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IT Outsourcing: An IS Perspective

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Abstract

IT outsourcing has got a high priority in science and practice. Scientifically is also Cloud Computing as a partial- and full IT outsourcing approach discussed. Technological and market-related developments in scientific research and economic reality provide the motivation to process the state-of-the-art and future considerations of IT outsourcing in a literature review. Overall, from 2000 to 2012, 179 articles could be identified and analyzed by a systematic literature review. A systematic classification of research in IT outsourcing helps to classify the wide range of topics in this area. Thematic developments, subject areas, research theories and industry sectors are analyzed in a systematic manner.

1. Introduction

Both the practice and academic research in the discipline of IT outsourcing (ITO) has changed significantly since 2000. Companies fix strategic, global contracts and the research field is growing fast.

The concept of "as-a-Service" (XaaS) applications is basically an understanding of outsourcing, too [1]. It refers to the outsourcing of functions or processes to third parties. This also means that some potential advantages and disadvantages of XaaS-use principles can be derived from those of outsourcing. These include in particular on the one hand the advantages of concentrating on core competencies, greater flexibility, access to external know-how and potential for cost savings and, on the other hand the disadvantages of know-how loss, security concerns and the uptake of other dependencies [2], [3], [4], [5].

That's why there is a need and challenge for a holistic view, to handle the big amount of new research results in a systematic manner. Four earlier papers that examine ITO in a complete [2] or partial [3], [4], [5] manner, however, give no partial insight into the publication outlets in information systems research. The paper at hand targets this need in a review process. It is a systematical attempt to categorize and analyze the academic literature in the field of ITO with the

following research questions: (1) How has ITO been explored in the past in information systems research? (2) What are the most generic important research topics for ITO in the future?

As a contribution for practice it is to determine how often certain industries are examined in research. Therefore, criteria should be determined in accordance to literature. For science it is to determine which main themes in current research topics and which research methods in the field of ITO are treated and which issues and publication outlets play an important part in the future. The analysis can indicate which fields in Cloud Computing should be investigated in the context of ITO services and enrich it. Research theories of ITO are already systematized by Dibbern et al. [2]. For this purpose the structuring of research outcomes is necessary. A publication pool is derived from a total of 17 international ranked journals and IS conferences, investigated in the years 2000 to 2012. Articles with a direct thematic relation to ITO are identified and systematically evaluated.

The contribution follows the recommendations of a literature review in structure, as a scientifically recognized and accepted method in Information Systems (IS) research [6]. First, in section 1, the need for a new weighting literature review is motivated. In Section 2, key terms are defined and identified in the conceptual context. In Section 3, the applied literature review process is described. Section 4 characterizes the research field, the main findings of the literature are determined based on the body of literature. The paper concludes with a discussion in section 5, and a conclusion in section 6.

2. IT Outsourcing

This section shows a general overview of ITO and explains basic terms. The concept matrix is described.

2.1. Terminus Technicus – Outsourcing

Outsourcing has been evolving away from dyadic partnerships in which a customer buys a service of a

third-party provider. A *service provider* offers its customers a *service portfolio* with complex arrangements [2]. Although ITO is subject to a high complexity, the market is growing increasingly and companies also pass critical business processes to providers. *Single - (Out) Sourcing* describes a situation in which a client collaborates with one provider (1:1). The Single - Outsourcing marks the simplest, classic case of IT outsourcing. The *single (out) sourcing* weakens in the research field of IT outsourcing. Of increasing importance are complex outsourcing provider constellations [7] which are specialized in different fields (BPO, ASP, Netsourcing, Cloud Service Networks etc.). Companies outsource the required tasks and processes, as needed, to various IT service providers (c.f. [8]). The *Multi - (out) sourcing* is the partnership between a client and multiple service providers (1: n). The advantages are, in comparison to *single - (Out) Sourcing* variant, an increased transfer of knowledge and the ability to choose a specialist provider, which is reflected in an increase in flexibility. In addition, the client can utilize the quality and price advantages of competition. This variation can currently be seen in an increasing amount of applications (c.f. [9]).

Moreover, Multi-Outsourcing options in the context of cloud computing have been discussed recently. Thereby is cloud computing a proposal and proposed a strategy for a forward-looking outsourcing option to be implemented including by reforming the outsourcing strategy framework in information systems (IS) [2]. Until the mid-90s, the cost-effectiveness was the main driver of outsourcing decisions. The immense and sustained growth and the use of different specialized IT service providers are mainly due to strategic intentions. The management of relations and access to highly specialized personnel and expertise are

the focus of the strategic network [10].

ITO has been consolidated in the IS research field. The topic is titled in numerous workshops, conferences and journals. Currently, there is an attempt to establish a precise definition for the ITO phenomenon in science and practice. However, yet there is no commonly accepted definition for this term. For this purpose recent articles accumulate systematically scientific publications, expert opinions and pragmatic descriptions of practice in order to attempt a comprehensive definition, e.g., [11], [12]. The procedure turns out basic concepts and general objectives. The definitions are often in agreement that the term ITO addresses *total- and partial- outsourcing* and *-insourcing* in combination with geographical location layers like *domestic/near-shore* and *offshore*. Also considered *IT budgets* are frequently used to classify IT outsourcing projects, for example the 80:20 rating (fig.1). A modern definition to apply in a wider research framework as a reference includes the as-a-service paradigm. It focuses on the management of outsourced IT services. Because of the many similar-sounding terms a conceptualization of the topic is not simple. Therefore, based on an already existing work in this area, a definition was designed. This definition summarizes the most frequently mentioned aspects in different context. Based on this, the literature search was conducted.

ITO refers to short-, medium- and long-term outsourcing and is a method of purchasing IT services for the management of IT infrastructure and business applications. It addresses total- and partial- outsourcing and -insourcing in combination with geographical location layers like domestic/near-shore and offshore, within the frame of a service vendor constellation.

The constellation's description includes the degree of time, service, fulfilment, location and provider (IT

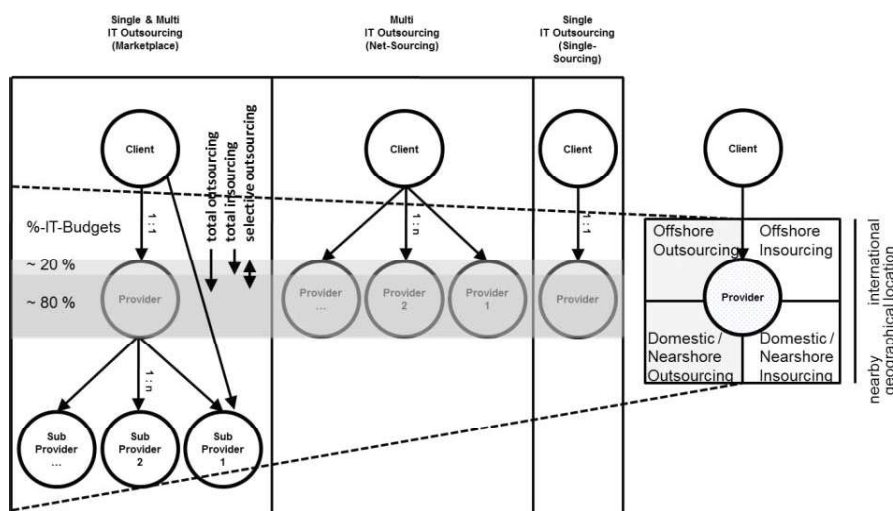


Figure 1. ITO Classification

2.2. Concept Matrix

The *quantitative* part, the descriptive analysis, covered the *year of publication*, *issue*, the *journal or conference name* for each article. Furthermore, the matrix includes the concept of search (forward or backward) and the search process (used keywords (outsourc * OR * offshore)) [13]. So, the analysis classified the identified articles on *research methods* of information systems research.

Basically, meta-data are a description of documents, and contain information about the content, structure or form. The characteristics of the descriptive analysis can be derived from the articles meta-data. For qualitative analysis, the content discussion is required. This classification process also requires a qualitative interpretation skill of the reviewer [2].

behavioural or constructive science. The classification has been included together with the references [15], [16] regarding the calibrated contained methods. A portfolio approach is derived which includes all the research methods of the IS research.

The research priorities were determined by indexing the articles. In the first iteration, 142 content terms have been assigned. Terms were therefore grouped. After 9 iterations of the procedure: structuring - restructuring - synthesis, 12 research topics could be identified. These in turn were assigned to four structuring major areas. A useful categorization design offers [17]. This can also be adapted for the article at hand. Furthermore, the classification of research methods allows conclusions about the way of information gathering in the research field.

3. Literature Review

The large number of official publications in the field of computer science and business information systems (IS) [18]; makes a systematic selection of high quality scientific publication outlets necessary. Publication outlets are therefore to bring into a ranking of quality or other criteria for the current research. Therefore, a systematic comparison of internationally accepted literature rankings was conducted. An order of criteria according to literature rankings was derived. To include the current state of research and past research and the attempt to qualify the literature review as complete within the literature corpus, articles were systematically selected in known publication outlets between 2000 and 2012 and examined. The claim for the historical completeness goes together with the consideration of identified reviews, covering the period prior to 2000. These include the references [2], [5]. Furthermore, the challenge of the approach through the consistent use of methods of recognized frameworks has been stabilized by following works: [6], [13], [18], [19], [20], [21], [22], [23].

In the development and execution, the work at hand follows [6], which is a reflection of existing scientific publications and is a scientifically recognized

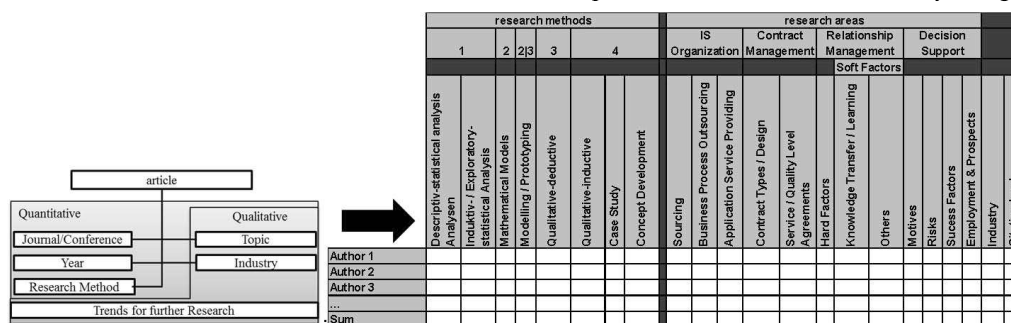


Figure 2. Analysis Framework – Concept Matrix

procedure. The procedure follows the typical structure of literature reviews and is based on the proposed 5 phases: (1) definition of review scope, (2) conceptualization of topic, (3) literature search, (4) literature analysis and synthesis, and (5) research agenda (conducted in section 5, and listed in the conclusion).

The procedure also includes the ongoing debate on "rigor vs. relevance" [24], [25]. With the systematic selection of official publications and articles on one hand and the scientifically based methodology which describes how the results can be derived (rigor) on the other hand, it can be taken into account that publications are accepted publication outlets (relevance).

3.1. Analyzed Publications

An examination of articles was performed in the literature rankings: (1) MIS JOURQUAL ranking [26], Association of the Association for Information Systems (AIS); (2) VHB- JOURQUAL 2-listing (sub-ranking: Business Information Technology and Information Management), the Association of University Professors of Business Administration e.V. [27]; (3) WKWI-listing, the Association of Management (WKWI) and the Department of Economics of the Society for computer science (GI-FB WI), the WI Commission Guidelines [28] (fig. 3).

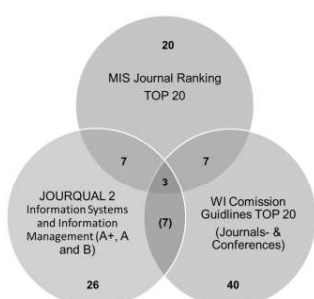


Figure 3. Ranking Convergence

With this approach, the objective of transparency is pursued. It creates a reliable basis of valuation of the conglomerate of internationally comparable literature rankings and takes into account different geographical areas of influence. With the process, leading European journals and especially renowned North American and international literature sources of the IS will be collected. In a systematic manner by chosen publication outlets, national rankings of other differences can be compensated [6]. Reviews of the MIS Journal Rankings and the JOURQUAL 2 ranking were prioritized for the effective range of the IS due to the higher overlap with other rankings within the scope

of the IS research. In a first step the 20 most prominent journals of the MIS ranking and the JOURQUAL 2 (A+, A and B) ranking (= 26) and respectively the "Top 20" of the WKWI-listing for journals and conferences (=40) were compared and brought into a sequence. The principle of the intersection is an appropriate statistical tool for this process (fig. 4).

$M1 \cap M2$	1	Information Systems Research
$\cap M3$	2	Journal of Management Information Systems (JIMIS)
	3	Decision Support Systems (DSS)
$M1 \cap M2$	4	MIS Quarterly (MISQ)
$\cap M3$	5	ACM Transactions on Database Systems (ACM TODS)
	6	Artificial Intelligence
	7	ACM Computing Surveys (ACM CSUR)
$M2 \cap M3$	8	European Journal of Information Systems (EJIS)
$\cap M1$	9	Communications of the ACM (CACM)
	10	IEEE Software
	11	Information & Management (Information and Management)
$M1(TOP10)$	12	Management Science (ManSci)
$\cap M2 \cap M3$	13	Decision Sciences
	14	AI Magazine
$M2(A+, A)$	15	Mathematical Programming (+ Computation)
$\cap M1 \cap M3$	16	Proceedings of the International Conference on Information Systems (ICIS)
	17	SIAM Journal on Computing (Society of Industrial and Applied Mathematics)

$M1 = \{MIS \text{ Journal Ranking} - TOP 20\}$ $M2 = \{JOURQUAL 2 A, A+, B\}$ $M3 = \{WI \text{ Commission Guidelines} - TOP 20\}$

Figure 4. Analyzed Scientific Publications

3.1. Literature Search

The literature search systematized the process of article identification and selection. The process consists of the following 3 steps: (1) semi-automated keyword search, (2) manual archival research and (3) reverse search methods [13]. Phrases such as (outsourc * OR * offshore), have been searched in English language. Articles were systematically identified by IS e-libraries [29], in the search fields title, abstract and keywords. The procedure provides results with the words "outsourcing", "outsourced", "outsourcing" and "outsourcing" or "offshore", "offshored", "offshoring" and "offshore". Furthermore, all archives of publication outlets in a second pass were reviewed for relevance by title, abstract and keywords. Inaccuracies in the semi-automatic keyword search have been fixed by this.

4. Analysis and Synthesis

Since 2000, several studies and articles on the facets of the IT outsourcing have been published. In terms of a literature review and research question, it is important to recognize trends and dynamic changes [15]. We therefore also took into consideration four earlier papers that examine ITO explicitly [2] or in a partial [3], [4], [5] manner. The claim to the historical integrity is ensured by the inclusion of these reviews that examine the period before 2000.

4.1. Meta-Analysis

Between 2000 and 2012, 313 articles are identified with the forward search procedure, of which 139 articles were rejected for a lack of relationship to the research question. Five articles were added due to the reverse search method. Total of 179 scientific publications were found and analysed (fig. 5+6), 4 of them are literature reviews and were therefore not arranged thematically. With the systematic search in selected publications, the search word "outsourc*" found 154 articles and with the search word "offshore*" were 11 articles found in e-libraries. The other articles were identified using manual search.

The number of publications sorted by year is shown in fig. 5. Significant is the rapid increase in the publications since 2008. The increase cannot be explained by only a few publishers. The increase may be interpreted as a permanent or demand-driven trend. The last 3 years of the review period takes a proportion of 30 percent (54/179), based on all classified articles. The trend can be observed particularly in the areas of relationship and decision support management. In these topics a lot is published at this time. The years before 2000 show backward search results and are not representative.

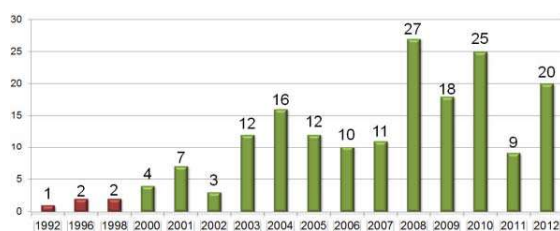


Figure 5. Articles by Year

Furthermore, the analysis gives insights into the used research methods (fig. 6). A separation between the formalization shows that 105 of 179 articles use quantitative research methods. 69 articles follow qualitative research methods. Five articles (4+1) utilize a plurality of methods of modeling and prototyping. So there is a relatively large overhang to formal, numerical studies. The separation according to the logical approach shows that the knowledge discovery process in ITO, in particular, consists of conducting explicitly *inductive* and *empirical* research. In 14 case studies the authors develop concepts (e.g., [30]). Further 33 articles show concepts by design science. Articles of the ICIS conference distort this picture. 12 qualitative-inductive articles, 11 case studies and 14 conceptual studies on one hand and 32 inductive-exploratory statistical studies on the other hand, are most used and are facing each other. This conference has a balance between quantity and quality oriented work.

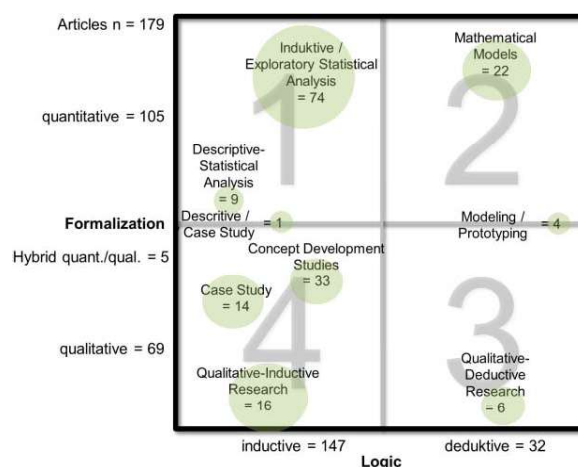


Figure 6. Articles by Research Methods following [14]

As described in section 3.1, we selected 17 IS affiliated journals and conferences with the thematic focus in information systems, information management and electronic commerce for the investigation, on the basis of the MIS JOURQUAL ranking, VHB ranking and WKWI ranking. Table 7 shows the distribution of thematically relevant articles per publication. During the search it got obvious, that 6 journals of the ranking do not contain articles about ITO. The analyzed ICIS conference is a major outlet (84 articles) in IT outsourcing. Because of the overhang of this major conference only outliers are documented in the context of the paper at hand. The column "Search Method" lists articles in further magazines which are identified with the backward search method. The backward search traverses this search tree recursively, downwards beginning at the root, in depth-first order (thus search in article references).

No.	Magazine	Search-Method	Hits
1	Information Systems Research	forward	23
2	Journal of Management Information Systems (JIMIS)	forward	22
3	Decision Support Systems (DSS)	forward	6
4	MIS Quarterly (MISQ)	forward	24
5	ACM Transactions on Database Systems (ACM TODS)	forward	0
6	Artificial Intelligence	forward	0
7	ACM Computing Surveys (ACM CSUR)	forward	0
8	European Journal of Information Systems (EJIS)	forward	10
9	Communications of the ACM (CACM)	forward	26
10	IEEE Software	forward	13
11	Information & Management (Information and Management)	forward	18
12	Management Science (ManSci)	forward	14
13	Decision Sciences	forward	15
14	AI Magazine	forward	0
15	Mathematical Programming (+ Computation)	forward	0
16	Proceedings of the International Conference on Information Systems (ICIS)	forward	(84)
17	SIAM Journal on Computing (Society of Industrial and Applied Mathematics)	forward	0
I	International Journal of Social Sciences	backward	1
II	Journal of Information Technology	backward	1
III	Journal of Strategic Information Systems	backward	2
IV	MIS Quarterly Executive	backward	1
V	Sloan Management Review	backward	1
VI	Strategic Outsourcing: An International Journal	backward	1
VII	The DATABASE for Advances in Information Systems	backward	1

Figure 7. Articles by Magazine

4.2. Thematic Developments

Research topics in ITO are numerous and not assessed in a uniform regulatory framework. Previous works differ in the analysis of research areas in the approach, as well as in the classification. A classification by the authors of articles by keywords will only partially point out correct results. Here, a holistic perspective is developed on the research area. An exploratory, inductive approach to structure outcomes is used. Repeating research topics are clustered for a systematic evaluation of the relevant articles. The uniformed procedure seems suitable to gain knowledge about the hierarchical articles. A multi-iterative clustering with 8 steps was taken. Identified clusters were tested for differences, congruences, integrity and completeness per iteration in panel discussions. This procedure was supported by means of respective work packages of graduate business students and three scientists. Articles could then be placed in a hierarchical structure. The indexing (see 2.2) leads to important subject areas within the range. There are articles dealing with several themes, or they investigate a thematic interface. These articles have been assigned to the section which is represented by the most intense arguments. The process of analyses was done as long as articles could be derived to topics. The synopsis shows an aggregated view of the main characteristics of classifiable articles in fig. 8.

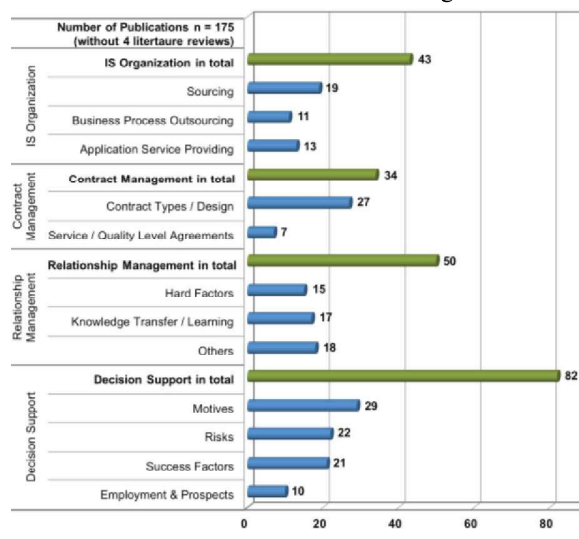


Figure 8. Articles by Subject Areas

4.2.1. IS Organization. The category of IS Organization includes just under a quarter (24.6% or 43/175) of the articles. 19 articles (10.9%) study the issue of sourcing. Business process outsourcing is represented with 11 articles (6.3%) and the application

service providing in 13 articles (7.4%). The articles explore the relationship management between client and provider, e.g., [31], often very close to the works clustered in Relationship Management (4.2.3). It discusses the criteria to be considered in short, medium and long-term, complex ITO projects. Single and multi-outsourcing forms are examined. The single (out-) sourcing loses in the research field of ITO more and more importance, since most outsourcing providers are now focused on various fields of application (BPO, ASP, Netsourcing, etc.). Companies can already outsource functions and processes, R&D etc., provided by various IT service vendors [32].

4.2.2. Contract Management. Almost all articles on contract management select mathematical models or inductive, exploratory statistical analysis. It examines the factors to be considered in the contract agreements. It is noteworthy that the majority of the authors of application systems development considered contracts, e.g., [33], [34]. In the category of Service / Quality Level Agreements, however, outsourcing service contracts are increasing [31]. Although the section is the smallest group of subjects, it provides important insights how to manage the relationship of the parties successfully. Contract management is operationalized mainly through the following 8 segments: contract details, duration, volume, punish-, project complexity, project coordination, ownership and service & quality level agreements. Contract management policies can be derived for all practical purposes.

4.2.3. Relationship Management. Relationship management is the second most frequently examined research topic (50 of 175 articles, 28.6%). A prominent research area within this cluster focuses on *soft factors*, (70% or 35/50). A less considerable part of the work has a tangible, controlled relationship management (hard factors) on the subject (30% or 15/50).

In the category of formal governance and relational governance (hard and soft facts) there is a break in the underlying research methods. While in other areas predominantly inductive, exploratory-find statistical analyses are to be seen, the authors use a striking number of (concept elaborated) case studies and interviews here. Particularly in this section, soft criteria to measure their effects are significantly more difficult. The hard factors include the control of outsourcing - partnerships. Almost all of the associated paper describe the management of the relationship in the context of an offshoring - project. Aron and Liu's analysis examined 80 BPO contracts [35]. In addition, the *Quality Management* (QM) is addressed as a crucial, hard criterion. Third most nominated is the topic *requirements engineering* (RE) and

reengineering. Soft factors can be classified in "knowledge transfer", "organizational learning" and "trust".

4.2.4. Decision Support. Most of the contributions of IT outsourcing research explain the theme group *decision support* (82 of 175 articles, 46.9%). Within the category, 29 articles (35.4% or 29/82) are classified into motives, 22 articles in risks (26.8%), 21 articles also in success factors (25.6%) and 10 articles (12.2%) in effects on employment and prospects. To clarify the factors of outsourcing success, the authors use mainly inductive / exploratory statistical analyses, while the risks are accessible by both inductive and deductive research methods. In the academic literature of ITO, there are several classification approaches to investigate the specific risk factors. Aron et al. classify the outsourcing risks to the strategic or operational nature [35]. Other authors in turn deal with risk factors that can be attributed to any particular type of outsourcing (e.g., offshoring, ASP).

4.3. Qualitative Analysis by Industry Sector

The literature pool contains a total of 59 articles that are clearly classified in an industry sector. The distribution of industry sectors is a result of the content analysis (fig. 9). One problem is to determine which industry sector is assigned to an article. Not all research contributions explicate the industrial sector. Other works are independently valid or belong to multiple industry sectors. The most common cited industry with 26 articles, is represented by the software industry. In 16 articles, the authors indicate that they have collected the data specifically within the Indian software development. The second largest sector is the field of banking / finances. It represents 13 publications or 22% (13/59) of all considered empirical analyses. The third place, closely following, is occupied by the IT service industry. It is notable that China will evolve to the market leader in software development business like it is India nowadays. The range of the IT service industry comprises a total of 12 articles. Thereof 3 articles explicitly address the area of e-commerce. It seems as if the trend is still hesitantly processed by the academic research (cf. [36]). Gonzales et al. [3] come to a similar conclusion. However, they post only a single counter in the category e-commerce. One possible explanation probably lies in the nature of gaining information in the ITO research field. Most of the empirical analyses apply knowledge from empirical data. It is conceivable that such practices already exist in e-commerce, but the data hasn't been scientifically studied yet. Such works will be found increasingly in future contributions.

Only three articles examine the Web Services section. This occurrence can be explained because cloud computing service deployment, as a part of these kinds of services is not defined uniform in results.

4 statistical analyses occur from the public sector. These articles examine contract management, knowledge transfer and the motives of ITO.

Of the 4 remaining articles, three articles belong to the manufacturing sector and one to the medical sector.

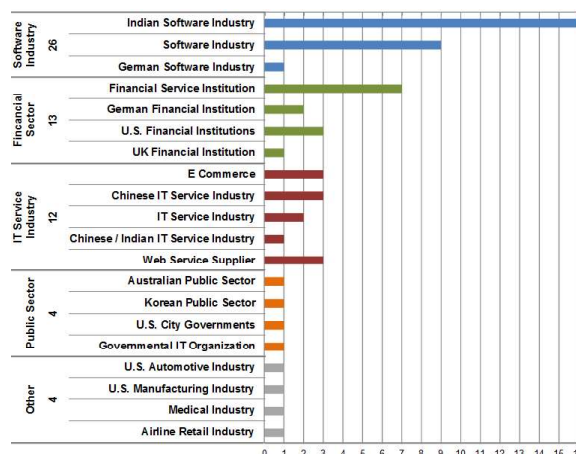


Figure 9. Articles by Industry Sector

5. Discussion

The following discussion describes the main findings of this literature study in the context of the underlying research question.

ITO is a wide field of research with only few standardized keywords. An investigation in research methods shows a considerable overhang to formal, numerical studies. The separation according to the "logical approach" shows that the knowledge acquisition process in ITO is stated especially through inductive methods, and is explicitly investigated by empirical research. The fact is an indication for practical weightiness of the research field. The obtained values are 82.1% (147/179) in the inductive and 17.9% (32/179) in the deductive area. Substituting the inductive logic in the empirical section in relation to the total number of observations, then the result is in total 67.6% ((16+9+74+22)/179 articles). A shortcoming of the research field is reflected in the category of modelling / prototyping with two papers. No article models a process or a system with a modelling language, such as the Business Process Modelling Notation (BPMN). This is quite surprising since the methods were suitable for the area of sourcing (e.g. BPO, connection of a business process) [37]. To clarify the factors of outsourcing success, the

authors use mainly inductive / exploratory statistical analysis, while the risks are accessible by both inductive and deductive research methods. Compared with the other categories there are many conceptual studies on average.

Reliance on the absolute number of articles related to a specific topic, topics around the impact of decision support and relationship management, and their construction is by far the most important research topic in the field of ITO to mention in recent years.

Relating to the chronological development, the areas are increasing. Especially in the last three years, from 2009 to 2012 there was a higher number of articles with corresponding focus. Therefore, it is assumed that these topics will continue to remain current. As already established, but by the new research re-classified as current, the issues of application service provision and partnerships are mentioned in the field of cloud services. Green IT has been discussed only in one article [38]. The authors emphasize that the motives of the ASP and ITO are similar. Currently, there is a variety of new business models and concepts such as cloud computing, Software as a Service (SaaS), Social Networks and Open Sourcing e.g. [39], [40], [11]). They all lie within the control of NetSourcing. The investigations are still pending in the ITO environment.

A consideration of the *time distribution* shows that articles appear to BPO since the year 2004 and the number of articles is already slightly decreasing since 2005. The subject ASP follows the same trend. Most articles were published in 2003 and between 2006 and 2010 only 2 articles were found. The weakest topic 'contract management' is represented with 34 articles (19.4% or 34/175 articles). In the category *contract types* 27 articles (79.4% or 27/34 articles) were analyzed. 7 articles in the category (21.2% or 7/33 articles) investigate *Service / Quality Level Agreements*.

A new trend in the literature of the ITO is Knowledge Process Outsourcing (KPO). It is defined as the outsourcing of business, market and / or industrial research. KPO service providers design surveys, collect data and analyze it, and produce statistical analysis reports. In the searched journals, the fact is so far little studied. Amazingly, there is a lack of procedural approaches in the area of ITO, especially in sourcing.

Focussing on the industry-specific case studies, it is observed that there are typical industries such as software industry, the financial sector and the IT Service Industry, which are leading within ITO research. Other sectors (like the public sector) are almost completely lacking. In order to get and to

complete a wide empirical data base it is necessary to study further important industries.

The following journals should be considered in addition to future research. The list was developed in reference with the reviews of Lacity et al. [5] and Gonzales et al. [3]: Communications of the AIS; Journal of Information Technology; Information System Frontiers; Information Systems Management; International Journal of Information Management; Journal of Strategic Information Systems; MIS Quarterly Executive; Sloan Management Review; The Journal of Computer Information Systems; Computers & Operations Research; Strategic Management Journal.

Furthermore, the following focus magazines have been identified based on the number of publications: Information Systems Research (ISR); Journal of Management Information Systems (JMIS); MIS Quarterly (MISQ); European Journal of Information Systems (EJIS); Communications of the ACM (CACM); IEEE Software; Information and Management; Management Science (ManSci); Decision Sciences.

6. Conclusion

The aim of this paper is to give an overview concerning ITO efforts in information systems research. Thus, a literature review has been chosen as methodology. The review's rigour followed the recommendations in a systematic way and introduced transparency concerning the results gained. Considering the rapidly growing amount of techniques and methods in ITO, integration becomes mean in handling this variety of approaches. The research field was structured hierarchically in 4 categories and 12 sub-groups in a systematic manner. Therefore, the large number of 313 renowned articles was analysed. 179 articles with thematic relevance were hierarchically grouped.

The main drivers of ITO are the client-provider relationships and decision support, whereas currently more informal, soft design options have been published. Specifically, the articles deal with decision support. In particular, the parts of motives, risks and success factors are represented. A new trend in the literature of the ITO is KPO. Green IT is yet poorly understood in ITO.

For future research in the discipline of ITO various options are emerging. On the one hand, business surveys and detailed theoretical studies of outsourcing models are recognized [9], on the other hand, possibilities of analysing the success factors and the risks of ITO on the determinants of the contract or the client-provider relationship [41] open up. Another

widely practiced approach is influenced by the research themes of the confidence effects of formal control on the form to open up statistically [42]. Criteria for the design of a questionnaire can be found in, e.g., [42], [43], [44].

Furthermore, for this paper a process-driven analysis is planned for the IT outsourcing of cloud services (as a method of purchasing IT services) (fig. 10). Thus forthcoming research will include the following tasks: At first it is intended to verify the results presented in this paper by means of empirical studies and expert interviews with industrial cloud computing partners. In addition, the relation between cloud provider and preferences for a specific integration approach and strategic challenges of the company is to be explored in detail. Afterwards recommendations can be developed supporting a company in choosing an appropriate integration approach for cloud solutions. Clear guidelines for practitioners are then to be developed for each integration approach and need to be evaluated in cooperation projects. For further research investigation, we will use explicit reference models and extract the purchase perspective overall. It is exploring how existing ERP systems must be designed to support and implement the ITO process.

Special legal questions with respect to Cloud Service deployment as a facet in IT offshoring, practical legal questions concerning digital media (such as in the context of big data), contract management and on-demand self services are promising overlaps in the future. Another question relates to the choice of service delivery models - how the decision impinges the model performance or the quality of the outsourced services. This question currently remains unexplored. Finally, there is also to investigate which criteria are to be included in the design of cloud service contracts from the outsourcing domain. It consists of checking the impact of different models in terms of formal and informal management of the provider. This research can show large methodical and substantive points of intersection in service science.

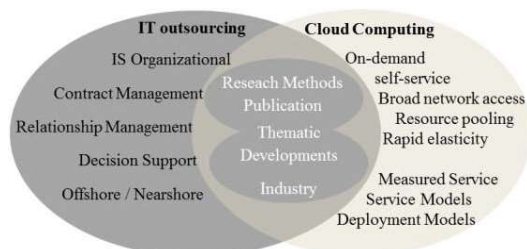


Figure 10. Further Research

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