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RESEARCH PAPER

Retained Organizations in IT Outsourcing

Linking Organization Design to Outsourcing Management Problems

Marius Goldberg · Axel Kieninger · Gerhard Satzger · Hansjörg Fromm

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Abstract IT outsourcing is a strategic option which enables companies to focus on their core competencies. Over time however, many outsourcing arrangements suffer from severe problems. While the design of retained organizations is generally seen as a critical element, there is hardly any empirical evidence on how the choice of the organizational setup is linked to the occurrence of outsourcing management problems later on. In this work, a quantitative study across various outsourcing arrangements is used to identify the key outsourcing management problems and their interdependency with organizational attributes of retained organizations. It is shown that the key problems differ by outsourcing degree, and critical organizational attributes for each of these problems are unveiled. The paper's objective is to enhance the design of retained organizations to enable more mature and successful outsourcing solutions as well as to provide foundations for future IS research.

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M. Goldberg (✉) · A. Kieninger · G. Satzger · H. Fromm
Karlsruhe Institute of Technology, Karlsruhe Service Research Institute, Englerstr. 11, 76131 Karlsruhe, Germany
e-mail: Marius.Goldberg@kit.edu

A. Kieninger
e-mail: Axel.Kieninger@kit.edu

G. Satzger
e-mail: Gerhard.Satzger@kit.edu

H. Fromm
e-mail: Hansjoerg.Fromm@kit.edu

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1 Introduction

IT outsourcing is a steadily growing service business with a global volume of $187.5B in 2015 (Martorelli and Benkel 2015). Its complexity, however, poses a high level of risk for clients. For years, research has been aiming at identifying arrangements for mitigating these inherent risks. The management of providers has become an important area for outsourcing research (Lacity et al. 2009; Kaiser and Buxmann 2012).

Research identifies sound 'retained organizations' as an important success factor for managing the delivery of outsourced services. Consisting of those parts of the former IT organization not outsourced, they form the interface between the client organization and its providers (Cullen et al. 2005; Gewald and Helbig 2006). Research stresses the importance of organizational changes in the context of technological changes (Jetter et al. 2009). Clients, however, often fail to build effective retained organizations (Willcocks et al. 2006; Kleinveld and Janssen 2015). This can lead to subsequent issues, particularly when clients are unable to adequately manage their providers (Unterharnscheidt and Kieninger 2010; Goldberg et al. 2014). Urbach and Würz (2012) conclude that organization designs for managing outsourcing are still under-researched. Particularly, interrelations between organization design and problems in managing the outsourcing arrangement require further research (Dahlberg and Lahdelma 2007) – which is an objective of this paper.

Typically, not all delivery functions are subject to outsourcing (Lacity and Willcocks 1998). The strategic decision of to what extent functions are outsourced ("outsourcing degree") determines responsibilities, size, and structure of the remaining IT organization. This implies that there is no "one-size-fits-all" solution. Thus, we account for different outsourcing settings – applying contingency theory as an established framework for studying organization design (Donaldson 2006). It describes the design of an organization as the aggregate of various attributes, for example its structure or its number of employees (Donaldson 2006; Huber 2009). It strives to best 'fit' the attributes and their values to the context the organization operates in – defined by *contingencies*.

As a key contingency shaping retained organizations (Lacity et al. 2009), we explicitly include the outsourcing degree when evaluating potential organization designs. For different degrees, we analyze which organizational attributes are correlated with the key management problems during outsourcing delivery. Our goal is to work out which organizational attributes should be prioritized for different outsourcing degrees. We address the following research questions to investigate the interplay between outsourcing degrees, organizational attributes, and outsourcing management problems:

1. Depending on the outsourcing degree, what are the most important problems that retained organizations face in managing the delivery of outsourced IT services?
2. Depending on the outsourcing degree, how do organizational attributes relate to these problems, and which attributes are most important?

We answer these questions by means of an extensive exploratory study. The data is collected using a three-stage research design – consisting of a literature review, a qualitative pre-study, and a main quantitative study. We have conducted this research in cooperation with a leading outsourcing provider. All participants of our study occupy key roles at the provider-side interface with extensive experience in the outsourcing business.

The paper is structured as follows. Section 2 lays the theoretical foundation by introducing the concepts of *outsourcing degree*, *retained organization*, and *organization design*. Section 3 describes our research methodology before Sects. 4, 5, 6 present the results of our study: First, Sect. 4 introduces and discusses outsourcing management problems. By ranking them for different outsourcing degrees, we determine which problems are most significant in different outsourcing settings. Subsequently, Sect. 5 analyzes the relation between these problems and organizational attributes – again considering different outsourcing degrees. In Sect. 6, we discuss our findings and build an agenda for future research. Finally, Sect. 7 concludes the paper with a summary, a discussion of limitations, and managerial implications.

Our findings should assist to identify appropriate organization designs to avoid or mitigate outsourcing management problems. A better understanding of the link between organization designs and subsequent problems helps to build more mature retained organizations and, thus, more effective outsourcing solutions.

2 Research Foundations

Before approaching our research questions, we need to develop a clear understanding of three main concepts: the *outsourcing degree*, *retained organizations* and their outsourcing management problems, and *organization design* based on contingency theory.

2.1 The Outsourcing Degree

The sourcing strategy encompasses all fundamental outsourcing decisions. The outsourcing degree is one of the key strategic choices (Lacity et al. 2009; Dibbern et al. 2012). It entails the decision of how much to outsource and is usually measured by the percentage of the IT budget used for outsourcing (Lacity et al. 2009).

Following Dahlberg and Lahdelma (2007), we differentiate three levels of outsourcing: A *low outsourcing degree* denotes outsourcing a budget portion of less than 20 %, a *medium outsourcing degree* comprises shares between 20 and 50 %, and a *high outsourcing degree* means more than 50 % of the budget is used for outsourcing.

Often, other academic literature defines outsourcing degrees around the 20 and 80 % threshold values. Then, they are denoted as *total insourcing, selective outsourcing* and *total outsourcing* (Lacity et al. 1996; Dibbern and Heinzl 2009). For two reasons, we choose to fix the threshold values at 20 and 50 %, and use more general terms (e.g., *low outsourcing degree* instead of *insourcing*), instead. First, research indicates that companies with outsourcing degrees between 50 and 80 % behave similarly to total outsourcing clients (Dahlberg et al. 2006). Applying a threshold at the 50 % level seems more appropriate when studying differences between outsourcing degrees. Second, literature connotes the latter terms inconsistently. For example, 'insourcing' is sometimes referring to 'backsourcing' (e.g., Verhoef 2004) or to in-house capabilities (e.g., Rockart et al. 1996). By using clearer terms, we avoid confusion and increase readability.

2.2 Retained Organizations in IT Outsourcing and Outsourcing Management Problems

Since McFarlan and Nolan (1995) provided a first organizational overview for managing outsourcing providers, several studies have further investigated the topic (e.g., Kern 1997; Gewald and Helbig 2006; Leimeister 2010; Herz et al. 2012). Yet, there is still no common definition of a 'retained organization' – occasionally also named 'residual IT organization' (Willcocks and Fitzgerald 1994) or 'sustaining organization' (Enlow and Ertel 2006).

Literature defines retained organizations in one of two ways. Either, it generally refers to all parts of the former IT department kept in-house (e.g., Cullen et al. 2005; Schlosser et al. 2010), which also comprises internal delivery functions. Or, it denotes a small, remaining management function of the client, responsible for managing business demand and service providers (e.g., Gewald and Helbig 2006; Wiedemann et al. 2015). Recent research even considers internal delivery functions as service providers to be managed by retained organizations (Kleinveld and Janssen 2015; Goldberg et al. 2015a; Goldberg and Satzger 2015). In both cases, retained organizations form the interface between the client and its providers.

Our research questions focus on the managerial level of the outsourcing arrangement. Especially, we will not consider problems of internal service delivery functions. Therefore, we apply the second understanding and define retained organizations as an *IT management function that remains with the client to govern the outsourcing arrangement as well as to manage demand and supply after IT outsourcing commences*.

The definition implies that the outsourcing degree frames the design of retained organizations, determining their size, responsibilities, and basic structure (Pinnington and Woolcock 1995; Kaiser and Buxmann 2012). For low outsourcing degrees, most IT responsibilities stay within the boundaries of the client organization. With higher degrees, clients increasingly externalize IT functions formerly delivered in-house (Kern 1997; Boar 1998).

Retained organizations often face issues when managing the outsourced service delivery (Unterharnscheidt and Kieninger 2010; Goldberg et al. 2014). We denote outsourcing management problems as *any difficulties in managing the delivery of outsourced IT services*. We will introduce and discuss relevant problems in Sect. 4.

2.3 Contingency Theory and Organization Design of Retained Organizations

Over recent decades, academic research has established (structural) contingency theory as one of the main organization design frameworks (Burns and Stalker 1961; Donaldson 2001; Lawrence and Lorsch 1967; Thompson 1967). It describes an organization design as an aggregate of organizational attributes (Huber 2009).

In accordance, we define organizational attributes as *characteristics that describe, shape, and differentiate an organization* (Huber 2009) and organization design as a *selected composition of organizational attributes* (Donaldson 2006; Huber 2009; Fink 2010). Literature uses various terms for organizational attributes: Other authors denote them as characteristics (e.g., Jackson and Ni 2013), features (e.g., Romanelli 1991), or factors (e.g., Mintzberg 1980).

Contingency theory is based on two fundamental principles. First, there is no 'one best way' for organization design. Second, different organization designs result in different performances (Galbraith 1973; Reinking 2011) leading to the concept of 'fit'. It posits that organizations being in fit with their contingencies will realize higher performance. A misfit between organization design and an organization's contingencies will lead to ineffective organizations and reduced performance (Donaldson 2006). Hence, the goal is to align the organizational attributes and their values with the contingencies. That way, contingency theory is able to determine situational interrelations and prescriptions for most effective organization designs (Reinking 2011).

One of the prevailing contingencies in academic research is an organization's strategy (Venkatraman 1989; Blarr 2012). Extant organizational research regarding retained organizations, however, is often too reductionistic (Fink 2010) and provides little insight into the interplay of relevant organizational mechanisms. For example, research often *either* relates only the outsourcing degree *or* only the organization design to organizational performance. Accordingly, Lin and Vaia (2015) argue that additional contingency research is required to better explain the mechanics of organization design.

A noteworthy contribution is the work of Kaiser and Buxmann (2012). For high outsourcing degrees, the authors study the organization design of the 'IT supplier relationship management function' – and, thus, a particular part of retained organizations. In contrast, our work investigates the clients' retained organization *more holistically* by including a view on all its design aspects and allowing for different outsourcing degrees.

3 Research Methodology and Sample

Our exploratory three-stage study design consists of a literature review, a qualitative pre-study and a main quantitative study. The first two stages were aimed at identifying

organizational attributes and observable outsourcing management problems. In the third stage, we collected and used empirical data to analyze the importance of these problems and to investigate their correlation with organizational attributes, moderated by the outsourcing degree. To control for bias, all analyses were performed by at least two researchers, in parallel.

We performed both our qualitative and quantitative study together with a world leading IT outsourcing provider that we chose because of its dominant position in the market, and its broad and diversified customer base.

3.1 Literature Analysis

Following Webster and Watson (2002), we identified and analyzed existing literature on organization design concerning IT outsourcing management. We selected peer-reviewed journal or conference papers dealing with success factors, challenges, or problems in IT outsourcing, provider management, and organization design in outsourcing. In a systematic forward and backward full-text search based on keywords,[1] we initially identified 160 papers. After excluding papers deemed irrelevant based on title and abstract, we selected a set of 25 papers relevant to our research questions in an in-depth review – comprising both conceptual papers and empirical studies.

We systematically analyzed these papers applying a coding approach (Jeyaraj et al. 2006): we first extracted relevant terms and definitions into a master table. Continuously updating the list with every paper, we then clustered and combined items with similar meaning. New items triggered a re-evaluation of papers already coded.[2] We derived an initial list of 42 items, classified into the categories organizational attributes and outsourcing management problems. They formed our initial set of items for the next research stages. As we collected 'flat' items from literature, they still lacked an interconnecting structure.

3.2 Qualitative Study

To enhance and validate the initial set of items, we added a qualitative study based on the method proposed by Gläser and Laudel (2010).

First, we ran two pre-interviews to further refine the study approach and to identify appropriate groups of experts for a systematic qualitative study. The two interviewees from the provider's senior executive level were selected due to their deep knowledge of IT outsourcing and of the service provider organization (including relevant outsourcing roles). Based on their recommendations, we defined an interviewee profile appropriate for answering our research questions: The profile required that the interviewees had been working in their current role for at least 3 years, that they had been active in more than two outsourcing arrangements, and that their current one was a large outsourcing deal associated with medium to high complexity. This ensured that the interviewees possessed sufficient insights into IT outsourcing and retained organizations.

According to the interviewee profile, we carried out our study with *Transition Managers*, *Account or Contract Managers* and *Delivery Managers.* These provider roles form the key interfaces towards the retained organization (Jong et al. 2010; Beulen 2007). Interestingly enough, most interviewees joined the provider from an 'outsourced' client, i.e. they also had client-side experience. Based on an interview schedule, we ran ten semi-structured expert interviews with two *Transition Managers*, four *Account or Contract Managers* and four *Delivery Managers,* all working for the selected provider. Each interview took between 1 and 1.5 h, and was recorded and transcribed. During the first and longer part of the explorative interviews, the participants described typical design and outsourcing management problems of outsourcing clients and their retained organizations in open questions. In a second part, we discussed our current set of organizational attributes and outsourcing management problems. The experts evaluated these items in light of their initial statements, and grouped them based on their experience.

In a qualitative content analysis (Mayring 2008; Zhang and Wildemuth 2009), we continuously refined our set of items. After each interview, we coded its transcript with the software 'f4',[3] updating our codes with each cycle. We extracted the codes into our master table obtained from the literature analysis, and continuously clustered and combined the codes. We initiated additional interviews until we reached a theoretical saturation.

There was a large consensus between literature and our interviews regarding the selection of both outsourcing management problems and organizational attributes. Our qualitative expert study, thus, focused on augmenting and refining them in terms of wording and detail. Ultimately, we generated a list of 12 organizational attributes and 14 outsourcing management problems that we introduce in Sects. 4 and 5. The final lists served as basis for our quantitative study.

[1] We used Google Scholar with variations/combinations of the following keywords: IT outsourcing, retained organization, risk, challenges, success, demand management, provider management, and organization design.

[2] For examples of how qualitative data was coded, see Online Appendix C.

[3] http://www.audiotranskription.de/english.

3.3 Quantitative Study and Analysis

To obtain empirically grounded results, we conducted a quantitative study with selected provider experts using a questionnaire.[4] The participants answered the questionnaire for a single outsourcing client they considered typical in light of their previous experience. This restriction is important to determine interrelations between organizational attributes and management problems.

We used closed, prompted and pre-coded questions to collect data. The first questionnaire section asked for general information about the interviewee, the client company, and the outsourcing arrangement. By comparing the relevant client information (e.g., industry, client size), we ruled out that different respondents reported on the same client organization multiple times.

In the main part of the questionnaire, the participants ranked the 12 organizational attributes and 14 outsourcing management problems for their selected client. They rated perceived difficulties with the design of organizational attributes and with outsourcing management problems according to severity. For both, the valuation basis was a verbalized 4-point Likert scale – ranking the difficulties from minor to major.[5] Hence, lower values are associated with more maturely designed attributes on the one hand, and more effective performance indicated by fewer problems on the other hand.

We applied various statistical methods to determine the importance of problems, assess their relation with organizational attributes and explore differences between outsourcing degrees. To analyze correlations and assess differences between items, we used Spearman's rank correlation coefficient (ρ) and the Mann–Whitney *U* test (U). For analyzing differences between degrees, we used both the Wilcoxon signed-rank test (W) and Kendall's W (W_K). The Wilcoxon signed-rank test reveals significant differences in the mean rank of two samples. This means the average item scores of one sample (e.g., clients with medium outsourcing degrees) are lower or higher than for another sample (e.g., clients with high outsourcing degrees). Kendall's W assesses inter-rater agreement. It provides a measure for high discordance ($W_K = 0$) or agreement ($W_K = 1$) in the item order of two or more samples. For statistical significance, we used an alpha level of both .05 ('*significant*') and .01 ('*highly significant*') for all statistical tests (De Muth 2006).

[4] For a questionnaire excerpt see Online Appendix D.

[5] The Likert scores for rating difficulties were verbalized as "minor", "tending towards minor", "tending towards major", and "major".

3.4 Research Sample of the Quantitative Study

Our research sample covers the answers of 37 IT outsourcing experts. Specifying the client's outsourcing degree, only 32 responses are usable for the scope of our evaluation. In total, the sample consists of three *Transition Managers,* ten *Account or Contract Managers* and 21 *Delivery Managers*, all working for the selected outsourcing provider. As we originally targeted a sample population of 125 experts, we realized a response rate of 30 %.

The surveyed outsourcing clients are cross-sectional. They cover a range from small to large companies, most of them employing between 1000 and 10,000 employees (see Table 1).

In our study, the outsourcing degree is a key factor (see Sect. 2). To capture it, the questionnaire asked for the *percentage of the client's IT budget used for outsourcing* as an open numerical value. The three investigated outsourcing degree categories are represented with fairly similar sample sizes. With 38 %, the *medium outsourcing degree* category is the largest while *low* and *high outsourcing degrees* each make up 31 % of the sample.

Table 1 Client company characteristics of the quantitative study sample (N = 32)

Industry		
Automotive	4	13 %
Banking	3	9 %
Chemicals, Petroleum, Life Sciences and Pharmaceuticals	2	6 %
Consumer Procucts and Retail	5	16 %
Electronics	3	9 %
Energy, Utilities and Manufacturing	3	9 %
Financial Markets	4	13 %
Insurance	2	6 %
Media and Entertainment	4	13 %
Other	2	6 %
Outsourcing degree		
Low (<20 %)	10	31 %
Medium (20–50 %)	12	38 %
High (>50 %)	10	31 %
Number of employees		
<250	2	6 %
250–1000	4	11 %
1000–10,000	15	49 %
10,000–100,000	9	29 %
>100,000	2	6 %

Table 2 The outsourcing management problems of retained organizations

Outsourcing management problems	
P1	(Continuous) cost-service debates
P2	Difficulties coordinating requirements (between business units)
P3	Difficulties determining business requirements
P4	Difficulties translating requirements (into service requests)
P5	Fire-fighting (instead of focus on long-term strategy)
P6	Lack of partnership and trust
P7	Misaligned expectations
P8	Missing major shifts and new trends (in the company)
P9	(Service) scope misunderstandings
P10	Poor communication with service providers
P11	Poor communication with staff or other stakeholders
P12	Problems integrating sub-contractors and suppliers
P13	Problems measuring service performance
P14	Too high staff turnover

4 Importance of Outsourcing Management Problems

Based on the literature and our qualitative study, we identify 14 management problems retained organizations face once outsourcing commences (see Table 2). Typical problems are *scope misunderstandings* (*P9*, Fisher et al. 2009), *cost-service debates* (*P1*, Willcocks et al. 2006), or *lack of partnership and trust* (*P6*, Lacity et al. 2009).[6]

Difficulties exist both at the interface with providers and with a client's own business units (e.g., Cullen et al. 2001; Kieninger et al. 2013b). Overall, our interviews emphasize that interfaces with a client's own business units are often of greater concern. Also, they highlight that know-how-related (e.g., determining requirements) and human-related items (e.g., communication, misunderstandings) frequently pose bigger difficulties than technology-related items (e.g., measurement).

Based on the results from our quantitative study, Table 3 ranks the 14 outsourcing management problems according to their importance. It is determined by the rank (R) of a problem, which corresponds to the share of participants considering it as 'major problem' or 'tending towards major problem'. The table shows correlations between each problem and the outsourcing degree (ρ_d), ratings overall and individually for the three outsourcing degree categories ('All', 'Low', 'Med', 'High'). It further provides the U value of the Mann–Whitney *U* test for two outsourcing degrees each (U_{LM}, U_{MH}, U_{LH}), and the rank of each problem both overall and for specific outsourcing degrees (R, R_L, R_M, R_H).

[6] A short description of each outsourcing management problem is attached in Online Appendix A.

For example, *misaligned expectations* (*P7*) are not significantly correlated with the outsourcing degree ($\rho_d = 0.19$). 76 % of the participants rated them as 'major problem', ranging from 60 % for low to 90 % for high outsourcing degrees. Neither of the three Mann–Whitney *U* tests is significant, which means that, in particular, clients with higher outsourcing degrees do not have significantly more difficulties with unaligned expectations. Lastly, the problem P7 is ranked highest overall and for all outsourcing degrees.

Apparently, clients most commonly face problems in 'soft' areas such as *misaligned expectations*, *scope misunderstandings*, *poor communication* or *cost-service debates* (*P7/P9/P11/P1*). Also, *managing business requirements* (determining, coordinating and translating) seems to be difficult (*P3/P2/P4*). The remaining problems, however, still pose difficulties for 19–43 % of retained organizations.

On item level, five problems are significantly correlated with the outsourcing degree (ρ_d). Problems with *cost-service debates* (*P1*), with *coordinating, determining* and *translating requirements* (*P2/P3/P4),* and with *integrating providers* (*P12*) significantly increase for higher outsourcing degrees.

The Mann–Whitney *U* test shows that clients with medium outsourcing degrees have significantly more difficulties with *determining business requirements* (*P3*) than clients with low degrees (U_{LM}). Clients with high outsourcing degrees have significantly more problems with *cost-service debates* and *coordinating requirements* (*P1/P2*) than clients with medium degrees (U_{MH}). Lastly, four problems (*P1/P2/P3/P12)* are significantly more critical for high outsourcing degrees than for low degrees (U_{LH}).

Having tested whether *individual problems* are correlated with the outsourcing degree, it is also interesting to look at the *entirety of problems.* That is, whether certain degrees have a higher average problem rating and whether their relative importance (and, thus, their ranking order) varies for different outsourcing extents.

The Wilcoxon signed-rank test reveals significant differences in the rating of items – showing significance at the .05-level between low and medium as well as between low and high outsourcing degrees. All three tests are significant at the .1-level (see Table 4). Overall, this indicates that increasing outsourcing degrees go together with more major problems.

A generally valid statement that problems increase for higher outsourcing degrees cannot be made, though. Several individual problems do not increase or even decrease – although not statistically significantly. For example, *staff turnover* (*P14*) decreases for higher outsourcing degrees. While there is some consistency (e.g., *misaligned expectations* (*P7*) is invariably ranked highest), the ranking order

Table 3 Ranking of outsourcing management problems according to their importance (R)

Outsourcing management problem		ρ_d	Problems by outsourcing degree				Mann–Whitney U			Rank order by Outs. degree			
			All (%)	Low (%)	Med (%)	High (%)	U_{LM}	U_{MH}	U_{LH}	R	R_L	R_M	R_H
P7	Misaligned expectations	0.19	76	60	77	90	59	43	38	1	1	1	1
P9	Service scope misunderstandings	0.28	69	50	69	80	58	42	35	2	2	2	4
P11	Poor communication with staff or other stakeholders	0.23	58	50	69	80	52	49	36	3	2	2	4
P1	Cost-service debates	0.46**	54	50	23	0	48	11**	18**	4	2	14	1
P4	Difficulties translating requirements	0.36*	51	30	46	70	51	37	26	5	7	5	6
P2	Difficulties coordinating requirements	0.61**	49	30	54	90	40	31*	13**	6	7	4	1
P5	Fire-fighting	0.33	43	40	31	60	49	42	27	7	6	12	8
P3	Difficulties determining business requirements	0.64**	37	10	46	70	26*	34	12**	8	12	5	6
P14	Too high staff turnover	−0.25	37	50	38	30	47	56	34	8	2	9	12
P6	Lack of partnership and trust	0.29	33	20	38	60	40	53	33	10	11	9	8
P8	Missing major shifts and new trends	−0.01	33	30	46	30	37	40	49	10	7	5	12
P10	Poor communication with service providers	0.36	28	20	31	40	50	44	28	12	11	12	10
P12	Problems integrating sub-contractors and suppliers	0.41*	26	10	38	40	50	49	24**	13	12	9	10
P13	Problems measuring service performance	−0.22	19	30	46	0	57	40	33	14	7	5	14

Pd correlation with outsourcing degree

** Highly significant ($p \leq 0.01$); * Significant ($p \leq 0.05$)

Table 4 Statistical differences between different outsourcing degrees

Wilcoxon signed-rank test			Kendall's W
W_{LM}	W_{MH}	W_{LH}	
$W = -2.294$	$W = -1.916$	$W = -2.644$	$W_K = 0.375$
$p = 0.022$*	$p = 0.055$	$p = 0.008$**	$p = 0.05$

seems to be different for each outsourcing degree. Correspondingly, Kendall's W is only 0.38 (see Table 4) indicating discordance regarding the ranking order.

These findings indicate that the relative ranking of problems is *substantially different* for each outsourcing degree – an important result, which implies that clients have to focus on different problems for their respective outsourcing degree. In light of our analysis, this may later entail different designs of retained organizations to be prioritized depending on the outsourcing degree and, thus, different problems.

5 Linking Organizational Attributes to Outsourcing Management Problems

Focusing on the most important problems, we now evaluate their interrelation with organizational attributes and, thus, the organization design of retained organizations. As the most important problems differ substantially for each outsourcing degree, we will analyze each range separately. For each degree, we select problems categorized as major by at least 50 % of the respondents.

Table 5 lists the 12 organizational attributes of retained organizations identified in literature and our qualitative study. For example, attributes include *decision authorities* and *organizational roles* (*D3/D6,* Gewald and Helbig 2006).[7]

For each problem, Table 6 lists all significantly correlated organizational attributes, and quantifies the respective correlation coefficients (ρ, ρ_L, ρ_M, ρ_H).[8] Blank cells indicate non-significant correlations.

It becomes apparent that organizational attributes and outsourcing management problems are highly interrelated. We identify 41 *generally* significant correlations and 23 correlations significant *for specific outsourcing degrees*. Three observations stand out:

First, many problems are correlated with organizational attributes overall (ρ), but not for (all) individual outsourcing degrees. For example, *misaligned expectations* (*P7*) and *organizational roles* (*D6*) are only related overall.

[7] A short description of each organizational attribute is attached in the Online Appendix A.

[8] A complete overview of significant correlations is attached in the Online Appendix B.

Table 5 Organizational attributes for the design of retained organizations

Organizational attributes	
D1	Communication model with business units
D2	Communication model with providers
D3	Decision authorities
D4	Human resource policies (to attract high IT potentials)
D5	Involvement of business units (in design of retained organization)
D6	Organizational roles
D7	(Organizational) structure and governance
D8	Process design
D9	Provider performance metrics
D10	Quantity of employees (in retained organization)
D11	Skills of employees (in retained organization)
D12	Vision for the future IT organization

A possible explanation is that these correlations are fairly weak and we are unable to detect them for specific degrees. Due to smaller sub-sample sizes (e.g., $N = 10$ for low outsourcing degrees), only moderate or strong correlations can be statistically significant. In case a correlation is significant overall and for only one of the sub-samples, the correlation is, presumably, mainly supported by that specific degree. Then again, some correlations are significant for specific degrees but not overall, which indicates connections limited to these degrees. For example, a *too high turnover of staff* (*P14*) is only significantly correlated to the *involvement of business units* (*D5*) for low outsourcing degrees. Altogether, it seems most promising to focus on the correlations of specific outsourcing degrees to reveal clear insights.

Secondly, almost all correlations are positive. Hence, more appropriate values of organizational attributes appear to go together with fewer problems. Only two of the 64 significant correlations are negative. We will further discuss this in Sect. 6.

Thirdly, fewer correlations are significant for higher outsourcing degrees. More precisely, 15 correlations are significant for low but only three correlations for high outsourcing degrees. There are two possible explanations. Being positively correlated with the outsourcing degree, its potential effect might 'dilute' correlations of four problems (*P1–P4*) with attributes, making them harder to detect. Secondly, three problems (*P1, P2, P7*) have noticeably skewed sample distributions for high outsourcing degrees. For example, the group of clients with minor problems with *cost service debates* (*P1*) consists of only one response, making it nearly impossible to show statistical significance.

6 Discussion and Development of a Research Agenda

Our paper investigates two research questions, both depending on the outsourcing degree. First, we try to identify the *most important problems that retained organizations face in managing the delivery of outsourced IT services*. Our second question aims at elucidating *how organizational attributes relate to these problems and which attributes are most important*. Based on our findings, we then build an agenda for framing future IS research.

6.1 The Most Important Problems Retained Organizations Face

Our study reveals 14 outsourcing management problems, whose importance differs according to the outsourcing degree. At first glance, higher outsourcing degrees appear to be more problematic as many problems tend to increase with growing outsourcing extents. Correlations, however, are non-uniform. Some problems increase for higher outsourcing degrees while others decline. We observe some commonalities, though. *Misaligned expectations* (*P7*) is ranked highest for all outsourcing degrees making it the single most important problem. *Scope misunderstandings* (*P9*) and *poor communication with staff and stakeholders* (*P11*) are also ranked consistently high. Other problems vary significantly in importance, though. Our findings suggest that clients run into different problems depending on the chosen outsourcing degree. Each range has its own distinct set of most important problems clients need to focus on (R_L, R_M, R_H in Table 3).

Previous studies investigated the link between the outsourcing degree and outsourcing performance, which produced contradicting results. The majority of studies associate high outsourcing degrees with lower performance (Lacity et al. 2009). Still, other recent studies did not find any statistically significant differences between various degrees (e.g., Dahlberg et al. 2006). Recognizing that the important problems differ for each degree, our findings add to this ongoing discussion providing a potential explanation for the contradiction of previous studies.

6.2 The Relation Between Outsourcing Management Problems and Organizational Attributes

We found numerous correlations between organizational attributes and outsourcing management problems. Our data, however, does not provide support for the direction of causality. Previous qualitative research linked organization design to outsourcing problems and performance. For example, Willcocks et al. (2006) argue that many important problems are rooted in insufficient retained capabilities. Often, structure and governance are associated with an

Table 6 Correlations of outsourcing management problems with organizational attributes

Outsourcing management problem		Organizational attributes		ρ	ρ_L	ρ_M	ρ_H
P7	Misaligned expectations	*D1*	Communication model with business units		0.69*		
		D5	Involvement of business units		0.71*		
		D6	Organizational roles	0.34*			
		D10	Quantity of employees	0.34*			
P9	Service scope misunderstandings	*D1*	Communication model with business units	0.42*			
		D2	Communication model with providers	0.35*			
		D3	Decision authorities	0.48**	0.70*		
		D5	Involvement of business units	0.42*	0.76*		
		D7	Structure and governance	0.34*	0.67*		
		D10	Quantity of employees			−0.56*	
		D11	Skills of employees		0.71*		−0.63*
		D12	Vision for the future IT organization	0.54**		0.55*	
P11	Poor communication with staff or other stakeholders	*D1*	Communication model with business units	0.47**			
		D2	Communication model with providers	0.38*			
		D5	Involvement of business units		0.78*		
		D6	Organizational roles		0.84**		
		D7	Structure and governance	0.42*	0.89**		
P1	Cost-service debates	*D3*	Decision authorities	0.46**			
		D5	Involvement of business units	0.41*	0.70*		
		D7	Structure and governance	0.41*	0.76*		
		D12	Vision for the future IT organization	0.39*	0.68*		
P4	Difficulties translating requirements	*D3*	Decision authorities	0.46**	0.77*		
		D5	Involvement of business units	0.38*	0.67*		
		D7	Structure and governance	0.35*			
		D10	Quantity of employees	0.36*			
		D11	Skills of employees	0.53**	0.69*		
P2	Difficulties coordinating requirements	*D1*	Communication model with business units	0.56**			
		D2	Communication model with providers	0.45**			
		D3	Decision authorities	0.35*			
		D5	Involvement of business units	0.52**		0.59*	
		D7	Structure and governance	0.56**		0.66*	
		D10	Quantity of employees	0.34*			
		D11	Skills of employees	0.43*			
P5	Fire-fighting	*D3*	Decision authorities	0.44*			
		D7	Structure and governance	0.38*			
		D11	Skills of employees	0.38*	0.72*		
		D12	Vision for the future IT organization	0.34*	0.78*		
P3	Difficulties determining business requirements	*D1*	Communication model with business units	0.35*			
		D3	Decision authorities	0.53**			
		D5	Involvement of business units	0.53**	0.83*		0.87**
		D7	Structure and governance	0.45**	0.70*	0.61*	
		D10	Quantity of employees	0.37*	0.68*	0.60*	
		D11	Skills of employees	0.48**	0.75*	0.77**	
P14	Too high staff turnover	*D1*	Communication model with business units		0.86**		
		D3	Decision authorities	0.55**	0.82**	0.66*	0.66*
		D5	Involvement of business units		0.76*		
P6	Lack of partnership and trust	*D2*	Communication model with providers	0.47**		0.67*	
		D3	Decision authorities	0.55**			0.66*
		D10	Quantity of employees	0.67*			

ρ problem's correlation with attribute in absolute values, ρ_L, ρ_M, ρ_H problem's correlation with given attribute for specific outsourcing degree
** highly significant correlation ($\alpha \leq 0.01$), * significant correlation ($\alpha \leq 0.05$)

impact on outsourcing performance (e.g., Leimeister 2010). In addition, literature connects other organizational attributes to outsourcing results – for example skills (Kern and Willcocks 2002) or processes (Urbach and Würz 2012, Goldberg et al. 2016). Based on previous findings and the chronological sequence (problems occur *after* design decisions are made), we hypothesize that the identified correlations represent causal links.

As almost all correlations are positive, causal links would indicate that more maturely designed organizational attributes reduce outsourcing management problems. The only exceptions are two specific negative correlations: for medium outsourcing degrees, improving the *quantity of employees (D10),* and, for high degrees, more appropriate *skills of employees* (*D11*) go together with increasing *scope misunderstandings* (*P9*). An explanation is that only the right amount of employees and appropriate skills enable clients to spot scope issues. Additional research is required to investigate this effect. In general, however, improving organizational attributes seems to mitigate future problems.

Most correlations are generally significant while few apply for specific outsourcing degrees. Hence, a key finding is that the outsourcing degree is moderating the relation between attributes and problems. General correlations indicate a certain influence independently from the outsourcing extent. As improving these attributes should have a limited positive effect on related problems, we propose them as 'foundational' attributes. They should be addressed to a certain extent regardless of the outsourcing degree. We attach particular importance, however, to correlations for specific degrees (see Sect. 5). To develop an initial understanding of the attributes' importance, we use the number of correlations with the important problems as indicator. For reasons of simplicity and as we did not measure it, this indicator assumes the same impact for all problems.

For each degree, Table 7 ranks attributes based on their number of correlations (n). In case of the same number, we further rank them according to their average correlation coefficient. Lastly, Table 7 lists the nine foundational organizational attributes. We propose these sets as focus items for the design of retained organizations, which potentially counteract the most important problems.

In general, high importance can be attributed to the *involvement of business units (D5)*, which is ranked highest for low and high, and second for medium degrees. This finding is supported by qualitative research identifying interactions with the business unit as important capability (Goldberg et al. 2015b).

Decision authorities (*D3*) and *structures and governance (D7)* are also important for several degrees. Besides, both attributes are the highest ranked foundational attributes. Previous qualitative research links organizational structure to outsourcing performance as well (Plugge and Bouwman 2013). Kaiser and Buxmann (2012) found evidence of a positive impact for high outsourcing degrees. While our results support this finding, they indicate that organizational structures appear to be more important for low and medium degrees.

Depending on the degree, the *communication model with business units (D1)*, and the *quantity (D10)* as well as *skills of employees (D11)* can also be important. Without linking them to outsourcing performance, Schroiff et al. (2010) indicate the relevance of adequate communication models. The quantity of retained employees and their skills are often associated with an effective outsourcing performance (e.g., Beulen 2007; Fisher et al. 2009).

6.3 Agenda for Future IS Research

Originating from our findings, we suggest four areas for future IS research:

1. Further validating the effect of organization design on outsourcing management problems
   Future research should further examine the identified relations. Considering the outsourcing degree, we suggest to start from the proposed focus list of organizational attributes to confirm or falsify relationships. Case studies should help to develop a deeper understanding of the more complex relationships. Longitudinal studies could test the specific linkages. A potential research setting is a client organization changing its outsourcing degree. Studies should evaluate whether an alteration of the proposed focus items is required to achieve fit and to reduce associated problems. Vice versa, they could test whether attributes strongly associated with the originating degree become less important. Quantitative studies with large sample sizes should deepen our understanding of interrelations by applying factor analysis or structural equation modeling. Particularly, the statistical power of relationships is of interest – that is, if certain attributes have a higher influence than others. This would substantiate our findings regarding focus items. In addition, knowledge about statistical power could establish 'effective profiles'. In this paper, we study *which attributes* contribute to the reduction of problems the most. We do not examine *which attribute values* lead to fit with specific outsourcing degrees – for example what number of employees is required. Contingency theory acknowledges misfit by both under- and overfit (Luo and Donaldsen 2013). Recent research found evidence that the fit of organizational structures impacts outsourcing performance (Plugge and Bouwman 2013). Hence, future research should

Table 7 Proposed focus items for different outsourcing degrees

Specific organizational attributes								
Low outsourcing degree	n	ρ_{avg}	Medium outsourcing degree	n	ρ_{avg}	High outsourcing degree	n	ρ_{avg}
1. Involvement of business units	5	0.74	1. Structure and governance	1	0.66	1. Involvement of business units	1	0.87
2. Structure and governance	3	0.77	2. Involvement of business units	1	0.59	2. Decision authorities	1	0.66
3. Communication model with business units	2	0.76	3. Quantity of employees	1	−0.56	3. Skills of employees	1	−0.63
4. Decision authorities	2	0.76	4. Vision for the future IT organization	1	0.55			
5. Organizational roles	1	0.84						
6. Skills of employees	1	0.75						
7. Vision for the future IT organization	1	0.68						
'Foundational' organizational attributes for all outsourcing degrees								

Decision authorities (n = 8; $\rho_{avg} = -0.48$), structure and governance (n = 7; $\rho_{avg} = -0.42$), involvement of business units (n = 5; $\rho_{avg} = -0.45$), Quantity of employees (n = 5; $\rho_{avg} = -0.42$), Skills of employees (n = 4; $\rho_{avg} = -0.46$), Communication model with business units (n = 4; $\rho_{avg} = -0.45$), Communication model with providers (n = 4; $\rho_{avg} = -0.41$), Vision for the future IT organization (n = 3; $\rho_{avg} = -0.42$), Organizational roles (n = 1; $\rho_{avg} = -0.34$)

also determine appropriate levels of organizational attributes.

2. Applying related organizational theories
   Despite its importance and its recent advances (Luo and Donaldsen 2013), contingency theory is not without critics. Criticism regards its often attributed static nature, a lack of quantifiable impacts on economic performance, or shortcomings as predictive theory (Hendry 1980). An emerging research stream is the related configurational theory or multi-contingency theory. It considers organizational attributes as interdependent items that form coherent configurations (Fink 2010). Configurational studies may reveal further details on interaction effects. It will be particularly interesting to explore interactions between attributes. For instance, if *decision authorities* (*D3*) are defined appropriately, but *structures and governance* (*D7*) inappropriately, what are expected difficulties with *scope misunderstandings* (*P9*)? The answer would enable research to determine effective combinations of attributes and, thus, develop coherent configurations. So far, configurational outsourcing research mainly focuses on the outsourcing decision and strategy (Fink 2010). Transferring and testing our findings in a configurational study promises interesting insights, for example by identifying and testing congruent patterns based on cluster analysis.
3. Evaluating the broader impact of outsourcing management problems
   Further research is also required to determine the impact of outsourcing management problems on outsourcing performance. Focusing on minimizing individual problems, our study abstracts from a unified measure of outsourcing performance. In doing so, our study is largely treating problems equally. For example, we used an indicator to determine important attributes which assigns equal weight to the impacts of all problems.
   Performance issues arising from problems may differ, though. For instance, they can have direct or indirect financial implications, and their impact may be short- or long-term (Dhar and Balakrishnan 2006; Tafti 2005). The impact also depends on the timing (e.g., frequency and duration) of occurrence (Kieninger et al. 2013b). Additionally, problems could be interrelated and reinforce each other. For example, staff turnover could go together with intensified scope misunderstandings.
   We encourage researchers to extend the presented linkages by relating problems to outsourcing performance. Existing literature discussing approaches to quantify service impacts may provide a starting point for future studies (e.g., Kieninger et al. 2013a).
4. Developing organization design frameworks and guidelines
   Last, researchers and practitioners alike should transfer our findings into practice. We propose to build more detailed design approaches for retained organizations, for example frameworks evaluating the client's readiness to manage a desired outsourcing degree. Researchers should aim to develop appropriate designs and approaches. Newly developed or extended design frameworks should incorporate the relevant organizational attributes under consideration of the outsourcing

degree. For example, approaches could emphasize *structures and governance (D7)* for low and medium outsourcing degrees but focus on *decision authorities* (*D3*) for high outsourcing degrees.

7 Conclusion

Our explorative study contributes to existing IT outsourcing literature on organization design of retained organizations. Addressing both a lack of quantitative (Kaiser and Buxmann 2012) and contingency research (Lin and Vaia 2015), we are able to provide novel findings and derive several opportunities for future research. One of the key findings is that clients encounter different outsourcing management problems according to their extent of outsourcing. Individual problems do not increase consistently for higher outsourcing degrees and some even decrease. The second major finding is that interrelations between organizational attributes and these problems also vary for different degrees. This indicates that outsourcing clients need to focus on varying organizational attributes. Altogether, our results suggest that retained organizations need to be tailored to the outsourcing degree. As outlined in Sect. 6, the unveiled correlations between attributes and problems contribute to theory and pave the way for future research. In the following, we will briefly discuss limitations of our work and derive managerial implications.

7.1 Limitations

A number of limitations need to be considered. The total sample size of the quantitative study may be regarded as rather small to fully generalize our findings. Particularly, samples for the specific outsourcing degrees were relatively small. We argue that the sample size is sufficient to perform the intended statistical evaluations for exploring outsourcing management problems and to identify potential causal links. Nevertheless, additional research is required to generalize our findings. Section 6 suggests how to approach this.

The selection of the study participants also limits the current investigation. We performed the study with provider experts rather than outsourcing clients, which could introduce bias. The selected outsourcing experts, however, had been in direct contact with retained organizations for many years. Having been involved in multiple outsourcing arrangements, they were particularly suited to observe and evaluate typical problems of retained organizations. To further strengthen our findings, we intend to perform client side verifications.

Lastly, we investigated three specific outsourcing degrees. Differences, however, may be more subtle. Future research could split degrees in a more granular way to unveil additional insights. We captured the *percentage of the client's IT budget used for outsourcing* as an open numerical value. Potentially, some participants might have rounded up to the next threshold level leading to inaccuracies. This way of capturing the outsourcing degree, however, allowed for more precise correlations than using a three-point scale.

7.2 Managerial Implications

Several managerial implications can be drawn from our findings. First of all, our work confirms that clients have significant difficulties in shaping mature retained organizations. They are well advised to invest sufficiently in this important area to mitigate potential problems.

The interviewed experts emphasized that many clients neglect the business-side interfaces, which, therefore, are often of greater concern than the provider-facing organization. Our quantitative findings support this assumption as many important organizational attributes and management problems concern the clients' own business units. Clients should appropriately focus on the interfaces of retained organization with the business units.

In general, clients need to pay attention to the presented organizational attributes. Effective design requires conscious planning and alignment with the sourcing strategy. Organizations should concentrate on attributes related to the key problems for their selected outsourcing degree. Table 7 is a starting point for selecting organizational focus items. For example, clients with high outsourcing degrees should focus on involving the business units in their design efforts, whereas organizational structures are particularly important for low outsourcing degrees. Attributes need to be revalidated in the case of a later adaption of the sourcing strategy. If specific problems arise, clients can validate related organizational attributes for improvement potential.

The purposeful structuring of retained organizations will contribute to forging more mature and effective IT outsourcing solutions, and, thus, improved business performance.

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