

# IT Outsourcing – An Analysis of the State-of-the-Art

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## Abstract

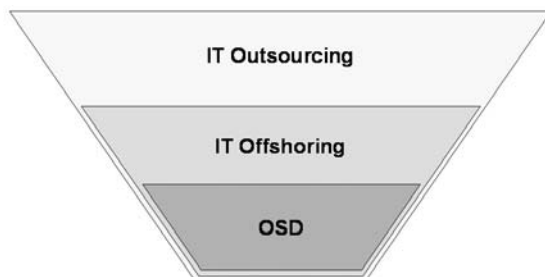
*The paper at hand aims to give an overview of academic activity in the field of IT outsourcing. By conducting a comprehensive literature research in key IS conferences and journals, the research project is expected to contribute with new insights into IT outsourcing research.*

## 1. Introduction

The number of IT outsourcing projects in Germany is continuously rising. In Europe as a whole, the order sizes of such projects amounted to 50 billion Euro in 2003, thereby surpassing the accumulated contract value of equivalent projects in the USA [11]. In association with IT outsourcing, offshoring can be understood as a distinct modification, which according to Broß [3] exists as soon as relocation to an ITK service provider in low wage countries, such as China, India, or the newly added EU-countries, takes place. At the moment, the German market for IT offshoring is still in its fledgling stages. With a total volume of 0.4 billion euro in 2003 as opposed to a 54 billion euro US market, enormous growth potential remains. Broß [3], for instance, assumes that the German market will double in size until 2008.

Figure 1: Hierarchy of IT outsourcing research fields

In consideration of the increasing importance of IT



outsourcing and its sub-modes in Germany, the paper at hand aims to analyze the state-of-the-art in the research field of IT outsourcing and the associated sub-fields (see Figure 1).

## 2. Analysis of the State-of-the-Art

In an effort to develop an overview of academic activity in this research field, we selected key IS conferences and journals (see Table 1) and scanned the corresponding conference proceedings and

journals for key words like “IT outsourcing”, “IT offshoring”, “IT service providing” within the time frame from 1997 to 2005. To identify relevant publications within these data sources, we used advanced searching methods including the stemming approach proposed by Ferber [6]. This approach refers to the mapping of words to their normalized forms (e.g. “outsourcing” to “outsource”).

Table 1: IS conferences and journals examined

IS Conference	IS Journal
<b>AMCIS</b> – Americas Conference on Information Systems	<b>CACM</b> – Communication of the Association for Computing Machinery
<b>ECIS</b> – European Conference on Information Systems	<b>HBR</b> – Harvard Business Review
<b>HICSS</b> – Hawaii International Conference on System Science	<b>ISR</b> – Information Systems Research
<b>ICIS</b> – International Conference on Information Systems	<b>MISQ</b> – Management Information Systems Quarterly
	<b>SMR</b> – Sloan Management Review

The selected conferences belong to the top events in the field of IS research in the Western Hemisphere. Whereas all of these conferences were founded more than ten years ago [1, 2, 5], the HICSS can even look back on a history of almost 40 years [8].

With regard to the selected journals, we chose the top five European IS journals according to a ranking by Mylonopoulos and Theoharakis [10]. In contrast to many other rankings of IS journals, this ranking is not limited to North American journals, but distinguishes between regions. The ranking is based on a survey, primarily among professors and doctoral candidates, on the contribution of altogether 50 IS journals to research in this field.

Based on the key word search within the mentioned conference proceedings and journals, we were able to identify more than 600 articles and conference papers related to IT outsourcing. However, not all of the identified publications focused on IT outsourcing. Therefore, we reviewed the abstract and introduction of all of the 600 publications to determine whether the content of this publication

specifically deals with IT outsourcing in a broad sense. Resulting from this additional manual search within the selected publications, we were able to identify 182 publications solely dealing with IT outsourcing. Table 2 shows the number of relevant publications per IS conference and journal respectively within each year examined and in

total. Here, it has to be added that, in the year 2005, only journal articles which were published before July (exclusive) and papers in the conference proceedings of AMCIS, ECIS, and HICSS are included in the literature review.

Table 2: IT outsourcing publications at selected IS conferences and journals (1997-2005)

		1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
IS Conference	AMCIS	-	3	1	4	9	9	17	18	13	74
	ECIS	1	3	1	3	2	1	5	3	1	20
	HICSS	1	5	4	3	5	6	6	5	8	43
	ICIS	4	-	3	1	1	2	3	5	-	19
IS Journal	CACM	-	-	1	1	-	-	2	2	-	6
	HBR	1	-	-	-	-	1	-	-	2	4
	ISR	1	-	-	-	-	-	2	2	-	5
	MISQ	-	2	-	-	-	1	2	-	1	6
	SMR	1	2	-	-	1	-	-	-	1	5
<b>Total</b>		<b>9</b>	<b>15</b>	<b>10</b>	<b>12</b>	<b>18</b>	<b>20</b>	<b>37</b>	<b>35</b>	<b>26</b>	<b>182</b>

Concerning the number of IT outsourcing publications, it becomes apparent that the majority of these publications were published in conference proceedings (156 papers). Here, particularly the AMCIS provides a great number of papers in the field of IT outsourcing (74 papers).

With regard to the publication year of the identified articles and papers in the field of IT outsourcing, a continuous growth in the number of publications per year can be observed. While in 1997, only nine publications dealing with IT outsourcing were able to be identified, in the middle of 2005, already 26 publications dealing with this topic were published within the mentioned data sources.

In a first step, the 182 publications identified within the literature review were classified into different research fields (IT outsourcing, IT offshoring, and offshore software development), with IT offshoring representing a sub-research-field of IT outsourcing, and offshore software development representing a sub-field of IT offshoring (see section 2.1). In a second step, the identified publications were compared to one another in regard to their specific content by assigning them to eight content categories (see section 2.2). Here, we found that some publications could be assigned to two

categories. In these cases, we assigned the corresponding publications to both categories (one category as a first choice and one category as a second choice).

Based on the classification and the comparison of the identified articles and papers in the field of IT outsourcing, a classification matrix with the dimensions “research field” and “content category” was able to be developed.

## 2.1 Classification of Identified Publications

For further analyses, the publications identified within the mentioned IS conferences and journals were classified by the following three outsourcing research fields:

- IT outsourcing:** Handing over of an organization’s IT activities to a domestic IT service provider.
- IT offshoring:** Handing over of IT activities to a service provider located in a foreign country.
- Offshore software development:** Handing over of the application development and related services to a foreign service provider.

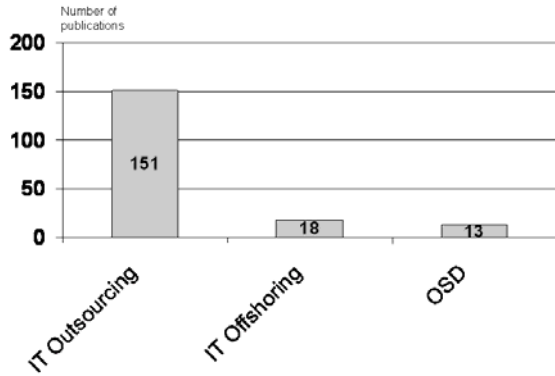


Figure 2: Classification of publications by outsourcing research fields

According to the classification framework introduced above, 151 publications were attributed to the research field of IT outsourcing, 18 publications to the field of IT offshoring, and 13 publications to the field of offshore software development (compare Figure 2).

Based on the classification of the 182 publications presented in the figure above, Table 3 shows the number of the identified publications by outsourcing research fields and IS conferences and journals.

Table 3: Classification of publications by outsourcing research fields and IS conferences/journals

		IS Conference				IS Journal				
		AMCIS	ECIS	HICSS	ICIS	CACM	HBR	ISR	MISQ	SMR
Research Field	IT Outsourcing	60	18	39	14	3	2	5	4	5
	IT Offshoring	8	1	3	3	2	1	-	1	-
	OSD	6	1	1	2	1	1	-	1	-
Total		74	20	43	19	6	4	5	6	5

When comparing the number of publications in different research fields within the selected data sources, it becomes apparent that only little research was carried out in regard to IT offshoring and offshore software development. In IS journals, only seven articles dealt with these two research

fields within the time period from 1997 to 2005. Here, popular magazines such as Information Systems Research (ISR) and Sloan Management Review (SMR) have not published any articles in these fields within the last eight years.

Table 4: Classification of publications by outsourcing research fields and publication years

		1997	1998	1999	2000	2001	2002	2003	2004	2005
Research Field	IT Outsourcing	7	15	9	12	18	19	28	24	18
	IT Offshoring	-	-	-	-	-	-	6	8	5
	OSD	2	-	1	-	-	1	3	3	3
Total		9	15	10	12	18	20	37	35	26

Looking at the development of the number of publications within the three research fields over the time frame examined, a positive trend can be observed. From our perspective this trend is also likely to continue: Although, the data of the year 2005 is not complete yet, we were already able to identify more papers in this year than in the year 2002.

With regard to the development of the number of publications within each single research field, particularly the increasing number of publications in the research fields IT offshoring and offshore software development starting from 2003 is remarkable. While in the years from 1997 to 2002, no article or conference paper was published explicitly referring to IT offshoring, we were able

to find at least five publications in each year from 2003 to 2005.

## 2.2 Comparison of Identified Publications

In an attempt to analyze academic activity in the field of IT outsourcing (in a broad sense), we will assign each of the 182 identified publications to a specific content category. With regard to the applied content categories, we refer to the six primary research areas in the field of IT outsourcing identified by Chi-wai, Huynh, Lee and Pi [4]. They classify the outsourcing research into six major areas: organization, performance decision, contract, relationship and environment. In order to ensure a clear classification of the relevant articles to a specific content category, the content areas mentioned here will be extended by

the two categories strategy and culture related to the strategic management framework for IT outsourcing projects according to Fjermestad and Saitta [7]. In fact, strategic issues are also mentioned in the paper of Chi-wai et al. [4], but they are subsumed under the organization category.

The resulting eight content categories for the comparison of the identified publications in the IT outsourcing context (in a broad sense) are listed below in alphabetical order. In addition, each category is briefly introduced:

1. **Contract:** Aspects related to the agreement on the contents of the project.
2. **Culture:** Aspects related to cultural similarities and differences between the project partners.
3. **Decision:** Aspects related to the selection of the provider, the project, the project location etc.
4. **Environment:** Aspects related to political and legal regulations.
5. **Organization:** Aspects related to the coordination of the employees and the course of the project.
6. **Performance:** Aspects related to the control of the services performed by the provider.
7. **Relationship:** Aspects related to the interaction between the parties involved in the project.
8. **Strategy:** Aspects related to the development of a vision, the setting of goals, the definition of a strategy etc.

Articles and papers, which could not be assigned to one of the categories listed above were subsumed under the additional category “Others”. In the case of a publication relating to two categories, we assigned this publication to both categories. Here, one category was labeled as “first choice” (the category which fit best) and the other category was labeled as “second choice”.

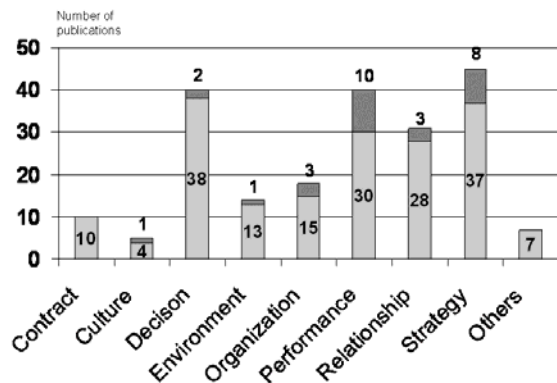


Figure 3: Number of IT outsourcing publications by categories

Figure 3 shows the allocation of the identified publications over the presented categories. Within this figure, the dark-grey area illustrates the number of those publications assigned to the corresponding content category as a second choice.

By assigning the 182 identified publications to the eight content categories, we found that there are three main categories of publications in the examined conferences and journals over the chosen time period from 1997 to 2005: “strategy”, “decision”, and “performance”. Here, the content category “strategy” ranks first with 45 publications assigned. The categories “decision” and “performance” rank second with 40 publications both. In contrast, we were able to identify only five publications within the content category “culture”. The small number of publications within this category may be reasoned by the fact that cultural aspects are particularly relevant in the context of IT offshoring and offshore software development, and that, in general, publications in these research fields are fewer in number than in the field of IT outsourcing (in a narrow sense).

Figure 3 also confirms the adequacy of our developed content classification framework. According to Lange [9], the adequacy of such a classification schema can be measured by the number of publications which cannot be classified. Overall, we identified only seven publications which were not able to be assigned to one of our eight categories. These seven articles and conferences make up a proportion of 3.8 percent of not classifiable publications and, therefore, confirm the adequacy of our framework applied.

Table 5 classifies the identified 182 publications by content categories and sources. Here, particularly the large number of publications provided by the AMCIS within the categories “decision” (23 papers) and “performance” (18 papers) as well as by the HICSS in the category “strategy” (14 papers) is remarkable. Concerning the selected IS journals, the relatively high accumulation of publications in the categories “performance” and “strategy” (ten articles in each category) is noteworthy. In this context, it has to be mentioned that 28 publications were assigned to two categories.

Table 5: Comparison of number of publications by categories and IS conferences/journals

		IS Conference					IS Journal				Total
		AMCIS	ECIS	HICSS	ICIS	CACM	HBR	ISR	MISQ	SMR	
Content Category	Contract	4	1	4	1	-	-	-	-	-	10
	Culture	2	1	-	-	1	-	-	1	-	5
	Decision	23	5	7	2	1	1	-	1	-	40
	Environment	5	1	1	5	1	1	-	-	-	14
	Organization	6	3	7	1	-	-	1	-	-	18
	Performance	18	5	4	3	-	1	3	3	3	40
	Relationship	11	-	12	5	1	-	1	1	-	31
	Strategy	13	5	14	3	3	2	2	1	2	45
	Others	3	1	2	-	-	1	-	-	-	7
Total		85	22	51	20	7	6	7	7	5	210

By applying both classification dimensions (the three outsourcing research fields introduced in section 2.1 as well as the eight content categories introduced within this section), a two dimensional

classification framework can be developed. Table 6 presents the numerical allocation of the 182 publications within this framework.

Table 6: Comparison of number of publications by categories and outsourcing modes

		Research Field			Total
		IT Outsourcing	IT Offshoring	OSD	
Content Category	Contract	10	-	-	10
	Culture	-	2	3	5
	Decision	38	2	-	40
	Environment	5	7	2	14
	Organization	13	2	3	18
	Performance	36	1	3	40
	Relationship	29	1	1	31
	Strategy	38	4	3	45
	Others	7	-	-	7
Total		176	19	15	210

Regarding the number of publications in the field of IT outsourcing (in a narrow sense), it becomes apparent that publications in this field mainly deal with the topics “decision”, “strategy” (both 38 publications), “performance” (36 publications), and “relationship” (29 publications). With regard to the research field of IT offshoring, the majority of publications deal with environmental (seven publications) and strategic aspects (four publications). In contrast to the other two research fields, in the field of offshore software development, no major research topics were able to be identified. That can be traced back to the little number of publications identified in this research area in general.

### 3. Summary

Based on a comprehensive literature in major IS conferences and journals from 1997 to 2005, we first were able to identify 182 publications in the field of IT outsourcing. Next, these publications were classified into research fields and compared to one another in regard to eight content categories. Here, it became apparent that up to now only little research has been carried out with regard to IT offshoring and OSD. Furthermore, we were able to identify four major research areas in the field of IT outsourcing (in order of importance): “decision”, “strategy”, “performance”, and “relationship”. In addition, by analyzing academic activity in the field of IT outsourcing, we were able to develop an annotated bibliography which may serve as a reference for researchers interested in this field.

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