become mature enough for utilizing SOA in an effective way. However, BPO is seen as an important move for the entire service industry. Firm 6, on the other hand, does not agree to this

evolutionary approach that the IT has to be modularized first before one can think about outsourcing of particular processes. While Firm 5 takes the time for setting up a modular IT architecture and does not think about BPO before the IT is ready, Firm 6 sees SOA as a means to be flexible enough to fulfill any possible business needs. Thus, SOA helps the CIO to have the IT ready, when the business decides to outsource business processes. In this case, the business does not take IT readiness for BPO into account. This makes SOA an effective means to cope with increasing sourcing flexibility demands requested from the business side.

Besides theses similarities and differences regarding the interplay between SOA and BPO, in terms of whether and why SOA facilitates BPO, as it is perceived by the deciders and IT architects, we uncovered three success factors for BPO based on SOA from our cases:

(1) Persuade business units to think service-oriented: Firm 2 states that a barrier for further outsourcing activities is a lack of service-oriented thinking and an understanding of interfaces in the business units. Both are necessary to modularize the existing functionality in order to be prepared for BPO. However, at the moment it is difficult to define the interfaces and necessary data to be transferred without such an understanding on the business side.

(2) Establish end-to-end process monitoring: Firms 2 and 4 reported the critical importance of having a comprehensive end-to-end process monitoring system in place to monitor the BPO provider's activities. Firm 2 highlights its capabilities to monitor the service levels as important success factor for its outsourcing success and adds that it is necessary to monitor the entire process. The main reason for this is that SLAs can only be effectively controlled on the process level. Due to SOA, a business process is supported by relatively more services compared to a single (or few) system(s) before SOA was adopted. From a business perspective, the availability of single systems or services is less meaningful than the availability of the overall business process, which depends on the services. This is because the consequences on the process level are the eventually relevant outcome which is relevant to the business, but not the causes resulting from failure of single services.
Firm 4 adds that it is important to monitor the entire business process, which is not only important for the outsourced part, but also for the remaining part still operated by the firm itself.
> "*We have to know whether the process operates, and if the process is not working, we need to know where it does not operate.*

> *And for this we need a different monitoring. We already have this in some areas.*"

(3) Analyze the business processes: While in general the different interviews provide evidence that SOA helps to outsource business processes, Firm 1, adds another important success factor for BPO. Analyzing the business processes carefully, regardless of having an SOA implemented or not, can already help to separate the value chain into parts which could be outsourced (e.g., non-core activities) versus parts which should not be outsourced (e.g., core activities or according to business strategy). Afterwards, when decisions for or against outsourcing of particular activities are made, SOA facilitates BPO because it does not only provide a technically modular infrastructure, but also gives a module blueprint which clearly shows which services match to those activities and thus can and should be outsourced.

LIMITATIONS

The most obvious limitation of the results is that they are based on only six case studies and that BPO based on SOA is still a quite young phenomenon We will proceed in collecting new cases (in the same and other industries and maybe even in other countries) and re-observing the cases analyzed above in order to raise our understanding about under which circumstances SOA actually facilitates BPO and whether it also might create obstacles if not properly designed. However, as no previous empirical study investigating these phenomena has appeared, yet, the identified aspects can serve as a basis for other researchers, as well, in order to conduct similar studies.
Another limitation is that we interviewed only managers on the IT side, which are very deep into the IT architecture topic but often are less knowledgeable about the firm's business processes and sourcing strategies. However, talking to people from the business side would lead to the challenge talking about SOA; in this case it would be very difficult or even impossible to gain valid results because these people usually cannot link the SOA design principles and the actual implementation of their processes within the IT infrastructure to the (mainly technically driven) advantages for BPO.

IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

We have observed that BPO based on SOA already shows some adoption (3 out of 6 firms). This "adoption rate" of 50% is rather high. We have investigated other companies in a broader context by using a survey among firms operating in the German service industry. The following figure shows that, according to different business areas, only 16 to 27% of the 127 responding firms

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already have experience with BPO based on SOA. Overall, 36% of the firms have experience with BPO based on SOA in at least one of the five business areas.
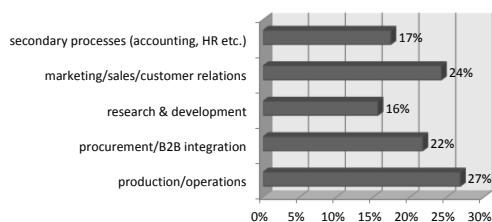
Figure 1. BPO based on SOA

Generally spoken, if outsourcing is an option from a strategy perspective, firms find SOA valuable in increasing the benefits of BPO and facilitating the implementation of the outsourcing arrangement (transition, implementation of process interfaces etc.). Moreover, SOA is not only perceived to be positive for the initial transition of a business process or parts of it to a BPO provider, it is also beneficial for later changes to existing BPO agreements (e.g., switching BPO providers), which might decrease the strategic threat of becoming too dependent on a particular outsourcing provider (i.e., facing a provider lock-in [9]). However, at least one interviewee indicated that the availability of an SOA will not have an impact on the BPO decision itself. Thus, the technical BPO readiness, which is increased by SOA, is not part of the BPO decision determinants, thus either playing only a minor role in terms of BPO benefits and costs or being not apparent enough in the deciders' mind (too low mindfulness) to be considered.

The case analysis uncovered three success factors for BPO based on SOA (i.e., service-oriented thinking of business units, end-to-end process monitoring, and business process analysis).

The debate whether SOA and the business processes have to be ready enough (cf. Firm 5) before BPO or whether the IT has to be ready when the BPO decision is made (cf. Firm 6) represents an interesting research question, but remains open to further research.

While we have only investigated SOA's impact on BPO, the opposite view should also be captured by future research. It could also be that due to SOA more firms will act as insourcers offering their core activities (in terms of core competencies) to other firms as SOA does not only facilitate outsourcing but also insourcing in terms of acting as a provider and taking over activities from other (outsourcing) firms.

Our paper has made a first step to bring two important concepts together: BPO and SOA. Thereby, these are the first results from investigating this phenomenon applying a multi-case study approach. The positive relationship between SOA and BPO, meaning that SOA indeed

facilitates BPO, feeds back to general research regarding the business value of SOA. As BPO represents one of many benefit aspects of SOA, it should be considered and evaluated by a firm evaluating a possible SOA introduction. Inversely, SOA is an potentially important IT-related success factor for BPO; thus, SOA arguments also inform the broad field of research on outsourcing success determinants.

Concluding, the following picture structures the results from our exploratory study and thus offers different avenues for further research.
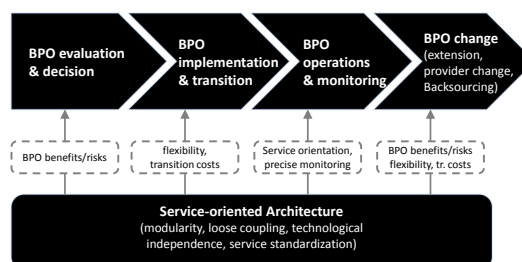
Figure 2. Interplay between SOA and BPO

The cases showed that SOA is related with several steps of the BPO "lifecycle". In some cases, SOA was already considered as a determinant relevant for the BPO *decision*. Future research will have to uncover which BPO-specific benefits and risks (i.e., BPO decision factors) will be affected to which degree by SOA. Beimborn et al. [4] provide a first conceptual model of decision determinants to guide this research avenue.

Other cases highlighted that SOA's contribution is not strong enough to play a significant role in the BPO decision, but that it will definitely be a facilitating force in the *implementation* of the BPO arrangement (i.e., resecting the activity from the firm's architecture, transferring it to the provider, and implementing the service interfaces for enabling straight-through processing). Here, the research question will be how SOA (and which design of SOA) will provide the necessary flexibility and thus will lead to a decrease of transition costs.

Third, the interviewees highlighted that SOA-based BPO will be more transparent during *operations* and that, e.g., failures can be more easily and precisely monitored and rooted to its originator. Service orientation on business process level and technical level – which are matched to each other – allows for more precise monitoring.

Finally, we found that SOA will increase flexibility when it comes to *change* the BPO arrangement, either by extending it, by switching to another provider, or by sourcing the activities back to in-house. This reduced strategic problem of lock-in will already be resembled in the BPO risk evaluation which might affect both the initial outsourcing decision but also follow-up decisions. Research will have to clarify whether SOA actually reduces lock-in risks and follow-up transition

costs when switching the provider or whether process interfaces cannot be standardized to a degree which fully leverages these potentials of SOA.

Concluding, our initial work on the interplay between SOA and BPO uncovered some interesting results and gave first evidence for SOA's positive impact on BPO. We encourage other scholars to jump on the train in order to make the full e-business potential of SOA visible and tangible.

REFERENCES

[1] Abramovsky, L. & Griffith, R., "Outsourcing And Offshoring Of Business Services: How Important Is ICT?", *Journal of the European Economic Association*, 4(2/3), 2006, pp. 594–601.

[2] Baskerville, R., Cavallari, M., Hjort-Madsen, K., Pries-Heje, J., Sorrentino, M., & Virili, F., "Extensible Architectures: The Strategic Value of Service-Oriented Architecture in Banking" in: *Proceedings of the 13th European Conference on Information Systems*, Regensburg, Germany, 2005.

[3] Beimborn, D. & Joachim, N., "The joint impact of service-oriented architectures and business process management on business process quality: an empirical evaluation and comparison", *Information Systems and E-Business Management*, 9(3), 2011, pp. 333-362.

[4] Beimborn, D., Joachim, N., & Schlosser, F., "The Role of SOA for BPO Intention – Proposing a Research Model" in: Sharman, R., Rao, H.R., & Raghu, T.S. (Eds.); *Exploring the Grand Challenges for Next Generation E-Business*, Springer, Berlin, 2010, pp. 122–136.

[5] Bieberstein, N., Bose, S., Fiammante, M., Jones, K., & Shah, R., *Service-Oriented Architecture (SOA) Compass: Business Value, Planning, and Enterprise Roadmap*, IBM Press, Upper Saddle River, NJ, 2005.

[6] Braun, M., "Vom IT- zum Business Process Outsourcing", *Bankmagazin*, 53(2), 2004, p. 22.

[7] Davenport, T.H., "The coming commoditization of processes", *Harvard Business Review*, 83(6), 2005, pp. 100-108.

[8] Dubé, L. & Paré, G., "Rigor in Information Systems Positivist Case Research: Current Practices, Trends, and Recommendations", *MIS Quarterly*, 27(4), 2003, pp. 597–635.

[9] Earl, M.J., "The risks of outsourcing IT", *MIT Sloan Management Review*, 37(3), 1996, pp. 26–32.

[10] Erl, T., *Service-Oriented Architecture: A Field Guide to Integrating XML and Web Services*, Prentice Hall, Upper Saddle River, NJ, 2004.

[11] Gewald, H. & Dibbern, J., "Risks and benefits of business process outsourcing: A study of transaction services in the German banking industry", *Information & Management*, 46(4),

2009, pp. 249–257.

[12] Gewald, H., Wüllenweber, K., & Weitzel, T., "The Influence of Perceived Risks on Banking Managers' Intention to Outsource Business Processes - A Study of the German Banking and Finance Industry", *Journal of Electronic Commerce Research*, 7(2), 2006, pp. 78-96.

[13] Haines, M.N. & Haseman, W.D., "Service-Oriented Architecture Adoption Patterns" in: *Proceedings of the 42nd Hawaii International Conference on System Sciences*, Waikoloa, Big Island, HI, USA, 2009.

[14] Keen, M., Acharya, A., Bishop, S., Hopkins, A., Milinski, S., Nott, C., Robinson, R., Adams, J., & Verschueren, P., *Patterns: Implementing an SOA Using an Enterprise Service Bus*, IBM Redbooks, 2004.

[15] Kim, G.-m. & Kim, S.-Y., "Exploratory Study on Effective Control Structure in Global Business Process Sourcing", *Information Resource Management Journal*, 21(3), 2008, pp. 101-118.

[16] Krafzig, D., Banke, K., & Slama, D., *Enterprise SOA: Service-oriented Architecture Best Practices*, Prentice Hall, Upper Saddle River, NJ, 2005.

[17] Kumar, S., Dakshinamoorthy, V., & Krishnan, M.S., "Does SOA Improve the Supply Chain? An Empirical Analysis of the Impact of SOA Adoption on Electronic Supply Chain Performance" in: *Proceedings of the 40th Hawaii International Conference on System Sciences*, IEEE Computer Society, Waikoloa, Big Island, HI, USA, 2007, pp. 1530–1605.

[18] Kumar, S., Dakshinamoorthy, V., & Krishnan, M.S., "SOA and Information Sharing in Supply Chain: "How" Information is Shared Matters!" in: *Proceedings of the 28th International Conference on Information Systems*, Montreal, QC, Canada, 2007.

[19] Mani, D., Barua, A., & Whinston, A.B., "Successfully governing business process outsourcing relationships", *MIS Quarterly Executive*, 5(1), 2006, pp. 15-29.

[20] Martin, S., Beimborn, D., Parikh, M.A., & Weitzel, T., "Organizational Readiness for Business Process Outsourcing: A Model of Determinants and Impact on Outsourcing Success", *41st Hawaii International Conference on System Sciences (HICSS-41)*, Waikoloa, Hawaii, 2008.

[21] Mueller, B., Viering, G., Legner, C., & Riempp, G., "Understanding the Economic Potential of Service-Oriented Architecture", *Journal of Management Information Systems*, 26(4), 2010, pp. 145–180.

[22] Oh, L.-B., Leong, Y.-X., Teo, H.-H., & Ravichandran, T., "Service-oriented Architecture and Organizational Integration: An Empirical Study of IT-Enabled Sustained Competitive Advantage" in: *Proceedings of the 28th International Conference on Information Systems*,

Montreal, QC, Canada, 2007.

[23] Schelp, J. & Aier, S., "SOA and EA – Sustainable Contributions for Increasing Corporate Agility" in: *Proceedings of the 42nd Hawaii International Conference on System Sciences*, IEEE Computer Society, Waikoloa, Big Island, HI, USA, 2009.

[24] Stake, R.E., *Multiple case study analysis*, Guilford Press, New York, 2006.

[25] Tafti, A., Mithas, S., & Krishnan, M.S., "The Effects of Information Technology and Service-Oriented Architectures on Joint Venture Value" in: *Proceedings of the 29th International Conference on Information Systems*, Paris, France, 2008.

[26] Tanriverdi, H., Konana, P., & Ge, L., "The Choice of Sourcing Mechanisms for Business Processes", *Information Systems Research*, 18(3), 2007, pp. 280–299.

[27] Umar, A., "IT Infrastructure to Enable Next Generation Enterprises", *Information Systems Frontiers*, 7(3), 2005, pp. 217–256.

[28] Willcocks, L.P., Hindle, J., Feeny, D.F., & Lacity, M.C., "IT and business process outsourcing: the knowledge potential", *Information Systems Management*, 21(4), 2004, pp. 7-15.

[29] Wüllenweber, K., Beimborn, D., Weitzel, T., & König, W., "The Impact of Process Standardization on BPO Success", *Information Systems Frontiers*, 10(2), 2008, pp. 211-224.

[30] Yin, R.K., *Case Study Research: Design and Methods*, Sage Publications, Thousand Oaks, 2003.

[31] Yoon, T. & Carter, P.E., "Investigating the Antecedents and Benefits of SOA Implementation: A Multi-Case Study Approach" in: *Proceedings of the 13th Americas Conference on Information Systems*, Keystone, CO, USA, 2007, pp. 1–11.