# Investigation of IT Sourcing, Relationship Management and Contractual Governance Approaches State of the Art Literature Review

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Abstract: The field of IT sourcing and its related management disciplines like supplier and contract management increasingly gains attention from research around the world regarding to the development of research activity. Influence factors as well as vital competences in relation to the IT sourcing success are investigated. This analysis intends to give a transparent and comprehensive overview about recent research topics like relationship management, reveals limitations and analyses new research phenomena like multisourcing.

## **1 INTRODUCTION**

Information technology (IT) sourcing is the management discipline that defines the enterprise's procurement strategy of IT resources, capabilities and functions. In short-term, enterprises want to increase its IT capabilities in order to provide better services for internal and external customers. Extended to the long-term view, IT sourcing aims to raise business value and enhance the enterprise's competitive edge.

Regarding to Deloitte's Global Outsourcing and Insourcing Survey from 2012 76% of the attended companies outsource IT and this proportion seems to rise to 81 percent. This development leads to the fact, that IT outsourcing is a common practice in the 22 considered industries. The IT functions that can be outsourced are assigned to three characteristics. Firstly, systems planning and management processes (IT governance or architecture) belong to IT management functions. While secondly, outsourcing application development and its maintenance is primarily project-driven, thirdly, IT systems telecommunications operations, and end-user support have an operational character. (Herz et al. 2012a)

Next to IT outsourcing two different categorizations can be distinguished in the Procurement of IT processes: location-dependent and location-independent terms. Location-dependent

strategies are defined by the distance, from where an enterprise sources its IT. This dimensions ranges from foreign IT vendors with long distance (Offshoring) over foreign vendors with medial distance (Nearshoring) up to domestic vendors (Onshoring). (Bergqvist & Fredriksson 2008) In contrast, the location-independent categorization is characterized by the level of integration of the IT vendor. Using IT Outsourcing the client enterprise is contracting with an external IT vendor. IT Insourcing is the integration of new IT capabilities and human capital into the enterprise, while IT backsourcing integrates IT processes back in-house that were outsourced beforehand. (Bergqvist & Fredriksson 2008)

This literature review intends to give comprehensive insights into the state of affairs in IT sourcing. After presenting the used research approach in chapter 2, chapters 3 and 4 define used research questions, explain the literature selection process and present findings with the aim to give a conclusion of results in chapter 5.

## 2 RESEARCH APPROACH

The research approach used by this paper is a systematic analysis of published papers on the topic of IT Sourcing, Supplier and Contract Management. The used approach is transparent, repeatable and

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provides a conclusive research review of the presented topic.

By summarizing mature IT sourcing research fields and analysing recent research trends, this literature review tries to give advanced insights into the state of research in the areas of IT (Out-) Sourcing, Backsourcing, Offshoring, Relationship Management and Sourcing Governance. Likewise future research expectations and challenges will be derived. Therefore a systematic literature review has been conducted, based on the guidelines in (Kitchenham et al., 2009). A preliminary literature search has underscored a lack of literature work regarding IT sourcing since the AMCIS submission in (Willcocks, Lacity & Cullen 2007) in 2007. Taking into account the vast recent occurrence of new subfields in this topic, the need for a review analysing the latest state of the art in IT sourcing was recognized.

Considering the purposes of this work to be transparent, conclusive and give a comprehensive latest state of the art, the following research questions had to deal with the topics of research activity, research methods and statistics of the selected literature.

- 1. How much activity in the field of IT Sourcing, Supplier & Contract Management has there been since 2005?
- 2. What research topics are being investigated?
- 3. What research methods are being used?
- 4. What IT Sourcing & Supplier Management approaches can be distinguished?

# **3 REVIEW DESIGN**

#### 3.1 Literature Sources

After an initial search on several online databases (Wiley Online Library, EconLit, IEEE and AISel), it became obvious to populate papers published in common conferences proceedings. Therefore a list of potential conferences (AMCIS, CAISE, ICIS, ECIS, INCOM, PACIS) was compiled. With the intention to work on conferences with highest contribution to the paper's purpose it was decided to formulate several criterions, which were of critical importance for the selection. According to these criterions, the selected conference had to be established, had to publish papers on a regular basis these days in order to cover recent research topics and trends, had to publish papers, which are written by contributors of different nationalities and cultures for avoiding bounded ways of thinking and has to publish their papers in German or English papers due to the authors' language qualifications as well. Moreover, the selected conference had to provide their publications on databases which are freely accessible with the possibilities given by the University of Rostock. Furthermore these databases had to allow the formulation of user-defined searchstrings and the published papers had to be freely available.

Finally a group of conferences which fulfil all of the given criterions has been identified. All of these conferences reached a good result in a ranking of 58 conferences, proceedings and lecture notes, which was published by the German journal "Wirtschaftsinformatik" in 2008 (Wirtsch. Inform. 2008).

The proceedings of these conferences are available via the database "AISeL". With the account of the University of Rostock it was accessible and is capable of interpreting customized search-strings. Furthermore these conferences published a high amount of data on a regular basis in the defined period of time.

## 3.2 Paper Selection

As mentioned above it was decided to cover the years from 2005 to 2012 inclusive within this research. This attribute of the search-string was used in the initial search as well as in all further searches. Because of the use of "AISeL" as the storage for all papers of the selected conferences it was possible to use the same search-string for all conferences.

The first search-string was used as well for an exploration of the amount of data which was published in the given period of time as for the identification of relevant conferences. Therefore a simple construct without any constraints or specifications was chosen. The exact used string was *"IT Sourcing"*. After overviewing the resulting huge amount of data, the search-string was developed by testing various terms and establishing synonyms. Accordingly, the final search process resulted in the following search-string:

(Sourcing OR Outsourcing OR Insourcing OR Backsourcing OR Multisourcing) AND ("IT" OR "IS" OR "Information Technology" OR "Information System") AND (Supplier Management OR Vendor Management) AND Contract AND (Capabilities OR KPI OR "Key Performance Indicator" OR Scope)

This string delivered a much smaller amount of possibly relevant data, which was decided to be used as the basis of further analysis.

After reading some of the selected paper an

existing room for improvement in the amount of delivered results became clear. Thus, it was decided to analyse the abstracts of all papers for certain keywords, topics and criterions to exclude them from our actual analysis. Papers which were excluded from the analysis had to fulfil at least one of the following criterions in their abstracts; a) not focused on Information Technology Sourcing, b) focused on Software as a Service field, c) focused on Knowledge Process Outsourcing, d) focused on Business Process Outsourcing, e) Contract Management regarding employees in sourcing projects, f) focused on Human Capital. After the selection process, a total amount of 52 relevant papers were provided the basis for this work.

### 3.3 Data Collection

In order to answer the identified research questions data from the remaining relevant papers was extracted. The collected meta-data comprises of *Title, Conference, Publication Year, Author(s), Participating Institute, Country of Institute, Explicit Topic, Research Method, Management Approach.* By analysing the collected data the next part of this paper will deal with answering the prior defined research questions.

## 4 DATA ANALYSIS

### 4.1 Activity in the Field IT Sourcing, Supplier & Contract Management (RQ1)

The research activity in 2012 (11 relevant papers) increased about three times in comparison to 2005 (3 relevant papers). Furthermore, two significant peaks can be identified. In 2007 especially the AMCIS published noticeable amount of work regarding relationship management and governance aspects in the IT sourcing area. While the volume of publication only remarkably changed in the AMCIS, a present trend towards new research fields with respect to IT sourcing seems to emerge, especially seen in the development of ICIS publications regarding the topic.

### 4.2 Research Topics (RQ2)

Although IT sourcing can be divided into several types varying in terms of strategy and direction (see Introduction), IT outsourcing definitely is the most

used basis for IT sourcing research. Three out of four selected papers worked on this IT sourcing type. This paper's intention was either to investigate in IT outsourcing or IT offshoring. The other fourth of the papers considered IT insourcing (Reynolds & Seddon 2010), backsourcing (Wong 2006) or crowdsourcing (Nevo, Kotlarsky & Nevo 2012). It can be said, that IT outsourcing is considered as the most important type of IT sourcing because of its commonness in practical use. In addition it seems that most insights of IT sourcing can be transferred to other sourcing types. Therefore, this section summarizes research topics and investigated IT sourcing competences referring to IT sourcing in general.

While analysing the selected literature it appeared that assessing both motivations for IT sourcing and as a consequence thereof possible risks belong to the oldest research disciplines. Reducing costs, gain access to expertise knowledge or the ability to focus on IT core competencies are still counted as the main motivators for IT sourcing projects. (Gröh, Gewald & Stuska 2012), (Li & Li 2009), (Herz et al. 2012b) Likewise the challenges of detecting hidden transaction costs, hazardous dependency on the vendor, intransparent project performance or cultural discrepancies are not met completely, too. (Gröh, Gewald & Stuska 2012), (Gellrich and Gewald 2005) In terms of relationship management the first and most exhaustively investigated phenomena is the dyadic interaction between a client and a vendor. (Herz et al. 2012a), (Lee, Heng and Lee 2009) Therefore research also built frameworks to differentiate between different archetypes depending on the client's strategic aim, its expectations from the vendor and major motivations. (Jahner, Böhmemann and Krcmar 2006) Initially, this research discipline focused on the client's perspective (Gröh, Gewald and Stuska 2012) and investigated the measurements that mitigate potential project risks (Méndez, Mendoza and Perez 2006), what IT capabilities to outsource (Amber, Schroeder and Weiner 2005), (Willcocks, Lacity and Cullen 2007) or what a client enterprise should keep in-house (Willcocks, Lacity and Cullen 2007).

Starting with extended work from the client perspective, clients can be clustered into different types depending on their IT sourcing intention – scaled by the dimensions cost, technology improvement, business facilitation and innovation. (Leimeister and Krcmar 2009) Furthermore, the correlation between IT sourcing performance and innovation processes on the client's site seems to be of current interest. (Yuanyue and Heng 2010), (Oshry, Kotlarsky and Gerbasi 2011) Primarily in IT sourcing projects with long distance vendors, boundary spanning influences on IT sourcing success are investigated. (Krishnan and Ranganathan 2008) Equally, (Gannon and Wilson 2007) identifies vendor types in order to derive guidelines for vendor strategies. Thus, research also considers the perspective of the vendor recently. Likewise to the client perspective, competences are identified (Willcocks, Lacity and Cullen 2007) and how the supplier becomes able to adapt frequent changes of needs. (Plugge and Bowman 2008) An increasing research field here is the global delivery model that defines support for vendors by using an international supplier network itself. (Su 2008), (Nöhren and Heinzl 2012), (Ahuja, Sinclair and Sarker 2011)

The topic that gained most attention in the selected literature since 2009 is multisourcing. This phenomenon is registered in industry more and more. Next to an extended benefit of cost reduction and increasing expertise sources, primarily the independency of clients towards single vendors and better agility on the market motivate enterprises to implement multisourcing in their sourcing strategies. (Herz et al. 2012a) Consequently, this leads to an individual and complex strategy development, more governance expenditures as well as higher data management costs for steering this plethora of projects. (Herz et al. 2012b) Current research categorizes multisourcing relationships into different categories in order to assign various success factors. While (Lee, Heng and Lee 2009) differentiate between single-vendor and multi-vendor dominant multisourcing relations, (Jin and Kotlarsky 2012) additionally characterize them by depth (level of investment in single relationship) and breadth (number of vendors for IT function). (Herz et al. 2012a) identified differences in the vendor selection process between multisourcing and single-sourcing. Because of the effect of risk reduction in multisourcing strategies, especially pricing aspects are of greatest interest in contrast to the vendor's risk level in single IT sourcing relationships. Investigated competences for multisourcing relationships are implementing strong social ties between acting parties, organizational capabilities and an increased accountability integrated in contracting processes. (Jin and Kotlarsky 2012) Hence, the impact of organizational learning (Lee, Heng and Lee 2009) and knowledge transfer (Westner 2009) on multisourcing success is measured in this regard. Next to the integration of external knowledge between client and vendor

(Bugajska 2007), also knowledge transfer processes are vital between the different vendors. (Schott 2011)

The next emerging phenomenon in IT sourcing is relationship dynamics. Recently, literature studies the influence of flexibility competences between client and vendor (Karimi-Alaghehband and Rivard 2012) with the aim that contracting partners can take advantage of changes in business circumstances. (Jahner, Böhmann & Krcmar 2006) In this context collaboration processes (Krishnan and Ranganathan 2008), (Schott 2011) and enhanced social environments (Li and Li 2009) are investigated, e.g. considering cultural influences. (Chen and Kishore 2007), (Heumann, Wiener and Remus 2012)

Although risks of IT sourcing are extensively researched, new aspects in risk management arise. Especially forecasting risks and an integrated proactive risk framework are of great interest in latest work. (Gröh, Gewald and Stuska 2012) Furthermore research on vendor-oriented risk management increase. (Thalmann, Bachlechner and Maier 2012) Likewise technological risk aspects are considered, primarily information confidentiality and maintainability. (Ackermann et al. 2011)

The second identified management discipline in the field of IT sourcing is contractual governance. Different types of contracts were defined and most included clauses were investigated, e.g. costs, length or service level agreements. (Willcocks, Lacity and Cullen 2007) In general two different approaches can be distinguished regarding contracting: formal and relational contracting. Formal Contracts define legal bindings between client and vendor regarding business obligations, accountabilities, penalties for non-performance of one side and other business obligations. (Chou, Hsu and Lee 2012), (Willcocks, Lacity and Cullen 2007) Owing to a high amount of possibilities in contract design, the coherence between contract configuration, intended business goals and the type of relationship is investigated. (Oshry, Kotlarsky and Gerbasi 2011), (Cullen, Seddon and Willcocks 2007) The quintessence of formal contracting is to bilaterally retain a clear and stable business arrangement. (Tan, Sia and Kuan 2006)

In most recent work it was clarified, that these clear legal bindings do not positively influence IT sourcing success but are indispensable for IT sourcing projects. (Chou, Hsu and Lee 2012) Therefore, relational governance is investigated as an influencing factor on project success. It includes the integration of inter-organizational coordination and social norms into the defined legal bindings and aims to bilateral encouragement of responsibilities and commitments. (Chou, Hsu and Lee 2012) By dint of social mechanisms contract flexibility and the ability to adapt changed needs or resources of the business partner are facilitated. (Chandrasekaran, Tayeh and Nagoore 2007) Several publications state relational governance as a positively influencing factor if IT sourcing success. (Ren, Ngai and Cho 2008), (Chou, Hsu and Lee 2012) In this context the phenomena trust, collaboration, information transparency and authorities were studied. (Chen and Kishore 2007), (Lioliou and Willcocks 2009) Another identified research field in contractual governance is the process of monitoring and steering IT sourcing relationships. Therefore, (Urbach and Würz 2011) propose a reference framework, which monitors project indicators like performance, service improvement and communication processes. Besides, research tries to identify causes that trigger the termination of contract from both sides (Heng, Wenyu and Yuanyue 2009) and refer to supporting software tools for monitoring support. (Fischer 2012)

Summarizing this section, the identified research work tries to analyse coherences between potential influence factors and IT sourcing success and potential reactions of the client and vendor.

### 4.3 Research Approaches (RQ3)

In accordance with the analysis results, it is possible to distinguish basically four different research approaches that can be categorized into purely scientific works as well as the works, which are based on practical experiences. Occasionally there are papers which use a mixture of these two categories. The category of purely scientific work contains the approaches of literature review and theoretical work. Literature reviews are relatively weak in proving a hypothesis, therefore they are primarily used to distinguish different approaches of a topic, identify existing definitions and illustrate the current stage of work. Theoretical work whereas is used as an approach to developing new hypotheses on how to solve a problem as well. Based on preceding literature reviews they concentrate the existing stage of knowledge and derive new hypotheses. Results of theoretical work can be methodologies too. Theoretical Work is often not further tested. The category of work which is based on practical experiences contains surveys and case studies. Surveys gather information by questioning stakeholders of the specific topic of the research. Out of this data theories which will be tested in

further research are developed and derived. A case study is an empirical inquiry that investigates a problem within its practical context. In a case study for example a methodology is tested in a real life situation. Case studies prove or disprove theories which are derived from purely scientific work or surveys. Literature reviews are the least used research approach. Most of the analysed literature reviews are specific to a certain topic, for example the impact of IT outsourcing on innovation (Yuanyue and Heng 2010), and lay the foundation of future research on this topic. Therefore the work in hand fits in the gap of almost periodic reviews of the topic. The distribution of research approaches shows that IT sourcing is of immense practical relevance, because about 58% of the research was done using a practical approach. Nevertheless there is a big scientific basis, as the huge amount of theoretical work indicates.

## 4.4 IT Sourcing & Supplier Management Approaches (RQ4)

After the analysis of the relevant papers we identified several approaches and governance structures which are presented in this section. Most of these approaches served as a direct basis for one or more specific papers, whilst others were only taken into account. Sometimes there was more than one approach used in a paper, often serving as component of a synthesis of this approaches. There were also papers which didn't use any existent approach. Transaction Cost Economics (TCE) was identified as the most often used approach. TCE is basically the theory about the different cost factors which are incurred when two or more business partners make an economic exchange. Besides costs which are caused by an extensive search for the right business partner there are contractual costs which are caused by creating and enforcing the terms of business between the partners. TCE in IT Sourcing is mostly used to determine whether to outsource or to insource business-critical IT, but is used for describing relationships and forms of contracting as well. Besides this general usage trails of the use of TCE in all distinguished research topics except multisourcing were detected. This shows that TCE is a very adaptable approach which can be transferred to almost every given topic. Examples for papers which used this approach: (Willcocks, Lacity and Cullen 2007), (Yuanyue and Heng 2010), (Tebboune 2010), (Heng, Wenyu and Yuanyue 2009), (Whitaker, Mithas and Krishnan 2005) The second most often used approach is called Resource-Based

View/Theory (RBV/RBT). Using this approach in IT sourcing often describes sourcing capabilities as resources which are important success factors of IT sourcing projects on provider site as well as on client site. A part of these resources is used to maintain good performance, whilst another part is used to improve services and thereby creating competitive advantages.(Wunnava et al. 2008) The major amount of papers which use this approach is located in the clusters of the topic "Success Factors" and "Supplier and Relationship Management". Examples for papers which used this approach: (Willcocks, Lacity Cullen 2007), (Krishnan and and Ranganathan 2008), (Plugge and Bowman 2008), (Wunnava et al. 2008), (Nöhren and Heinzl 2012) Social Exchange Theory (SET) is the third most often used approach. SET is the continuation of Exchange Theory in a more social context since SET defines exchange mostly as communication between the market and actors. SET is also about the exchange of resources between market actors. This includes the exchange of resources in a network as well as in a dyadic relationship, possibly making SET a suitable approach for the topic of "Multi-Sourcing" in the future. At the time SET is mostly used to describe the nature of the relationship between vendor and client and to make assumptions about possible reactions of the business partner. (Ahuja, Sinclair and Sarker 2011), (Heng, Wenyu and Yuanyue 2009) Examples for papers which used this approach: (Heng, Wenyu and Yuanyue 2009), (Ahuja, Sinclair and Sarker 2011), (Ren, Ngai and Cho 2008), (Chandrasekaran, Tayeh and Nagoore 2007), (Chen and Kishore 2007) Formal Contracts (FCs) are not a consistent approach per se. This cluster consists mostly of Service Level Agreements (SLAs) which are alike to the ITIL framework. Formal contracts strive after avoiding risks mostly through the definition of goals or the implementation of measures for incidents and problems. The relationship between vendor and client is well defined and measurable but allows almost no space for innovation. Nevertheless FCs can't be seen as the opposite of Relational Contracts (RCs). RCs aim for flexibility and collaboration through only loose definitions of goals and a much broader room for innovation. This is achieved for example in IT sourcing joint ventures, which motivate the vendor to improve their services in order to maximize its profit shares. In practical context there often exists a mixture between these approaches. In the topic of "Multi-Sourcing" there was no use of RCs distinguished. This might be because of the enormous complexity which comes with the management of several providers and requires stricter defined relationships. Examples for papers which used these approaches: (Gellings and Wuellenweber 2006), (Jin and Kotlarsky 2012), (Lee, Heng and Lee 2009), (Chou, Hsu and Lee 2012), (Chandrasekaran, Tayeh and Nagoore 2007).

Knowledge Integration and Knowledge Transfer (KI/ KT) are not consistently defined. In general literature KI is for example described as a series of processes, which revolve around the transfer, translation and transformation of knowledge. In the context of Multi-Sourcing Knowledge Integration can be seen as a process which deals with the synthesis of specialized knowledge into situationspecific knowledge to obtain an objective. Vendors as well as clients are parts of this process. (Jin & Kotlarsky 2012) Knowledge Transfer is described in a 4-stage model which includes the transfer of basic and advanced technical and practical knowledge, learning and multiplying the knowledge. (Schott 2011) The use of this vendor-vendor-specific model as a model in a client-multivendor-relationship is imaginable. Examples for papers which use this approach: (Jin and Kotlarsky 2012), (Lee, Heng and Lee 2009), (Schott 2011), (Méndez, Mendoza and Perez 2006)

Table 1 shows the quantity in which the most used approaches were used, mapped to the main topics which were distinguished in RQ2.

Table 1: Quantity of Most Used Approaches – Topic Specific and Cumulated.

Acro nym	IT Sourcing General	Relation- ship Mgmt.	Contract Mgmt.	Multi- sourcing	Success Factors	Cumu lated
TCE	2	5	2		3	12
RBV	1	4			5	10
SET		2	1		4	7
FC	2		1	2	2	7
KT				3	1	4
RC			1		3	4

The topics "Multisourcing" and "Contract Management and Contractual Governance" use the smallest amount of existent approaches since these are at least investigated topics because of their emerging importance in business. As an example, multisourcing research starts from in 2009 (Lee, Heng and Lee 2009), only a small amount of models and frameworks has been developed so far.

# **5** CONCLUSIONS

With this paper a transparent, repeatable and systematic literature review on the topic of IT

sourcing, relationship management and contractual governance has been provided. The process of literature and paper selection has been illustrated and the four formulated research questions have been answered as well. Furthermore several main topics and management approaches have been described more detailed. In accordance with the Kitchenham et al.'s guidelines, the review was conducted based on four conferences that published a high amount of data on a regular basis in the defined period of time and was available to the University of Rostock network. Number of the relevant papers should rise when taking other resources into account such journals and books into account. This also would require an extension of Kitchenham et al.'s methodology. IT sourcing is a young discipline from a scientific point of view. Although the concept of outsourcing is used in practical environment for a long time, research has only begun relatively recently. Nevertheless there is already a certain amount of topics which are investigated extensively, as shown in RQ2. On the other side there is a plethora of topics which are being investigated right now and at least the same amount of topics, which needs to be researched. This list of future topics is partially already on the research agenda of some authors or at least suggested as a topic of future interest. Although the basics of IT sourcing are already researched there is still a demand for the standardization of IT sourcing-specific concepts and terminology (Willcocks, Lacity and Cullen 2007). As shown in RQ4 there is need for the development of frameworks, theories and models which are specific to a particular research field of IT sourcing as well. It can be derived that generally used management approaches like the ones described above will serve as a basis for far more topicspecific approaches.

The trend of multisourcing is mentioned by many authors and will be of growing interest for the next research periods. Specific topics are for example experience-based research ((Herz et al. 2012b), (Chou, Hsu and Lee 2012)), governance mechanisms ((Gröh, Gewald and Stuska 2012)) and vendor-vendor-relationships ((Schott 2011), (Nevo, Kotlarsky and Nevo 2012)). IT sourcing specific risk management, especially vendor- and client-based security management ((Thalmann, Bachlechner and Maier 2012), (Ackermann et al. 2011)) will be of interest as well. Furthermore there is a plethora of further topics which will be more important in the future as well, for example the influence of social factors ((Li and Li 2009)), cloud computing ((Gröh, Gewald and Stuska 2012)) and organizational

learning ((Willcocks, Lacity and Cullen 2007), (Cunden 2008)) on the success of IT sourcing. It has been discovered that the point of view of the vendor in an IT sourcing project is typically less researched than the point of view of the client. It can be assumed that the vendors point of view will be an interesting topic in future research.

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