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THE CONTRIBUTION OF GOVERNANCE AND CAPABILITIES TO IT OUTSOURCING SUCCESS: A META-ANALYTIC STUDY

Research Paper

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Abstract

IT outsourcing (ITO) is receiving renewed focus but many firms fail to experience anticipated benefits. Extant research suggests that governance and capabilities are important ingredients for IT outsourcing (ITO) success. However, empirical studies into the relative effects of different modes of governance and types of capabilities have been difficult to reconcile. No overall conclusion has been reached on which factors are most important for successful ITO outcomes. Using meta-analytic techniques, we combine quantitative evidence from 62 past empirical studies on ITO success. Our analysis of 241 correlations reported across these studies shows that both relational governance and contractual governance, are important but relational processes namely, knowledge sharing and communication, and relational attributes of trust and commitment, are more significant than contract. We also found that client-side capabilities in both IT management and ITO management are as important as vendor-side capabilities to ensuring ITO success. Our results address the gaps in past qualitative reviews on the topic and provide important insights for ITO research and practice.

Keywords: IT outsourcing, governance, relationship, contract, capabilities.

1 Introduction

IT outsourcing (ITO) is receiving renewed focus as firms look to external vendors to help usher in digital transformation (Deloitte, 2020), and keep pace with trends such as cloud, big data analytics, robotic process autmation and artifical intelligence. Yet, the practice of contracting with external third-parties to provide IT products and services is not uncomplicated. High profile ITO failures have been frequently reported (e.g., infoworld, 2008; Computerworld, 2010), and many firms are still failing to experience anticipated benefits and have their expectations met (Wolverton et al., 2020).

Unsurprisingly, IS researchers have focused considerable effort on understanding how to improve ITO outcomes (c.f. Dibbern et al., 2004; Lacity et al., 2009; Lacity et al., 2010; Lacity et al., 2017). Through reviewing the literature, we found more than 100 empirical studies have explored the determinants of ITO success over the past 25 years. One promising area of enquiry has focused on the contribution of contractual and relational governance mechanisms to ITO success. These two modes of governance offer different perspectives on the structures and processes needed to ensure ITO arrangements achieve successful outcomes. While contractual governance emphasizes the use of contractual safeguards to reduce uncertainty and protect clients, relational governance emphasizes social processes and relational attributes to guide the behaviour of exchange partners. However, empirical studies into the effects of these two modes of governance on ITO outcomes have been difficult to reconcile (Lacity et al., 2016). No overall conclusion has been reached on which governance factors are most important to ITO success, and whether they complement or substitute for each other (Poppo and Zenger, 2002; Rai et al., 2012;

Kranz, 2021). A second promising area of enquiry explores the contribution of capabilities to ITO success. Outsourcing is supposed to offer firms an opportunity to reduce costs and investment in internal IT capabilities (Lacity et al., 2010). Firms are intended to benefit from vendor skills and expertise in ITO arrangements. However, some research shows that ITO success may actually be less likely without adequate investment into a firm's own internal IT capabilities (Han and Mithas, 2013). This may be especially so where clients require new capabilities in vendor selection, contract negotiation and ongoing relationship management. However, there may also be benefit to retaining technology capabilities (Tiwana and Kim, 2016). The relative contributions of different client-side capabilities versus vendor-side capabilities to successful ITO remains unclear.

Although prior reviews of the field have drawn attention to past findings on governance and capabilities (e.g. Lacity et al., 2010; Lacity et al., 2016; Liang et al., 2016; Lacity et al., 2017), these qualitative reviews do not offer cumulative and comparative evaluations of effect sizes. More generally, they tend to weight all studies equally without consideration of the implications of sample size or methods for the robustness of conclusions. They do not aggregate correlational data to answer the question as to which factors exert stronger effects and which variables exhibit the greatest reported variations in effect sizes and are thus more likely to be influenced by moderating effects. Other literature reviews are focused on ITO decisions but not ITO success (e.g. Schneider and Sunyaev, 2016; Hanafizadeh et al., 2020), and past meta-analyses on ITO have focused on contract choice (Schermann et al., 2020), but not ITO success. We believe the field would thus benefit from using meta-analytic techniques to undertake a formal and systematic integration of prior works into the role of governance and capabilities in promoting ITO success. Using meta-analysis, we combine quantitative evidence from over 60 past empirical studies examining governance and capabilities to address the following research questions:

RQ1: Which mode of governance is most effective for ITO success and how do they compare in effect size?

RQ2: Which capabilities are most effective for ITO success and how do they compare in effect size?

Given that ITO will continue to consume an increasing share of IT budgets, our work offers the opportunity to bring clarity for researchers and practitioners into ITO success and to provide recommendations that can advance further research in the area. We provide the first meta-analytic investigation into the effects of governance and capabilities on IT success, synthesizing evidence on a number of factors. In the next section, we discuss ITO success and introduce contractual and relational governance and capabilities perspectives in more detail. We draw out the various factors on which our empirical work is then focused. The third section introduces the meta-analytic methodologies used in this study. The fourth section presents the results of our analysis and discusses the implications of our findings. The fifth section concludes with contributions and limitations of the research.

2 Theoretical Background

2.1 ITO Success

ITO involves contracting with external third-parties to provide IT products and services in lieu of, or as a supplement to, internal efforts (Hirschheim and Dibbern, 2006). Examples include software development, data center and facilities hosting, business process and cloud sourcing, among others. ITO is typically motivated by a need to improve the business impact of IT, reduce IT costs, cope with changes in IT, access the latest technologies and scarce skills not available in-house, and refocus internal resources on the core business operations to improve the overall business impact of IT (Grover et al., 1996; Lacity et al., 2010; Dhar and Balakrishnan, 2006; Djavanshir, 2005; Yang and Huang, 2000). Additional long-term value that firms hope to derive from ITO partnerships are also in areas of innovation and learning (e.g. Susarla and Mukhopadhyay, 2019; Kranz, 2021; Teo and Bhattacherjee, 2014). ITO success is thus often conceptualized as the degree to which these expected strategic, economic, and technological benefits of ITO have been realized (Grover et al., 1996; Lee et al., 2004). Operational measures typically include the client's perspective on their ability to refocus on their core business, increased user satisfaction, better control of IT expenses, improved quality of IT infrastructure,

enhanced process and operating efficiencies, and their satisfaction with overall benefits (e.g. Goo et al., 2008).

ITO researchers have considered numerous factors that might increase the probability of successful ITO engagements and realization of these benefits (cf. Lacity et al., 2009; 2010; 2016). Among these, governance and capabilities are the most frequently studied and are discussed next.

2.2 Governance Perspective on ITO Success

Uncertainty and fears of vendor opportunism have been known to characterise outsourcing arrangements (Goo et al., 2009; Chang et al., 2017). Contract and relational governance are solutions to these exchange hazards, and considered necessary for improving ITO success and securing value from ITO arrangements (Lacity and Willcocks, 1995; Goles and Chin, 2002).

2.2.1 Contractual governance

Based in transaction cost economics, contractual governance recognises the need to mitigate exchange hazards and curtail the pursuit of individual interest through contractual safeguards that establish the optimal conditions for the outsourcing engagement (Balaji and Brown, 2010; Chang et al., 2017). Contracts protect a client from vendor opportunism and reduce uncertainties and inefficiencies by aligning contractual terms with outsourcing objectives and specifying roles, expectations, dispute mechanisms and penalties for underperformance (Aubert et al., 2003). Under contractual governance, the firm's relationship with the external provider is based on the legally binding contract and the use of formal monitoring to determine whether contractually agreed outcomes have been met (outcome control) and contractually agreed processes have been followed (behavioral control) (Srivastava and Teo, 2012). Contractual governance researchers are typically concerned with how the characteristics of the contract and contract management activities influence ITO success through constructs such as contract extensiveness, contract management, and contract duration (Qi and Chau, 2015), see Table 1.

Contract factor	Operational definition
Contract extensiveness	The extent to which clauses and provisions are included into a contract as mechanisms to protect against contractual hazards (Susarla and Mukhopadhyay, 2019; Chang et al., 2017).
Contract management	Monitoring and controls to curb opportunistic behavior and minimize post contractual costs through diagnosis of problems and prescription of solutions aimed at enforcing the contractual terms (Qi and Chau, 2015; Rustagi et al., 2008).
Contract duration	Duration of the outsourcing contract and period of time to which parties are committed to interacting with each (Lee et al., 2004).

Table 1. Contractual governance factors.

2.2.2 Relational governance

Based in social exchange theory and relational exchange theory, relational governance, also referred to as informal governance (Balaji and Brown, 2014), views trust, commitment and social processes rather than contracts and formal control as the means to guide desired behaviour (Poppo and Zenger, 2002; Lacity et al., 2016). Bounded rationality and uncertainty can prevent parties from writing complete contracts thus encouraging the use of social ties and processes based on reciprocity, cooperation and 'give and take' as necessary to manage uncertainties, commit participants to action (Goo et al., 2008), and minimize their inclination to behave opportunistically (Poppo and Zenger, 2002). Various relational attributes and processes explored in the ITO literature are summarized in Table 2.

Relational factor	Operational definition
Trust	Beliefs about the vendor's benevolence, integrity, and honesty in the context of the IT outsourcing relationship (Goo et al., 2009).
Commitment	Belief that an ongoing relationship with the vendor is important and warrants maximum effort at maintaining it (Goo et al., 2008).

Communication	Degree of accuracy, timeliness, adequacy, and credibility of the communication process between partners (Lee and Kim, 1999)
Knowledge sharing	The activities of transferring or disseminating knowledge between the client and vendor (Lee, 2001).
Culture fit	Partners accept each other's beliefs about which values, behaviors, goals and policies are important, appropriate and right, and which are not (Goles and Chin, 2002; Morgan and Hunt, 1994).
Partnership	A sound working relationship that reflects mutual understanding, sharing of risks and benefits and equal responsibility for success or failure (Grover et al., 1996; Sia et al., 2008).

Table 2. Relational governance factors.

2.3 Capabilties Perspective on ITO Success

IS researchers have drawn on the resource based view of the firm to suggest that IT capabilities can influence performance outcomes (Broadbent et al., 1999; Bharadwaj, 2000). IT capabilities are complementary skill sets and management processes that allow firms to productively leverage IT resources to achieve performance objectives (Bhatt and Grover, 2005; Ravichandran and Lertwongsatien, 2005). Outsourcing can shift the capabilities required of clients as they attempt to benefit from the capabilities of vendors.

2.3.1 Client-side capabilities

Two client-side IT capabilities have been surfaced as relevant in the ITO context, namely the firm's internal IT management capability and its ITO-specific capabilities (Han et al., 2013; Karimi-Alaghehband and Rivard, 2020), refer Table 3. ITO-specific capabilities are required to negotiate service level agreements and to govern and manage outsourcing arrangements (Bharadwaj et al., 2010; Karimi-Alaghehband and Rivard, 2020). Clients stronger in these capabilities are in a better position to select vendors, facilitate contracts, communicate effectively with them, and monitor vendor compliance (Han et al., 2013). Clients can also benefit from retaining an in-house technology management capability that complements its vendors. These in-house capabilities support the firm to adapt business processes and help customize and deploy the outsourced IT solutions effectively to meet strategic business objectives (Han et al., 2008; 2013).

Client capabilities	Operational definition
ITM capability	IT skills and management practices that are complementary to vendors' capabilities and are needed to deploy IT effectively (Tiwana and Kim, 2016; Han et al., 2008; 2013).
ITO capability	Ability to successfully engage in and manage ITO activities (Bharadwaj et al., 2010; Karimi-Alaghehband and Rivard, 2020).

Table 3. Client-side capabilities.

2.3.2 Vendor-side capabilities

By drawing on the expertise of service providers, client firms hope to fill gaps in their internal IT skills and capabilities (Cheon et al., 1995; Bui et al., 2019). Labour specialisation and production cost advantages enjoyed by vendors underpin the anticipated economic benefits of outsourcing (Ang and Straub, 1998), with IT vendors also expected to provide firms with access to latest technologies, help them cope with changes in IT and avoid risks of technological obsolescence (Grover et al., 1996). Realization of ITO benefits thus depends on the vendor's expertise and capabilities to deliver on the terms of the contract.

Vendor capabilities	Operational definition
Technology capability	Extent to which technical skills in software design and implementation are provided by the vendor (Balaji and Brown, 2014).
Service quality capability	Ability of the vendor to provide services at the times promised and meet its service level agreements (Grover et al., 1996; Karimi-Alaghehband and Rivard, 2020).

Table 4. Vendor-side capabilities.

3 Meta-Analysis Methods

Meta-analysis is defined as "the statistical analysis of a large collection of analysis results for the purpose of integrating the findings" (Glass, 1976). We use meta-analytic techniques to address our research questions on which governance and capability factors are most important to ITO success, and how the factors compare in effect size. In the following sections we discuss our data sources and our criteria for inclusion of studies in the meta-analysis. We then discuss our procedures for data coding and analysis before presenting our results.

3.1 Data sources and study selection

To ensure the validity of the meta-analysis, we sought to include as many studies as possible published between 1992 and 2021. We choose this date range for our search because several related literature reviews on ITO generally considered studies occurring from this time frame as appropriate. Studies were primarily sourced from Wiley, SAGE, Springer, ScienceDirect, Scopus, Ebsco Business Source Complete, Jstor databases using abstract search of title ("information systems" OR "information technology" OR "IS" OR "IT") AND ("outsourcing" OR outsourc* OR *sourc* OR offshor*), restricted to paper in the English language. To overcome publication bias, we also searched Google Scholar and conference papers from the ACM digital library, Association of Information Systems (AIS) and IEEEXplore, and we reviewed the reference lists of articles to locate additional empirical studies. We manually screened the articles to exclude duplicates, qualitative research articles, opinions, and literature reviews. The search process is summarized in Figure 1. The coding of the constructs for this meta-analysis is explained next.

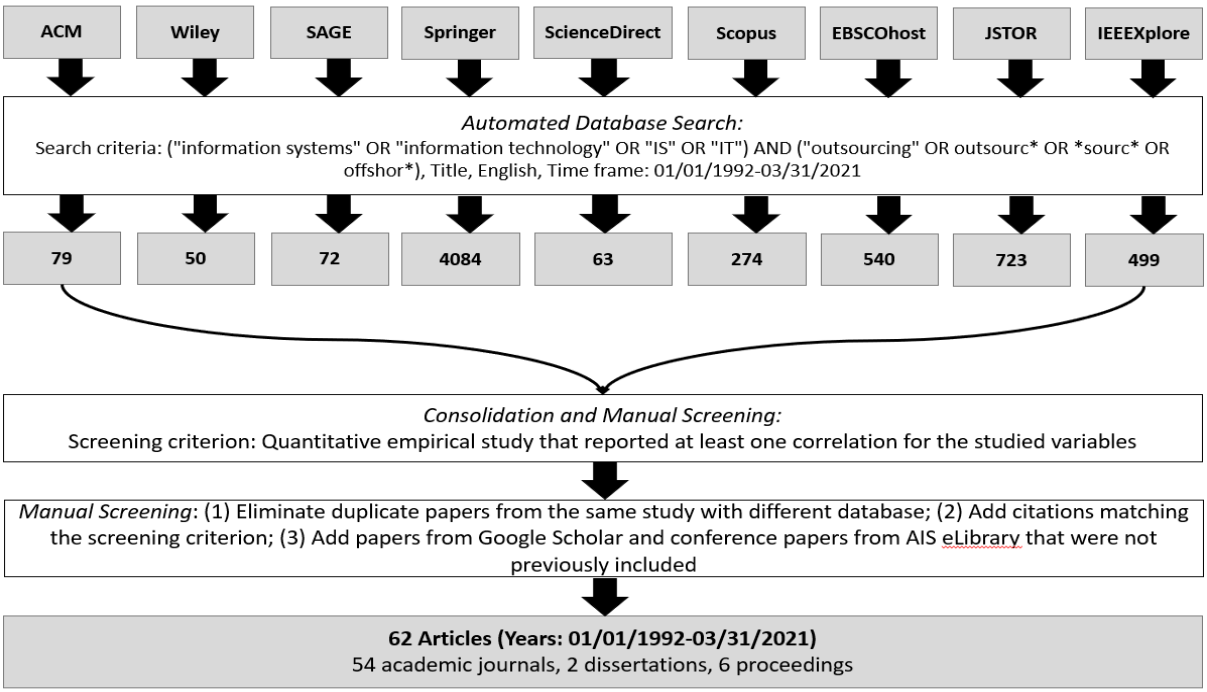

Figure 1. Literature search.

3.2 Coding

Each included article or publication was examined for the data required for the meta-analysis. For each study in our sample, we identified the relevant contractual governance, relational governance and/or capabilities-related constructs, and examined their operational definitions and measurement items to confirm they faithfully represented our constructs of interest (see Tables 1-4). We then coded bivariate correlations between the constructs of interest. Where studies did not report correlations, we attempted to contact authors to obtain this data, if available. We excluded studies where correlations could not be obtained or calculated from available data, as well as studies relying on categorical data.

In addition, we coded the standard deviation of each variable and reliabilities of each study's constructs using the reported Cronbach's alpha coefficient or equivalent, e.g. composite reliability. On the basis of the reported reliabilities, we calculated an average reliability score for each variable for use in subsequent analysis. We also collected information on each study's year of publication and sample size. Discussions were held to resolve any disagreement among the authors on coding of the studies.

3.3 Meta-analysis approach

We followed the random effects model of Hunter and Schmidt (2004) to estimate effect sizes between the variables. The approach uses the observed Pearson's correlations (r) as the measure of effect size. First, given that sample sizes for studies vary considerably, we correct for sampling error by calculating weighted average of the correlations (r_+), also called bare-bones correlations. This approach weights each study's correlation by sample size. Second, to correct for measurement error, we calculated the true-score correlation (r_c) which takes into account the average reliability estimates for the independent and dependent variables. We also calculated 95% credibility intervals (Hunter and Schmidt, 2004). If the intervals are sufficiently large or include zero, then the presence of moderators should be expected (Petter and McLean, 2009). Finally, we calculate fail-safe N to indicate the number of additional studies with non-significant findings that would be required before the average effect size could be considered non-significant. Generally, fail safe N values should exceed 5k+10 (where k is the number of observed correlations).

4 Results and Discussion

4.1 Main Findings

Our search resulted in identification of 62 publications that met inclusion criteria and for which correlation results were available. We found that 19% of the studies were published in the last five years (2017-2021). More specifically, 1.6% studies were published prior to 2000, 28.6% from 2000 to 2009, and 70% were published since 2010.

Our meta-analysis results for these 62 papers are presented in Tables 5 and 6. In Table 5, we report the total number of studies, the total number of observed correlations, range and average correlations, along with the ranges, averages and totals for sample size. Because some publications report results from tests on more than one ITO success outcome or more than one sample, the number of available pair-wise correlations could exceed the number of publications. In Table 6, we present the r_+, r_c, the variance of r_+ and r_c, standard deviation of r_c, and 95% confidence and credibility interval of r_+. We also present the fail-safe N test to further evaluate the significance of each factor. For contract duration, we cannot calculate the r_c because r_c is a reliability adjusted score while duration has typically been measured as a timeframe and thus not subjected to internal consistency reliability tests.

Variable	No. of studies	No. of correlations	Cumul. sample size	Avg. sample size	Range of sample sizes		Pair-wise correlations		
					Lower	Upper	Lower	Upper	Average
Contract management	18	36	4712	131	86	233	-0.041	0.56	0.331
Contract extensiveness	9	17	2120	125	44	344	-0.086	0.71	0.257
Contract duration	12	19	2937	155	44	344	-0.168	0.304	0.063
Trust	18	28	4749	170	36	344	0.026	0.745	0.411
Commitment	10	21	2412	115	36	267	0.038	0.65	0.404
Communication	8	11	1709	155	40	304	0.082	0.669	0.406
Knowledge sharing	20	31	5105	165	36	344	0.07	0.78	0.429
Culture Fit	8	9	1144	127	36	233	-0.026	0.689	0.322
Partnership	6	9	1231	137	40	171	0.174	0.48	0.317
Client ITM Capability	15	21	4102	195	81	304	-0.087	0.750	0.316
Client ITO Capability	7	12	2507	209	65	753	0.010	0.593	0.377
Vendor Technology Capability	12	18	3302	183	65	753	-0.110	0.850	0.377
Vendor Service Capability	8	9	1539	171	100	337	0.208	0.680	0.525

Table 5. Descriptive statistics (N=62).

Variable	r_+	r_c	$Var(r_+)$	$Var(r_c)$	$SD(r_c)$	95% Confidence interval (r_+)		95% Credibility interval (r_+)		Fail-safe N (0.05)	Result
						Low Lim	Up Lim	Low Lim	Up Lim		
Contract management	0.340	0.382	0.029	0.023	0.173	0.217	0.464	-0.385	1.066	470	Sig.
Contract extensiveness	0.300	0.287	0.040	0.041	0.202	0.133	0.467	-0.368	0.968	164	Sig.
Contract duration	0.104	-	-	-	-	0.022	0.186	-0.217	0.424	29	Sig.
Trust	0.420	0.458	0.031	0.034	0.183	0.253	0.587	-0.454	1.295	477	Sig.
Commitment	0.433	0.462	0.031	0.032	0.179	0.233	0.633	-0.470	1.336	350	Sig.
Communication	0.423	0.437	0.034	0.040	0.200	0.149	0.697	-0.477	1.322	185	Sig.
Knowledge sharing	0.446	0.482	0.030	0.033	0.181	0.277	0.614	-0.484	1.376	557	Sig.
Culture Fit	0.354	0.362	0.080	0.092	0.303	0.061	0.647	-0.512	1.220	113	Sig.
Partnership	0.302	0.356	0.008	0.002	0.043	0.098	0.505	-0.289	0.892	111	Sig.
Client ITM Capability	0.328	0.349	0.055	0.062	0.248	0.159	0.496	-0.434	1.090	259	Sig.

Client ITO Capability	0.293	0.427	0.023	0.025	0.158	0.091	0.495	-0.396	0.982	183	Sig.
Vendor Technology Capability	0.303	0.429	0.064	0.076	0.276	0.109	0.497	-0.511	1.116	275	Sig.
Vendor Service Capability	0.482	0.611	0.021	0.024	0.155	0.148	0.816	-0.513	1.477	213	Sig.

Table 6. Meta-analysis results.

The meta-analysis results for the contract and relational governance factors indicate that none of the 95% confidence intervals contain zero, hence, all the factors are significant for ITO success. This indicates that all of contract and relational governance antecedents are important. Among the contractual governance factors, contract management (r_+ =0.340) has the strongest effect size on ITO success. Contract extensiveness also showed a moderate correlation with ITO success. Both these factors passed the fail-safe N test as their fail safe N values exceed 5k+10 (where k is the number of observed correlations). However, contract duration has a relatively weak effect on ITO success, with few correlations observed. All three have credibility intervals that are large and contain zero. So, this is suggestive that the relationships are likely to be moderated, stronger in some studies than others. These moderators are subject for future research. For example, our sample included 53 papers with general ITO/ISO, 3 papers with BPO, 3 papers with cloud, and the remainder are mixed sourcing or others such as application services providers. ITO service type could represent a moderator of interest. Characteristics of the contract such as size and duration may also moderate relationships. As another example, included studies come from countries such as South Korea, China, Singapore, United States and Canada. Geographic region may present a moderator, specifically due to differences in IT infrastructure and skills. A further moderator may domestic versus offshore IT outsourcing arrangements where national culture differences and geographic distances may influence governance.

The meta-analysis for relational governance (Table 6) shows that two relational attributes, trust (r_+ =0.420) and commitment (r_+ =0.433), and two relational processes, communication (r_+ =0.423) and knowledge sharing (r_+ =0.446), are the strongest determinants of ITO success. However, we only obtained 11 correlations between communication and ITO success. Relatively few correlations were obtained for culture fit and partnership but results based on 95% confidence intervals are also suggestive of their significant effects. All factors however passed the fail-safe N test. As with contractual factors, the lower and upper correlations reveal large differences across studies, which together with the credibility intervals suggests the need for moderators to be explored.

The meta-analysis results for the capabilities factors indicate that none of the 95% confidence intervals contain zero, hence, all the factors are significant for ITO success. The vendor's capability to deliver high quality service is significant for ITO success (r_+ =0.482). Interestingly, among the client-side capabilities, ITM capability (r_+ =0.340) appears more important than ITO capability (r_+ =0.340), although the true-score correlations (r_c) suggest ITO capability is the more important client-side capability. There were more available correlations for ITM capability. The average correlations (Table 5) and true-score correlations (Table 6) suggest client ITO capabilities (r =0.377; r_c =0.427) have almost identical effects to the vendor's technology capability (r =0.377 ; r_c =0.429). Once again, the range of observed correlations along with credibility intervals suggest that the relationships between the capabilities and ITO success may be subject to moderators.

4.2 Implications

The key findings presented above have important implications for our study's research questions.

RQ1: Which mode of governance is most effective for ITO success and how do they compare in effect size?

We considered both contractual governance and relational governance mechanisms. Contractual governance emphasizes contractual safeguards to overcome uncertainties in ITO arrangements, such as the drafting of complex service level agreements (Balaji and Brown, 2010; Chang et al., 2017). Relational governance takes a social exchange perspective and emphasizes the importance of social ties and processes to manage uncertainties (Goo et al., 2008). Our results suggest that both contractual and relational governance cannot be ignored and are important to ITO outcomes, but relational governance is overall more important to ITO success. The most important relational factor contributing to ITO success is knowledge sharing. Clients and service providers must share knowledge of core business, vendors must transfer knowledge to client staff, and clients must observe and learn from them (Lee and Kim, 1999). Moreover, without communication, trust and commitment, ITO relationships are more likely to report poor outcomes. Communication allows for conflict resolution and an open exchange of relevant ideas and feelings among participating firms (Goo et al., 2008). Knowledge sharing and communication are also significant for building partnership quality (Lee and Kim, 1999). Contractual governance based on contract extensiveness and subsequent contract management and control activities do contribute to ITO success but do not appear adequate substitutes for relational governance. Firms that invest in social interaction and relationships with the vendor are likely to experience greater ITO success than those relying exclusively on a legally binding contract and the use of formal monitoring. Recent research suggests that relational governance helps mitigate cognitive distance, avoids unnecessary transactional safeguarding costs, and allows for more transparent and sincere dialog, all of which are important to ITO success (Hsu et al., 2021).

Through our analysis we shed more light on the conclusions reached by others on the importance of relational and contract factors (e.g. Lacity et al., 2016; 2017). In their review of qualitative and quantitative studies published up to 2010, Lacity et al. (2016) found contract detail important to ITO outcomes in 85% of reviewed studies and contract control important in 80% of studies, while relational factors such as knowledge sharing were found important in all eleven studies examined, trust in all ten studies, communication in all seven studies, and culture in seven of eight studies examined. Lacity et al. (2017), based on an updated review of papers published up to 2014, reported factors such as knowledge management important in 91% of studies, trust in only 81% (13/16) and contract detail in 79% (15/19) of studies. Our results bring much greater clarity and specificity on the significance of these factors by showing that while both contract and relationship are statistically significant across a number of studies, relational factors are, on average, more highly correlated with ITO success outcomes than governance factors. We see that relational factors such as communication and knowledge sharing exhibit stronger effect sizes than others such as culture-fit, while contract management (control) is more highly correlated across the studies than contract extensiveness (detail).

RQ2: Which capabilities are most effective for ITO success and how do they compare in effect size?

Vendor capability for service quality is the strongest determinant of ITO success and realization of ITO benefits. It has been considered an important component in the nomological net of ITO success models (e.g. Grover et al., 1996). Clients are clearly unlikely to derive benefit from ITO if vendors cannot deliver the right services at the times promised. Interesting the average and true-score correlations between client-side ITO capability and vendor-side technology capability are near identical confirming the relevance of both and lending support to the argument they exert complementary effects on ITO outcomes (Han et al., 2013). While ITO requires client firms to develop new capabilities in ITO vendor selection and management (Bharadwaj et al., 2010; Karimi-Alaghehband and Rivard, 2020), results also suggest that firms cannot ignore the development of their own in-house capabilities to deploy systems, customize solutions and ensure they meet business objectives (Han et al., 2013). Together, these client-side capabiltiies are important complements to the capabilities of the ITO vendor. These results thus support the view that in addition to vendor capabilities (Bharadwaj et al., 2010), firms with greater internal IT capabilities will experience greater ITO success (Loukis et al., 2019; Garrison et al., 2015).

Our results also clarify prior reviews into the effects of capabilities. Lacity et al. (2017) found client-side capabilities to be important in most studies they reviewed, with all studies finding ITO-related capabilities relevant. On the other hand, their review found vendor capabilities important in only 75%

to 88% of studies. Our results show client-side capabilities exhibit effect sizes roughly equivalent to those of vendor technology capabililty, while vendor service delivery is the most significant.

5 Conclusions

In this paper we have estimated both weighted mean and true-score correlations to conclude on the factors most important to ITO success. We derive several valuable implications for researchers. In an effort to understanding how to improve ITO outcomes, extant research has explored numerous determinants of ITO success with governance and capabilities among the most studied. Yet, results from past works have not concluded on the factors most important to ITO success. We overcame the limitations of prior qualitative reviews and used meta-analytic techniques to compare effect sizes and address the question of which modes of governance and which capabilities are most important to ITO success. We examined 62 empirical studies that met criteria for inclusion in our analysis. We found that relational governance is more significant than contractual governance, but both are important. We found that client-side capabilities are just as important as some vendor-side capabilities to ensuring ITO success and both sets of capabilities should be modeled in future work. Future studies can also compare their effect sizes to those reported here.

This study also has several important practical implications. We provide insights into the relative importance of different antecedents of ITO success. In particular, firms should emphasize knowledge sharing and communication and the building of trust and commitment with their outsourcing partners. Communication between clients and vendors can should be timely and credible (Han et al., 2008), and focused on conflict resolution (Goo et al., 2008). Knowledge sharing must be reciprocal and client's must be willing to share knowledge of their core processes to realise benefits from ITO arrangements. The returns to relational governance can exceed those of writing complex contracts and managing vendor compliance. For example, trust can offer a less costly and more effective safeguard than complex contracts and can reduce transaction costs by facilitating coordination, mitigating contractual hazards and allowing exchange partners to avoid or quickly resolve disputes (Gulati and Nickerson, 2008). Contracts do remain important but cannot overcome weak relational governance. Firms must also focus on retaining their IT management and their ITO-specific capabilities. Clients must consider the ability of their IT personnel to think strategically about IT and integrate various information technologies (Han et al., 2013), and must consider their methodologies for outsourcing (Bharadwaj et al., 2010) and negotiating service level agreements (Karimi-Alaghehband and Rivard, 2020). These client-side capabilities appear as important to ITO success as the vendor's capability. Given the importance of vendor-side capability to ITO success, firms must also invest in their capabilities to evaluate and select ITO vendors.

Some limitations to our study are recognized. Only studies that report correlations and sample sizes can be include in our meta-analysis. We attempted to contact authors where such data was not available but not all studies found in the literature search could be incorporated. Our findings are influenced by the quality of methods used in the primary empirical studies. We correct for sample size and reliability in our meta-analyis but cannot overcome all weaknesses in prior studies, such as those arising from common method bias. Because each study must report effect sizes such as correlation (r) values for use in further calculations, a meta-analysis excludes qualitative studies that may provide useful insights into the phenomenon under study. However, our results provide more conclusive evidence on the relative effects of selected factors. We search a large number of databases but resource constraints limit the number of databases that can be covered and that are accessible. We contribute a synthesized analysis by aggregating findings from across studies but lose the context information related to each individual study. We also found large credibility intervals. Future work will need to consider the extent to which this observed variation in the reported effect sizes of past studies might be explained by differences in study characteristics. For example, differences in types of ITO, differences in populations under study such as public vs private sector firms, and differences in research settings such as high vs low IT development country contexts. Moreover, we focused on ITO from the client perspective and did not

consider studies exploring the vendor's perspective on ITO outcomes. Future research can benefit from extending our work to consider a vendor perspective.

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