Building Client Vendor Alignment Capability in Strategic Information Systems Outsourcing

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Abstract

Strategic Information Systems outsourcing refers to the outsourcing of information systems that are anticipated to have a major transformational impact on the client's business strategy. Such outsourcing arrangements typically span longer terms and have higherrisks. These risks need to be mitigatedby building inter-firm alignment, which can sustain the client vendor relationshipand knowledge sharing in business and Information Technology operational processes and strategic vision. This research study defines a multi-item measure of client-vendor alignment capability and uses that instrument to survey a number of North America based firms, who have undertaken the outsourcing of strategic information systems to their Indian information systems vendor. Both contractual and relational governance are needed to build this inter-firm alignment capability. The results indicate that both contractual and relational governance support knowledge sharing, which builds client-vendor alignment and this alignment capability impacts strategic outsourcing success factors.

Keywords: Information Systems Outsourcing, Alignment, Contractual and Relational Governance, Knowledge Sharing, Success Factors

1. INTRODUCTION

Information Systems Outsourcing (ISO) refers to transferring the development, provisioning and/or support of IS/IT products or services to a vendor for an agreed upon time, cost and functional scope (Dibbern, et.al., 2004). Due to the recent movement towards utilizing hosted information systems (IS) and cloud-based system providers,worldwide outsourcing spending has grown to over $800 Billion a year. Traditionally past IS outsourcinghas focused on IT staff cost reduction and divesting non-core, secondary value-chain activities of the client such as payroll or help-desk systems.

The current and growing trend in ISO is the pursuit of strategicdeals that are intended to be transformational for the client's business. Typical objectives of strategic outsourcing transcend cost savings and include adopting novel systems that can shift the client organization's competitive position,enhance core competencies of the client, creating value, increasing flexibility to meet changes in future business conditions and exploiting new markets (Grant, 2003; Greaver, 1999). Recent examples being the 10 year 20M pound deal between Northern Ireland's social security agency and EDS and PricewaterhouseCoopers, the 7 year 28M pound deal between Ofstead and Logica for the Early Years Education initiative (Phillips, 2014) and Lufthansa's 7 year 70M Euro deal with IBM Global Services to outsource its IT infrastructure services (Flinders, 2014). Outsourcing deals can also pose severe risks such as loss of control, business uncertainty andlead to erosion of client knowledge, have hidden costs and have the potential for systems failure (Earl, 1996).

Characteristics of Strategic ISO

Thisgrowthtrend of strategic ISOis currently being seen in the North American energy exploration industry, where medium sized

exploration companies are pursing business transformation thru the sourcing of strategic information systems using long term deals with offshore IS vendors. An example is the sourcing of an enterprise resource planning system to manage the mining field sites and optimizing exploration activities for an oil and gas company. Thisoutsourcing is highly strategic as it impacts the client's business for many years into the future. The benefits to clients come from utilizing and leveraging the knowledge of external vendors (Chang and Gurbaxini, 2012) in their IS projects,adopting the latest IS project methodologies, improving internal business processes, getting access to trained and experienced IS staff from the vendor and eliminating the overhead of having to frequently upgrade in-house technology infrastructure and system components. As outsourcing moves to this next level, clients seek greater value and diverse objectives (Mukherjee, et.al., 2013). However, the realization of broader benefits is contingent upon the client and vendor firms' ability to synergistically manage their resources and build inter-firm capabilities in a dynamic environment. This requires sophisticated vendor management activities that rely on elements of both contractual and relational governance (Willcocks, et.al.,1999; Rottman&Lacity, 2004). Strategic ISO deals are less formulated at first and require multiple planning cycles, frequent readjustment of priorities and redefinition of architecture and roles.More advanced client-vendor inter-firm capabilities to help manage complex boundary spanning systems development processes and fostering collaboration are needed to co-create substantial value in the ISO relationship over time (Rai, et.al., 2012).

Client Vendor Alignment in Strategic ISO

The success of such strategic outsourcing deals depends on the sharing and transformation of knowledge over the long term between the client and vendor. To achieve this, client vendor alignment needs to be established which aligns each firm's objectives, resources and processes and builds consensus on the opportunities and challenges facing the deal (Klein and Rai, 2009).At the strategic level, this alignment involves linking strategic intent through the joint process of identifying core and non-core business areas. At the tactical level, the client and vendor must facilitate knowledge exchange about their management methods and values and jointly define their business processes and organizational structures for the operational aspects of the deal.Key decision makers in both organizations must be identified along with intersecting procedures in IT processes to effectively manage thesestrategic projects over the long term. Without adequate knowledge sharing about the strategic intent and efforts to alignIT processes to connect people to people, the client and vendor can get out of sync over the course of the later years of the deal as circumstances change, causing significant sourcing issues (Rottman and Lacity, 2004; Lacity and Willcocks, 1998).

Despite these overwhelming arguments for the need to establish client vendor alignment in strategic ISO, current IS research has not addressed these questions of defining the components of inter-firm alignment or the means of using outsourcing governance mechanisms to create client vendor alignment (CVA) and the impacts that CVA may have on outsourcing success factors.

Research Goals

Business IT alignment has been recognized for several years as an important organizational capability (Luftman and Brier, 1999), but has not been studied in the context of strategic ISO. A client-vendor alignment (CVA) capability over three dimensions: strategic ("planning"), structural ("execution") and relational ("norms") can impact outcome success factors in strategic ISO scenarios. This research studies strategic ISO between an Indian vendor and several medium sized North American firms in the oil and gas and energy exploration industry. The goals of this research study are to:

1. Build a measurement model for client vendor inter-firm CVA capability.
2. Determine if CVA capability impacts the success factors of strategic ISO.
3. Determine the contributions of both contractual and relational governance on client-vendor knowledge sharing and the CVA capability.

2. THEORETICAL BACKGROUND

Strategic information systems outsourcing implies a long term commitment between the client and vendor to define, build and deploy needed solution components in an iterative manner to support business strategy goals (Greaver, 1999). Published research reports that poor vendor management practices can amplify outsourcing risks over the longer term and lead to poor performance (Lacity and Hirschheim, 1993). In a strategic outsourcing agreement, flexibility and adaptation are

important to deal with future uncertainties (Kern and Willcocks, 2000). Using a multi theoretic approach, Gottschalk and Solli-Saether (2005) identified eleven critical success factors for IT outsourcing including definition and needs management, resource exploitation across the alliance, cost reduction, relationship exploitation, vendor behavior control and stakeholder management.

Types of Outsourcing Governance

Outsourcing relationships are defined and managed through the establishment of two forms of governance structures: (a) contractually defined formal controls or service level agreements (SLA) (Goo, 2010) and (b) relational mechanisms that emphasize cooperation over the long term (Kishore, et.al., 2003). Formal controls driven by written contracts help define roles and demarcation of process responsibilities across the client and vendor (Goo, 2010). They guide vendor behavior towards desired objectives if those objectives are easy to understand and fall early on in the deal (Goo, et.al., 2009). Sophisticated, long term arrangements like strategic outsourcing requires both approaches to mesh in a hybrid fashion. Studies have shown that the two forms of governance are related asformal agreements can set the tone for relational commitment and communication channels, which are utilized to build and maintain inter-firm capabilities such as relationships (Poppo and Zenger, 2002; Goo and Huang, 2008).

A variety of inter-firm capabilities have been reportedly used to improve outsourcing outcomes (Kern &Willcocks., 2000; Palvia, et.al., 2010; Plugge, et.al., 2013). Some of the pertinent inter-firmcapabilities are based on the appropriate definition of roles and process ownerships among the client and vendorand can include management ability, processes for needs definition and prioritization and integrated client-vendor systems lifecycle processes.Contracts along with ITresources that allow for creation, storage and sharing of knowledge help build these capabilities (Wade and Hulland, 2004). Inter-firm capabilities provide clear standards of operation so that when conflicts arise, the teams can work through them (Goo and Huang, 2008).

Alignment Capability

Business –IT alignment refers to the capability to apply IT in an appropriate and timely way and in harmony with business strategies(Luftman and Brier, 1999). Prior research has identified three dimensions of Business/IT alignment: (1) strategic alignment, (2) structural alignment and (3) relational alignment. Strategic alignment provides the fit between the priorities and activities of the vendor IS function and those of the client business units, so that IS and applications can be aligned with business needs. Structural alignment defines the formal organizational structures that enable the alignment of the planning, decision-making, reporting and other project management aspects between client and vendor. Relational alignment refers to the informal organizational structures, norms and agreed processes, divisions of work, formal and informal teamwork, and working relationships between the firms. Relational alignment lays the foundation for strategic and structural alignment (Ghosh and Scott, 2009).

3.DEFINITION OF STUDY CONSTRUCTS

There are five research constructs in this study. Relational governance and contractual governance are the two independent variables. They impact client vendor knowledge sharing and client vendor alignment capability. The dependent variable for the study is ISO success factors.

Contractual and Relational Governance

Contractual governance of ISO refers to establishing provisions for controlling vendor actions and is based on control theory (Goo, 2010). Outsourcing contracts establish service level agreements (SLA) that define detailed actions that the two parties will engage in during the term of the outsourcing. Important themes in outsourcing contracts include methodology, process ownership, change management, performance measurements and rewards and penalties. While contracts attempt to get as detailed and specific as possible, unforeseen circumstances can arise that may be beyond the contract scope and require other relational governance. Relational governance refers to establishing a set of norms for cooperation among client and vendor that can help the resolution of unforeseen issues during the outsourcing term. Relational governance stresses the importance of client vendor trust to foster exchange of opinions and an environment for collaborations and co-creation (Goo and Huang, 2008).

Knowledge Sharing Capability

In outsourced IS development projects, there are three parties involved that need to share knowledge – the business users in the client and

the two IT organizations - one in the client and the other in the vendor. If sufficient interactions and knowledge sharing is not fostered among these three project stakeholders then poor project outcomes have been reported particularly in complex projects (Carlile, 2004). This knowledge can be related to either the information systems being sourced or the processes by which the system is being defined and developed. Drawing on the research stream in knowledge management capabilities, client vendor knowledge sharing is defined as the availability of channels and human protocols to share project knowledge (Tanriverdi, 2005). The actual mechanism of knowledge sharing consist of one or both parties seeking knowledge and/or providing knowledge in response to a request for knowledge, such that the work of one or both parties are affected by the shared knowledge. The facets of knowledge sharing in a ISO are: (1) one or both parties seeking to acquire knowledge, (2) one or both parties converting tacit knowledge or pointing to the location of already explicit knowledge in response to the request, (3) one or both parties transferring the knowledge synchronously or asynchronously and (4) the seeking party applying the new knowledge (Ko, Kirsch and King, 2005).

Client Vendor Alignment Capability

Outsourcing of Information systems development is a knowledge intensive activity that demands coordination, communications and alignment between the client and vendor. This alignment is defined in 3 levels – at the strategic level, where prioritization decisions are made, at the operational level where these decisions are realized and at the relational level where staff have norms to work together. The client vendor alignment capability is defined as the combination of (a) strategic decision making alignment on ISP project priorities and (b) the operational process connections with systems definition, development, deployment and support (Chan, 2002). Strategic alignment provides the fit between the priorities and activities of the vendor IS function and those of the client business units, so that IS and applications can be aligned with business needs. Structural alignment defines the formal organizational structures that enable the alignment of the planning, decision-making, reporting and other project management aspects between client and vendor. The third component of alignment capability is the relational aspects, where the cross organizational teams develop norms of teamwork.Relational alignment refers to the informal organizational structures, norms and agreed processes, divisions of work, formal and informal teamwork, and working relationships between the firms.Relational alignment allows all three ISO stakeholders to understand each other's domains, their processes and makes them comfortable to interact with each other. CVA capability generates conversations, increases collaboration and helps achieve common goals and decisions and enables the teams to work in a non-linear manner, as they understand each other's work processes. So as the developers work on specific solution components of the system, the business side can be defining requirements for other components.Together these three dimensions keep the client and vendor working on the "same path" over the long term.

ISO Success Factors

Current IS research suggests that Information systems outsourcing success is an inter-firm outcome that is jointly driven by both client and vendor measures (Gottschalk and Solli-Saether, 2005). For this study, the list of eleven critical success factors for IT outsourcing includes: definition and needs management, resource exploitation across the alliance, cost reduction, relationship exploitation, vendor behavior control and stakeholder management (Gottschalk and Solli-Saether, 2005). These success factors represent a balanced set that does not simply focus on vendor side cost reductions and resource exploitation, but also includes client side factors like stakeholder management and needs definition. This collection of success factors form an inter-firm measure that highlights the importance of the impact of client vendor alignment on ISO outcomes

4.RESEARCH MODEL and HYPOTHESES

Outsourcing governance involves many operational and strategic decisions such as the definition and prioritization of IS projects, the funding and allocation of resources and measuring the value of such projects. Governance attempts to counteract the uncertainties posed by the increasingly complex and interconnected hosted technical environment. Since it is difficult to specify complete service level agreements (SLA) inside contracts, strict contractual governance or "mechanistic" governance is limited to outsourced systems that are "commodities" and are well understood and bounded in terms of their extensiveness and completeness and every

detail and scenario and outcome is pre-specified in the contract (Goo, et.al.,2009). Under relational governance, the client and vendor can rely more on their ongoing relationship and mutual trust for deciding about emerging situations and managing the outsourcing arrangement, rather than following a contract very closely. Figure 1 shows the research model and hypotheses.

Building Client-Vendor Alignment Capability

Outsourcing governance typically falls into two categories – contractual and relational governance (Goo, et.al., 2009; Srivastava&Teo, 2012). Most outsourced work is fully or partially governed by contractual governance using a formal contract between the client and vendor. Such client–vendor contracts describe the expected outcomes and behaviors of the work and can be tracked and measured per the vendor's performance.

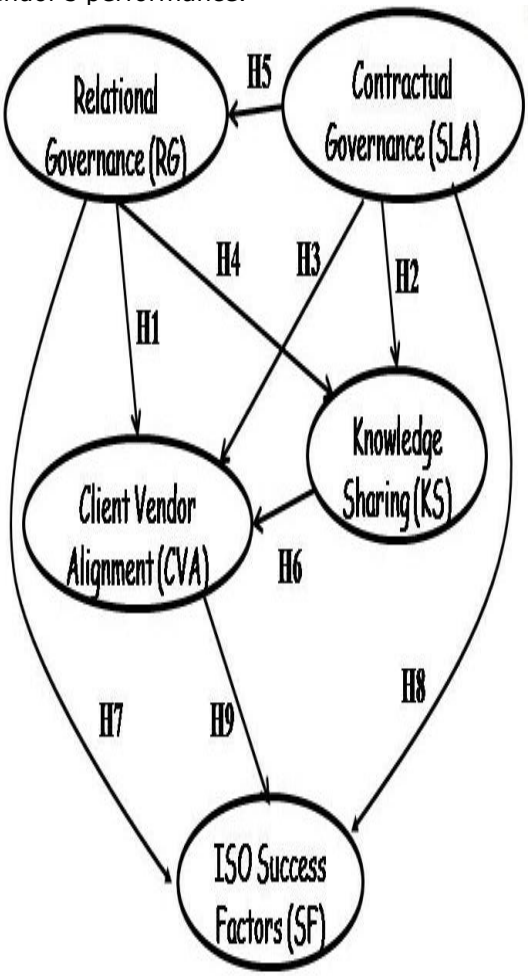

Figure 1: Research Model

Contractual governance and relational governance mechanisms allow the client and vendor to develop a common vision and establish a working structure. Trust enables the workers to work more cooperatively, limiting the power and positional rivalries. A stronger common identity fosters common goals among the workers and common norms enable members to transcend the diversities that are inherent in a multi-cultural organization and make communications smoother. These facets of relational governance can play a large part in the effectiveness and success of the outsourced processes, how much synergy is achieved between client and vendor personnel and the extent of tacit knowledge sharing (Inkpen and Tsang, 2005). By specifying relational governance elements – (1) staff feel safe to explore and share new ideas without fear of failure, leading to better process execution (structural alignment), and (2) shared business vision is developed between client and vendor staff that establishes better strategic alignment.

Therefore, we have:

H1: Greater the Relational Governance Elements higher the level of Client-Vendor Alignment Capability.

H7: Greater the Relational Governance Elements higher the level of Strategic Outsourcing Success Factors.

An outsourcing contract provides a well defined framework in which client and vendor can understand each other's rights, duties, and responsibilities in the outsourcing arrangement (Goo, et.al., 2009). The contract also specifies policies and strategies underlying the arrangement. The contract enables firms to establish working relationships (relational alignment) and exchange knowledge about work processes (structural alignment) and share their long term vision (strategic alignment). Consequently we posit:

H3: Greater the Contractual Governance Elements higherthe level of Client-Vendor Alignment Capability.

H8: Greater the Contractual Governance Elements higher thelevel of IS Outsourcing Success Factors.

Governance Elements support Knowledge Sharing

Outsourcing governance elements facilitate more cooperative, long-term exchange relationships between the client and vendor (Poopo and Zenger, 2002). Contractual governance elements document mutually agreed upon policies and procedures for dealing with dynamic situations during the outsourcing and lays the framework for knowledge exchanges (Goo, 2009). Likewise, relational elements of governance such as social capital and norms of relationships help close knowledge gaps in offshore ISO and serve as a lubricant for workers to get support and advice well beyond the organizational hierarchy or contracts, to enable them to share knowledge and get things done more effectively (Ghosh and Scott, 2009). Therefore, contractual governance and relational governance are needed for successful knowledge sharing (Palvia 2010).

H2: Greater the Contractual Governance Elements higher thelevel of Client-Vendor knowledge sharing.

H4: Greater the Relational Governance Elements higher the level ofClient-Vendor knowledge sharing.

H5: Greater the Contractual Governance Elements higher the level of Relational Governance.

Knowledge Sharing builds Alignment Capability

The process of managing strategic ISO is often a "learning experience" in which the client may have to adapt and adjust the linkages that tightly couple the offshored activities with their internal skills and processes (Larsen, et.al., 2012). The client and vendor build interfirm organizational capabilities and structures by exchanging knowledge which enables the client to effectively exploit the vendor's resources and quickly address the uncertainties that are likely to be faced during the outsourcing period (Plugge, et.al., 2013). The knowledge sharing among client and vendor helps build and sustain the alignment capability by addressing emergent issues (Grant, 2003). We posit:

H6: Greater the Client Vendor Knowledge Sharing higher the level of Client Vendor alignment capability.

Alignment Capability supports Strategic ISO Success Factors

Both client and vendor develop and use internal resources to respond to the demands of the ISO and shifts in the business environment. Dynamic capabilities such as client-vendor alignment are particularly important to adapt to changing environments and achieve success over the long term in strategic ISO (Lee and Kim, 1999). The vendor needs to continuously make important decisions in order to improve its operational performance while supporting its clients' strategic goals with a long-term orientation. Developing and managing interfirm capabilities jointly with the vendor have been found to be keys to achieving greater outsourcing success for the client (Weigelt, 2013). When alignment capability is strong, the client provides the vendor with a unifying vision to enable the client to lead in their business and marketplaces and support the client's strategy across all business segments and stakeholder groups (Palvia, et.al., 2010). Therefore we have:

H9: Greater the Client-Vendor Alignment Capability higher the level ofIS Outsourcing Success Factors.

5. DATA COLLECTION & ANALYSIS

A questionnaire (Table 1 of the Appendix) with multiple items (5 point Likert scale) for each construct was developed and pilot tested. After the pilot survey determined that the items meet content validity, the final survey was conducted as a convenience sample of key business and IT personnel from the client and vendor side of fourstrategic outsourcing deals. The four client companies are based in North America in the oil and gas exploration and energy production industry. The vendor is based out of India.

Characteristics of Client Organizations

The fourclient companies chosen for this study are medium sized energy exploration companies located in North America (USA and Canada). Some of the characteristics and details of these four firms (identified as A, B, C and D) are in Table 2 of the appendix. Each of these companies identified multiple information systems projects that were farmed out to a large ISO vendor based in India.

The North American energy exploration industry has recently experienced turbulent times with industry consolidation, labor shortage, government regulations, and economic conditions creating major fluctuations in commodity prices and reduction in consumer energy demand. Such environmental uncertainties are causing each of the firms to

invest in new strategic informationsystems to improve various aspects of their business such as managing drilling sites and optimizing product extraction and distribution, improving capital equipment utilization and safety and training of their human capital. The size and public availability of geological data has allowed the vendor (India based) to build systems that can help these firms achieve operational efficiency. To achieve market focus and responsiveness, the firms needed to restructure their functional orientation around processes through organizational reengineering, updated infrastructure and technology use. However, the highly rigid and inbred organizational culture, strategy and relatively longstanding IS practices of the client had to be aligned with the vendor's system capabilities and implementation processes to achieve transformational results. A mix of contractual and relational governance elements were put in place to build client-vendor alignment capability and manage the outsourcing projects for the long term.Building client vendor knowledge sharing and alignment capability was seen to be important for the long term success of the outsourcing deals.

Data Analysis

There were 107 completed surveys from the 200 surveys distributed for a response rate of 53%. Of these 107, 33 participants were from the four client firms and 74 from the vendor firm. The demographics (Table 3 in Appendix) of the survey participants show an average of 5.49 years of experience on their current job, with 8.84 years of total professional experience and an average of 4.45 years of post high school education. 69 of the 107 were males and 38 were female. The job titles of the survey participants included: business management, IT management, systems analysts, systems development and IT support. The breakdown of which client-vendor projects the participants identified with, are also provided in Table 3.

Smart PLS was used to test the measurement model for construct validity and reliability. The results of the measurement model validity tests are listed in Table4 (Appendix). In order for the measurement model to be valid, the composite reliability of the reflective constructs are above 0.60 and the square root of the AVE measure of the construct is greater than the construct's correlation with other constructs. Both these rules are satisfied for the three reflective constructs – Client-Vendor Alignment (CVA), Knowledge Sharing (KS) and Relational Governance (RG). The two formative constructs – Success Factors (SF) and Contractual Governance (SLA) indicate adequate construct validity to continue with the Smart PLS analysis of the structural model and test hypotheses. The results of the hypotheses testing is shown in Table 5 (Appendix).

The hypothesis testing results indicate that all proposed hypotheses were supported by the survey data. Contractual governance elements and relational governance elements both impact knowledge sharing (H2 and H4), the development of the client vendor alignment capability (H3 and H1) and support the ISO success factors (H7 and H8). The provisions of the SLA used in contractual governance drive the level of relational governance (H5), as the frequencies and types of communication and cooperation between the client and vendor are stated in the SLA's (Service level agreements). The level of knowledge sharing between the client and vendor staff drives the level of client vendor alignment capability (H6). Finally, the level of the client vendor alignment capability impacts the ISO success factors (H9).

6. CONCLUSIONS

The results indicate that client vendor alignment capability is an important inter-firm capability between the client and vendor and allows the organizations to prioritize strategic project decisions and then operationalize those decisions using intersecting work structures and business processes of both the client and vendor firms.As opposed to conventional short term outsourcing of localized IS projects, strategic ISO refers to the long term sourcing of Information systems that impact several enterprise business processes. The scope and requirements of such strategic projects have the potential to change over the course of the outsourcing deal. For these types of long term and large projects, it is very difficult to hash out contractual terms in great detail and define work items exhaustively at the beginning. It is more promising over the long run in these outsourcing arrangements to establish a joint client-vendor project framework to support long term sourcing processes that will play a role in the definition and delivery of the Information System. Such a framework involves building joint client vendor capabilities, which tackles strategic roles and responsibilities in the relationship as well as operational roles and responsibilities. The contribution of this research paper is the definition of such a capability, referred to as client vendor alignment capability.

The paper defines and validates a measure of the client vendor alignment (CVA) capabilityand finds theoretical support for the need to establish client vendor alignment capability for successful strategic outsourcing engagements. The study finds that establishing CVA in an outsourcing engagement requires the adoption of sophisticated vendor management activities that rely on elements of both contractual and relational governance (Willcocks, et.al.,1999). The paper also finds the importance of contractual governance mechanisms that help build the inter-firm relationship and in setting up inter-firm communications and knowledge sharing (Goo and Huang, 2008). The study finds that knowledge sharing plays an important role in creating a better understanding of each firm's plans, objectives, resources and processes and building consensus on the opportunities and challenges facing the deal (Klein and Rai, 2009).

It is critical for the success of an offshoring strategy to bring consensus in all levels of the organization. As information systems outsourcing (ISO) engagements become bigger value and span longer terms, clients also seek greater value and diverse objectives (Mukherjee, et.al., 2013).In this scenario, client vendor alignment becomes an important capability for the long run.

Future Research

The results of this research present a strong case to conduct a larger multi-industry study of strategic outsourcing practices. There is a need to understand the content of strategic outsourcing deals such as infrastructure, internal applications or customer facing applications. Additional demographic questions can be added to collect information about the contents of outsourcing deals and if certain dimensions of alignment play a more important role for different deals. A mixed approach can also be adopted in the future as the research of strategic outsourcing and client vendor alignment is relatively new and less established in the IS literature. A qualitative study using interviews and/or surveys with open ended questions can also be used to collect case data for definition of the constructs and discovery of the construct relationships and research model using grounded theory. A follow-on survey can then be used to collect quantitative data to measure the constructs and test the relationships induced in the research model.

The profile of the oil and gas industry is unique, as it faces a diminishing labor pool, volatility in raw materials input prices and output retail energy prices along with the strict government regulations that place a significant compliance burden on the industry. Such an environment forces tightening of business margins and forces decision making under greater stress. The oil and gas industry also has cutthroat competition and frequent mergers and acquisitions that can create difficulties in information systems projects. Energy exploration is a capital intensive business as large amounts of money need to be invested to locate and develop energy resources. Because the oil and gas industry has been slower to change their business practices it is likely that the client firms are more likely to adopt the newer vendor suggested systems and development practices thus achieving alignment (CVA) more easily.

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Appendices and Annexures

Table 1: Survey Items

Years of Job Expr. _____Years of Prof Expr _____ Job Title: _____ Years of College/University (post K-12) _____Gender : Male _____ Female _____	
Relational Governance (RG)	We have good teamwork among staff in the ISO relationship. We express diverse/conflicting views among staff in the ISO relationship. Client and vendor staff share common goals and mutual understanding.
Contractual Governance (SLA)	Service level agreements (SLA) clearly define scope and objectives of the ISO. SLA defines the ownership of processes and the measurement of their outcome. SLA have provisions of Communication and norms of behavior among staff. SLA has enforcement for the development and deployment of IS applications.
Knowledge Sharing (KS)	Business knowledge is freely exchanged between client and vendor. System and technical knowledge is freely exchanged between client and vendor. We have multiple channels of knowledge sharing - synchronous and asynchronous.
Client Vendor Alignment (CVA)	We jointly make IT Needs decisions and application prioritizations. There is fit between the priorities and activities of client and vendor. Our operational processes support joint work on projects.
ISO Success Factors (SF)	We can successfully Define and manage IT needs. We exploit a mix of resources from client and vendor with division of labor. We can successfully reduce complexity and uncertainty in IT tasks. We avoid opportunistic behavior from either client or vendor. We manage costs efficiently and successfully support all stakeholders.

Table 2: Characteristics of FourClient Firms participating in this Study

ID	Primary Business Activities	Strategic Business Goals	Outsourced Strategic Information Systems Projects	Major Information Systems Project Challenges
A	Exploration, Extraction and Distribution Logistics	1. Optimize equipment uptime and utilization 2. Reuse of external geological data	Big data Integration for geological exploration, Business Analytics for process management and equipment maintenance, End to end tracking of extracted materials	Systems Integration; Resolve conflicts between internal and external systems; Business Process reengineering
B	Exploration, Extraction and Distribution Logistics	1. Real time visibility/managementofField Operations 2. Quick Evaluation of Extracted Assets 3. Increase Collaboration	Design, deploy and use of sensors and unstructured data in operational dashboards; Collaboration and knowledge management systems	Lack of collaboration between business leaders and IT leadership; Fragmented processes; Poor change management of systems deployment
C	Exploration	1. Optimize allocation of Investment capital to most productive sites 2. Optimize the exploration efficiency from these sites	Design, deploy and use of sensors and unstructured data in operational dashboards to monitor exploration sites	Requirements collection and translating them into real project phases; Lack of IT project management, working protocols and procedures
D	Production and Distribution	1. Integration of supply chain from production sites to distribution sites 2. Improve product distribution channels	New production management system, Integration with Logistics/warehousing systems of distributors; Collection and aggregation of big data for market forecasts	Lack of Project Cost benefit analysis capabilities; Week Project Leadership and lack of project sponsors

Table 3: Demographics of Survey Participants

	(Total: 107 Respondants) Mean	StdDev
Years of Schooling (include 13 years for K-12)	17.45	2.46
Years on Current Job	5.49	2.35
Years in Profession	8.84	4.48
Gender	Males: 69 Females:38	
Outsourcing Arrangement Identified	A : 23, B : 39, C :17, D : 28	

Table 4: Measurement Model Construct and Validity Measures & Correlations

Construct	Sq. RootAVE	Composite Reliability	R-square OR Communality(*)	Cronbach Alpha	Construct Correlations				
					CVA	KS	SF	RG	SLA
CVA	0.753	0.793	0.653	0.626	1.000	0.000			
KS	0.891	0.919	0.465	0.868	0.667	1.000			
SF			0.421*		0.637	0.458	1.000		
RG	0.901	0.928	0.442	0.883	0.782	0.662	0.524	1.000	
SLA			0.3503*		0.580	0.562	0.299	0.665	1.000

Table 5: Results of Hypotheses Testing

Hypothesis	Path Coeff.	Std. Dev.	T-Value	Hypothesis Supported
H1: Relational Governance (RG) -> Client Vendor Alignment (CVA)	0.6945	0.080	8.909	YES
H2: Contractual Governance(SLA) -> Knowledge Sharing (KS)	0.5701	0.053	10.693	YES
H3: Contractual Governance(SLA) -> Client Vendor Alignment(CVA)	0.5986	0.057	10.136	YES
H4: Relational Governance (RG) -> Knowledge Sharing (KS)	0.5204	0.093	5.5787	YES
H5: Contractual Governance(SLA) -> Relational Governance (RG)	0.6739	0.049	13.413	YES
H6: Knowledge Sharing (KS) -> Client Vendor Alignment (CVA)	0.2472	0.071	3.581	YES
H7: Relational Governance (RG) -> ISO Success Factors (SF)	0.5849	0.131	4.450	YES
H8: Contractual Governance (SLA) -> ISO Success Factors (SF)	0.3240	0.121	2.468	YES
H9: Client Vendor Alignment (CVA) -> ISO Success Factors (SF)	0.6228	0.173	3.531	YES