A Mixed-methods Study of Governance Mechanisms and Outsourcing Information System Services on Goal Performance

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Abstract

Background: *Information systems outsourcing (ISO) is one of the critical businesses in information technology outsourcing (ITO). Due to the increasing complexity of ISO, the failure rate of such outsourcing increases. Outsourcing information system services (OISS) was thus proposed to deal with this. A conceptual framework based on the information processing view was developed to investigate how the client firms assess OISS goal performance. Governance mechanisms (governance structure, relational governance, and IT coordination) were treated as antecedents of transaction cost and outsourcing flexibility; these would further affect goal performance (goal achievement and goal exceedance) with task complexity as a moderator.*

Method: *A mix-methods study was conducted; the qualitative approach was employed to validate the conceptual framework by interviewing three managers with experiences in OISS from the client firms, whereas the quantitative approach, with 206 responses from those with OISS experiences from the client firms, provides empirical evidence.*

Results: *The results indicated that relational governance effectively reduced transaction cost and increased outsourcing flexibility; the governance structure was also vital for outsourcing flexibility. Transaction cost was found to negatively affect goal achievement, and outsourcing flexibility positively affected both goal achievement and goal exceedance. The moderating effects of task complexity were also confirmed.*

Conclusion: *The results extended the information processing view to OISS and proved that transaction cost and outsourcing flexibility are necessary to link governance mechanisms and goal performance. Practically, the client firms are suggested to maintain a positive relationship with the OISS provider. The OISS provider should offer an exclusive channel during and after the execution of the OISS project to reduce the possible cost that occurs during the implementation and improve the outsourcing flexibility to allow the client firms to consider their goals have been achieved and beyond their expectations. By doing so, the effect of goal performance can be maximized.*

Keywords: Outsourcing Information System Service (OISS), Governance Mechanism, Transaction Cost, Outsourcing Flexibility, Goal Performance.

Introduction

The importance of information technology outsourcing (ITO) has been well-recognized among enterprises of all sizes (Könning et al., 2019). With the revenue of the market projected to reach USD 430.5 billion in 2023 (Statista, 2023a), the growth of ITO is gaining stronger momentum (Han & Mithas, 2013). The revenue growth in Asia is expected to grow at a rate of 9.16% annually up to 2027 (Statista, 2023b), marking Asia as one of the promising markets for ITO. With a projected growth of 7.87% up to 2027, Taiwan comes in the 4th place among the Asian ITO market, following China, Singapore, and South Korea (Statista, 2023c). These numbers indicated that Asia and Taiwan play a major role in the ITO market.

While ITO refers to the use of a third-party supplier to provide IT services that were previously provided internally (Han & Mithas, 2013) and can be divided into hardware outsourcing, software/system outsourcing, and maintenance service (Abdullah & Verner, 2012), among them, information systems outsourcing (ISO) refers to the use of a third-party supplier that provides IS services to the client firm (Ko et al., 2021). Previous studies usually discuss ISO from a general firm perspective to discuss ISO decisions (Gonzalez et al., 2005), ISO success (Gonzalez et al., 2010b; Gonzalez et al., 2015), ISO firm performance (Kwan & Carlson, 2017), and ISO project performance (Ko et al., 2021). Yet, these studies did not consider from a service firm perspective, where ISO providers can be seen as providing professional services (Pinnington & Woolcock, 1995). In order to capture the essence of the ISO provider as a service firm, outsourcing information system services (OISS) is adopted in this study, allowing for a more specific examination of the ISO provider from a service perspective. An OISS provider can offer client firms a range of information system products and associated services, encompassing system development, implementation, and maintenance services (Gorla & Somers, 2014; Hui et al., 2008).

On the other hand, research on ISO has primarily focused on motivations for using a service provider, including its greater flexibility and speed, technical feasibility, improved efficiency or cost/benefit ratio (González et al., 2010a), reasons, risks in large firms and adoption in firms with all sizes (González et al., 2016; Martins et al., 2015). Regarding the performance of ISO, Ko et al. (2021) investigated the coordination and control of projects on the performance of IS outsourcing projects. Kwan and Carlson (2017) focused on the firm performance of OISS from a relational marketing viewpoint. To the best knowledge of this study, few studies have focused on the outsourcing performance of OISS from the client firm's viewpoint to assess OISS as a service firm, which can help them face the difficulties resulting from different problems or conditions. Such difficulties usually arise from the complexity and uncertainty of the OISS project objectives, where multiple and conflicting goals usually exist (Öbrand et al., 2019). Investigating outsourcing performance requires the OISS provider and the client firm to achieve the goals agreed upon ex-ante, and exceeding the goal set by the ex-ante adds value to the performance (Deepen et al., 2008); thus, outsourcing performance can be measured by goal performance. Considering these discussions, the research question guiding this study is "How does the client firm assess the goal performance of an OISS provider?"

A mix-methods research design is adopted to understand such an inquiry. Extant literature may not sufficiently provide insights due to the rapidly changing environment within IS; a mix-methods research design can assist in delivering better explanations for the focal relationships (Venkatesh et al., 2013). In the current study, a conceptual framework is developed based on the extant outsourcing literature. The first part of the qualitative study is utilized to ensure the framework reflects reality in practice by interviewing managers from the client firms to enhance the understanding of the designed framework. The second method, the quantitative study, intends to obtain a more general result for the outsourcing performance of OISS (Jiang et al., 2022). A survey-based questionnaire will be conducted among those with experience in OISS to form a comprehensive picture of OISS.

To understand how the client firms assess the goal performance of an OISS provider, a conceptual framework is developed based on the information processing view. Two subordinated research questions can thus be addressed: "How do governance mechanisms affect OISS processes?" "How do OISS processes further impact OISS goal performances?" To answer these, firstly, from the information processing view, firms are information-processing networks with limited resources that face different levels of uncertainties in their task environments (Galbraith, 1974). While implementing an OISS project, firms typically encounter difficulties in inter-firm coordination (Wibisono et al., 2019), which might make outsourcing activities unsmoothly. To cope with the uncertainties, based on the information processing view to increase firms' capacity to process the information flow, Mani et al. (2010) proposed governance structure, relational process, and IT coordination technologies, which can be treated as governance mechanisms (Chong & Duong, 2017). Difficulties with outsourcing can primarily be attributed to cost savings without sufficient consideration of the required governance structures for implementing the contracts efficiently (Du Preez & Bendixen, 2019). A hybrid governance mechanism composed of contractual and relational can also affect outsourcing satisfaction (Rai et al., 2012). Thus, governance structure, relational governance, and IT coordination, are proposed as governance mechanisms and the antecedents of OISS processes in this study (Mani et al., 2010; Rai et al., 2012). Furthermore, transaction cost and outsourcing flexibility are used to represent OISS processes. In the OISS context, to identify the risk brought by system outsourcing during the execution of such a project, transaction cost can be used to measure such risks and assist the OISS in achieving economic benefits (Lee et al., 2019), leading to a better outsourcing performance (Liu et al., 2009). Outsourcing flexibility is thus suggested to be affected by contractual and relational governance (Bui et al., 2019) and positively affects outsourcing performance (Tan & Sia, 2006). Thirdly, it is expected that the OISS processes will affect outsourcing performance, in which the outsourcing performance is proposed as goal performance and can be measured by goal achievement and goal exceedance. When the OISS provider offers services that meet or exceed the goals set during the planning stage, it will increase the client firms' satisfaction with the provider and lead to the client firm's loyalty (Deepen et al., 2008). Finally, task complexity is treated as a moderator to moderate the relationship between governance mechanism and OISS processes. Task complexity can affect both the involved OISS providers and the client firms by increasing the communication workload and information processing, and thus require more specialized experts to handle the task (Hsiao et al., 2010) and more information sharing when executing it (Nickerson & Zenger, 2004).

Extending on the previous research (Barua & Mani, 2014; Gonzalez et al., 2005, 2010b; Gonzalez et al., 2015; Ko et al., 2021; Kwan & Carlson, 2017; Mani et al., 2010; Oshri et al., 2019), this study is expected to bring a novel insight on OISS performance through the information processing view to enrich the literature on ISO. To be more specific, two contributions can be drawn from the developed framework. Firstly, to respond to the call by Lacity et al. (2011), governance mechanisms should be distinguished for different types of outsourcing. Three components of governance mechanism are proposed in this study, including governance structure, relational governance, and IT coordination, to reflect the application in OISS. Second, OISS processes, including transaction cost and outsourcing flexibility, are required to connect the governance mechanism and goal performance within the OISS context, whereas task complexity should also be considered while implementing an OISS project.

The remainder of this study is organized as follows. In the next section, literature regarding OISS will be reviewed first, and then the theoretical lens of the information processing view will be discussed. Following the discussion of OISS processes, goal performance, and task complexity, the hypotheses will be discussed. In the third section, the research method and the result will be identified and discussed. The fourth section is a discussion of the results of hypotheses. In the fifth section, the theoretical and managerial implications are provided with a complement of limitations and suggestions. Finally, a conclusion will be drawn in the sixth section.

Theoretical Background and Hypotheses Development

Outsourcing Information System Service (OISS)

IT outsourcing has thrived among contemporary firms that outsource some or all of their IT functions and services to external IT experts (Gorla & Somers, 2014), which is defined as the use of a third-party vendor to provide IT services that were previously provided internally (Han & Mithas, 2013). IT outsourcing includes information systems, application development, operation and maintenance, network and telecommunication management, as well as help desk and end-user support (Hanafizadeh & Zareravasan, 2020). While problems with IT outsourcing can be found in service degradation, lack of vendor commitment, data delivery delays, and slow implementations (Gorla & Somers, 2014), most of the risks in implementing such projects arise from IT functions like software development, software maintenance, and support operations (Abdullah & Verner, 2012). Due to the major concerns when outsourcing information technology being the information systems itself, information system outsourcing (ISO) becomes the focus of this study.

ISO is defined as using a third-party vendor that provides IS services to the client firm (Ko et al., 2021). Whether to conduct ISO depends on the firm size and the industry sector the client firm sets in (Gonzalez et al., 2005). Grover et al. (1994) divided ISO into functions and found system operation is a major function being outsourced, whereas external service providers can also perform telecommunication management and end-user support. When deciding on an ISO provider, client firms should evaluate the provider's management problems, potential hidden costs, and motives (Grover et al., 1994). Grover et al. (1996) further examined the service quality of system providers and their ability to build partnerships with client firms and found service quality, trust, communication, and cooperation are critical to the success of outsourcing. With regard to outsourcing success, Gonzalez et al. (2010b) identified that choosing the right provider, the provider's understanding of the client's objectives, and the provider's attention to clients' specific problems were critical factors in determining ISO success. Gonzalez et al. (2015) extended this research and found that the client firm's top management, the relationships between client and provider, and the degree of outsourcing were found to positively affect clients' satisfaction. Due to the relationships between the service provider and the client firm being critical to ISO success, Heiskanen et al. (2008) analyzed the trust, control, and power between the relationships of a client firm and a service provider. From the service provider's perspective, Kwan and Carlson (2017) indicated that relationship marketing orientation positively affects the providers' firm performance. Ko et al. (2021) also found that outcome control and coordination are positively related to ISO performance while managing a complex ISO project. A summary of these studies is provided in Table 1.

Table 1 – Previous Literature Regarding Information System Outsourcing (ISO)				
Authors	Topic	Theory	Context	Findings
Grover et al. (1994)	Outsourcing information systems function and whether this differs with demographic factors.	X	Quantitative study with 188 valid responses from top management of IS.	1. Operations, application, end-user support, and telecommunications were outsourced to external service providers. 2. Firm size is no longer a determining factor of outsourcing, with the health industry being found to be strongly outsourced. 3. While evaluating the decision to outsource, management problems, potential hidden costs, and motives of the service provider should be evaluated.
Grover et al. (1996)	Five outsourcing functions, applications development, systems operations, telecommunications, end-user support, and systems planning and management, were examined for their relationships with outsourcing success.	Resource dependence theory and transaction cost theory	Quantitative study with 188 valid responses from senior executives of IS.	1. Outsourcing success was found to be related to systems operations and telecommunications. 2. Service quality and partnership are important for outsourcing success, such as end-user support and systems planning and management. 3. The elements of trust, cooperation, and communication from the partnership are important to outsourcing success.
Gonzalez et al. (2005)	Reasons that lead to ISO decisions.	Transaction cost theory	Quantitative study with 357 valid responses from IS managers of Spanish firms.	1. Reasons for ISO are the possibility outsourcing gives to focus on IS strategic matters, the possible increase in IS department flexibility, and the chance to get rid of routine, problematic tasks. 2. Frim size and industry sectors would affect ISO decisions.
Heiskanen et al. (2008)	Understanding the dynamic relationships between the client firms and service providers.	Resource dependence theory	Case study of an IS project between one university (client firm) and its service provider	1. Trust and control exercised by the client firm were different during different times within the IS development process. 2. Bargaining power was a forceful factor that affected the choices of actions from the client firm and service provider.
Gonzalez et al. (2010b)	ISO success factors and how to measure ISO success.	X	Quantitative study with 329 valid responses from IS managers of Spanish firms.	1. Choosing the right provider, the provider's understanding of the client's objectives, and the provider's attention to clients' specific problems were found to be more important in determining success. 2. Perceived strategic benefits were found to be the most important while measuring ISO success, followed by technological and economic benefits.

Table 1 – Previous Literature Regarding Information System Outsourcing (ISO)				
Authors	Topic	Theory	Context	Findings
Gonzalez et al. (2015)	Measure ISO success by user satisfaction and take three success factors into consideration.	X	Quantitative study with 398 valid responses from IS managers of Spanish firms.	1. The role played by the client firm's top management, the relationships between client and provider, and the degree of outsourcing were found to positively affect satisfaction. 2. When perceived economic, technological, and strategic benefits play as mediators, the effects are stronger from these three factors to satisfaction.
Kwan & Carlson (2017)	Adopting relationship marketing orientation (RMO) from ISO service providers to understand the key factors of RMO and their influence on firm performance.	Relationship marketing orientation	Quantitative study with 114 valid responses from IS senior executives of ISO firms in Hong Kong.	1. RMO is treated as a second-order reflective construct, including bonding, empathy, reciprocity, trust, communication, shared value, and harmonious conflict. 2. RMO positively affects firm performance outcomes, including market share, customer retention, sales growth, and return on investment.
Ko et al. (2021)	How project coordination and control affect ISO project performance.	Project coordination and control	Quantitative study with 189 valid responses from ISO project managers.	1. Outcome control was found to positively affect project performance and project coordination; project coordination was found to positively affect project performance. 2. When vendor reputation was high, the performance would increase.

Based on the above discussion, previous literature on ISO focuses on dividing ISO into functions (Grover et al., 1994, 1996), finding reasons that lead to making ISO decisions (Gonzalez et al., 2005), investigating factors that affect ISO success (Gonzalez et al., 2010b; Gonzalez et al., 2015), analyzing the dynamics of the relationship between the client firms and service provider (Heiskanen et al., 2008), adopting relationship marketing orientation to ISO service firm performance (Kwan & Carlson, 2017), and applying project control and coordination to ISO project performance (Ko et al., 2021). These studies fail to identify ISO service provider as a nature of a service firm and the delivery of information systems services in the present time involves a cooperative and interconnected process among users, service providers, and other individuals involved (Najjar et al., 2022); thus, the service provider is identified as an outsourcing information system service (OISS) provider, which is more specific to fit the context of this study. An OISS provider can provide the client firms with necessary IS products and associated services, including system development, implementation, and maintenance (Gorla & Somers, 2014; Hui et al., 2008).

Information Processing View and Governance Mechanism

Outsourcing information systems may entail a high risk as the client firm must rely on the OISS providers' resources, capabilities, and expertise (Ko et al., 2021). The significant difficulty encountered in outsourcing is the client firms losing part of the control to OISS providers, which increases the uncertainty of outsourcing since the providers do not operate the same as the internal department does, and the response time is not fast and flexible (Ko et al., 2021). This type of risk is often related to the complexity and uncertainty of objectives or goals where multiple, often conflicting, goals usually appear (Öbrand et al., 2019), resulting in project failures. Most failures can be attributed to the providers failing to deliver promised benefits (Abdullah & Verner, 2012).

To reduce uncertainties that occur during the implementation of an OISS project, the information processing view is usually adopted for reducing task uncertainty (Galbraith, 1974). Proposed by Galbraith (1974), the information processing view has been conceptualized as an organization as an information processing system conducting activities such as data gathering, transformation, information conveyance, and storage to get access to organizational information on economic activities (Tushman & Nadler, 1978). It was created to explain how to reduce knowledge gaps caused by task uncertainty in an organization between what is required to be known and what has already been known to perform the task and heavily focuses on information requirements deriving from the focal task attributes (Galbraith, 1974).

Previous studies applying the information processing view in outsourcing mainly focus on business process outsourcing and the multi-sourcing of IT (Barua & Mani, 2014; Mani et al., 2010; Oshri et al., 2019). Mani et al. (2010) utilized the information processing view to discuss business process outsourcing changes with a fit between information capabilities and requirements. Baura and Mani (2014) integrated the neoinstitutional economics and information processing view to focus on the governance structure of business process outsourcing. Oshri et al. (2019) examined joint vendor performance through the information processing view in multi-sourcing arrangements. To the best understanding of this study, few studies have applied the information processing view in discussing OISS as a service firm. OISS is an area that requires attention because this kind of project has become more complex and has experienced higher failure rates (Ko et al., 2021). Goman and Koch (2021) also suggested that implementing enterprise resource planning (ERP) projects faces risks due to failure to make wrong decisions. Delivering an OISS project includes OISS providers, client firms, and related stakeholders (Najjar et al., 2022), which can make the process more complex. Thus, the benefits and obstacles of interactions between the client firms and OISS providers are of great importance, where the information processing view can provide a theoretical lens to investigate.

To discuss more specifically from the information processing view in outsourcing, it generally plays as a bridge matching task characteristics with an appropriate governing structure (Mani et al., 2010; Narayanan et al., 2011). A company can reduce exchange uncertainty by building a conceptually well-structured governance system composed of mechanistic tools, relational control, and IT investment to address the information gap and task uncertainty between exchange partners (Galbraith, 1974). It has been proved that task uncertainty can be reduced through information exchange enforced either by contractual governance, relational governance, or IT infrastructure to speed up inter-firm communication (Galbraith, 1974). They can also be reduced by increasing the intensity of cooperation and facilitating the alignment of outsourcing structures, working processes, and resources of exchange parties (Rai et al., 2012). The governance mechanisms can thus be used to reduce opportunism derived from task uncertainty by managing buyer-seller relationships through contractual mechanisms (e.g., contract, certification control, transaction-specific investment) and relational mechanisms (relational norms, trust, information sharing) (Liu et al., 2009; Rai et al., 2012). Different mechanisms can be used to regulate the project development performances of a team (Annosi et al., 2022). Liu et al. (2009) also proved that contractual and relational governance can result in better performance. Formal and relational governance mechanisms can induce transaction-specific investments in supplier-manufacturing relationships (Yu et al., 2006). Besides governance structure and relational process, Mani et al. (2010) proposed IT coordination technologies can also be invested in business process outsourcing performances. In response to Lacity et al. (2011) that the governance mechanisms for ITO should be distinguished from those in business processing outsourcing, to be more specific in OISS, governance structure, relational governance, and IT coordination are proposed in this study as governance mechanisms.

The ***governance structure*** is built on ownership and control and is used to formalize the outsourcing relationship by contract (Mani et al., 2010). This means that promised-centered contractual governance can equip the outsourcing relationship with formality and enable clients to cope with uncertainties. A promised-centered contract can be viewed as a governance structure, emphasizing common goals and expectations with outsourcing partners and the space for renegotiation. Since Rai et al. (2012) suggested that goal expectations, activity expectations, and contractual flexibility can be used as contractural governance factors affecting outsourcing performance, these three factors will be treated as reflective second-order constructs of governance structure. The success of contractual flexibility is built upon mutual goal and activity expectations, which provide exchange parties with a clear and fair direction for action and evaluation (Rai et al., 2012). When unforeseeable incidents occur, exchange parties can make timely and appropriate adjustments based on these expectations or renegotiate the contract (Goo et al., 2009).

The *goal expectations* refer to suppliers' tendency to cooperate to fulfill contract terms (Reuer & Ariño, 2007). In this study, it is referred to as one perceiving a shared understanding with its system provider about OISS objectives and goals prescribed in a formal agreement (Reuer & Ariño, 2007). The goal in OISS implies the client's expected product with specified functions and qualities under a certain price level (Srivastava & Teo, 2012). *Activity expectations* refer to stipulations on appropriate behavior, methods, procedures, and techniques to guide the system vendor (Srivastava & Teo, 2012; Whipple & Roh, 2010). In OISS, it is defined as one perceiving a common understanding with its system provider on the standards of conduct prescribed in the OISS contract (Rai et al., 2012; Reuer & Ariño, 2007). For example, some clients may set quality standards (i.e., service response time) to regulate their OISS providers. *Contractual flexibility* is characterized by the ability to cope with abrupt uncertainties or incidents quickly and smoothly (Rai et al., 2012; Reuer & Ariño, 2007). While creating a contract with complete flexibility shifts all risks of uncertainties to suppliers, an incomplete contract leaves room for future renegotiation regarding changing circumstances (Papazafeiropoulou & Spanaki, 2016). Thus, in this study, it is defined as one perceiving the extent of renegotiation the outsourcing contract allows (Rai et al., 2012). For OISS,

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outsourcing scope and requirements often result in conflicts; thus, room for renegotiation becomes essential.

Relational governance can complement a flexible contract for a strategic buyer-seller relationship, which requires high coordination and quick response (Paulraj & Chen, 2007) and can affect a firm's financial performance (Chong & Duong, 2017). It can be defined as encouraging exchange parties to operate within the contract spirit and fostering an informal relationship by promoting information exchange beyond the contract scope (Rai et al., 2012). Less contract regulation would accompany more communication and interaction; thus, the client must build trust in its supplier with information sharing and conflict resolution possibilities. Communication, trust, and conflicts of resolution of partnership quality can lead to customer satisfaction with the outsourcing system (Rai et al., 2012). Regarding communication, the task uncertainty derived from the OISS project can be more alleviated by the involved parties exchanging information (Galbraith, 1974). Communication is modified in this study to information sharing because, during the execution of an OISS project, sharing would be more vital (Chang et al., 2019). The three factors in this study thus include information sharing, trust, and conflict resolution, which can be interrelated as the exchange partner's active tendency to share information is reinforced by trust, protected through appropriate conflict resolution. These factors will be treated as reflective second-order constructs because they had been tested in the previous study (Rai et al., 2012; Storey & Kocabasoglu-Hillmer, 2013).

Information sharing refers to a social process by which firms demonstrate their willingness to communicate with each other (Storey & Kocabasoglu-Hillmer, 2013). Carrying highly supportive and symmetrical strategic information flows for task achievement, intensive communication through formal or informal channels leads to a closer exchange relationship and higher customer value (Chang, 2006; Corsten & Kumar, 2005; Li et al., 2006). Within an OISS project, information sharing means the extent of proactive information sharing with meaningful and useful content carried out by the person who has participated in the OISS project (Chang et al., 2019; Rai et al., 2012). Moreover, *trust* is an essential emotion that reduces the perception of risk and uncertainty (Xiao et al., 2019). Trust could abate the client's anxiety about the OISS providers' opportunistic behavior and induce a more unrestricted and significant information exchange flow (Corsten & Kumar, 2005). Strategic information flows are built upon mutual trust and IT customization (Chang, 2006). Thus, trust in this study refers to one who believes the OISS provider will behave reliably and predictably without opportunistic behavior (Rai et al., 2012). *Conflict resolution* is one perceiving the amount of effort the OISS provider and the client firm put in to reach an amicable agreement and joint resolution in an OISS project (Rai et al., 2012). Since conflicts in outsourcing relationships may arise from incidents, such as customer or supplier complaints, contract breaches, incongruent opinions, differences in organizational culture, or personnel changes (Goo et al., 2009), it may detain information exchange when not handled well, and also discount perceived justice, satisfaction, and loyalty in business relationships (Homburg & Fürst, 2005).

With regard to ***IT coordination***, coordinating with partners and efficiently executing operational processes determines the ability of a firm to respond to market opportunities and risks (Papazafeiropoulou & Spanaki, 2016). IT investment in outsourcing often engages partners in a better IT platform where they communicate and coordinate more smoothly (Sheu et al., 2006). Coordination is a mutual accommodation, and IT allows information to be transmitted across various units relevant to OISS no matter its internal departments or external provider; thus, internal IT integration and external IT coordination are included as reflective second-order constructs for IT coordination (Flynn et al., 2010; Roberts & Grover, 2012). Trang et al. (2015) also underscored the importance of governance choices as well as internal and external network factors to the effectiveness of IT governance arrangements.

Internal IT integration in this study is defined as one perceiving the extent of access to corporate data allowed by a firm's information system (Narayanan et al., 2011; Roberts &

Grover, 2012). Narayanan et al. (2011) suggested that internal integration is necessary to achieve overall process integration; it could catalyze information exchanges across different functions and the alignment of cross-functional goals (Roberts & Grover, 2012). The operational agility of a firm can be enhanced through its ERP system, which intensifies the information flow by increasing the codifiability, standardizability, and modularizability of the processes (Han & Mithas, 2013). Firms with greater operational agility can achieve greater efficiency gains from IT outsourcing due to better process adaptability and more agile infrastructure (Han & Mithas, 2013).

External IT coordination is defined in this study as one perceiving the function and effect of inter-firm coordination through IT (Saraf et al., 2007). IT in external process integration could enhance a firm's ability to grasp instant information, such as process orders, forecast sales, and share customer data; hence, enabling the focal firm to collaborate with its partner seamlessly and to respond when market uncertainty has occurred quickly (Rai et al., 2006). In OISS, a more common way to improve information processing ability lies in inter-firm IT coordination rather than integration. For instance, Delta Air Lines receives information from its externally contracted call center operations in Mumbai, India, utilizing software that automatically captures both the audio and visual information from individual agents' computers and allows real-time data viewing (Han & Mithas, 2013).

OISS Processes, Goal Performance, and Task Complexity

While carrying out a system outsourcing project, it is often difficult to estimate the client firms' application of systems, delays in the rollout, cost of service, and technical problems (Susarla et al., 2009). These factors may result in system outsourcing uncertainty. To address such uncertainties, the transaction cost is suitable for measuring such difficulties to reduce costs in order to assist the OISS, in general, in achieving economic benefits (Lee et al., 2019). Moreover, as indicated by González et al. (2016), if an OISS provider is unable to adapt, it will become a critical risk while carrying out an OISS project. OISS provider's inability to adapt means that the provider is not flexible to any subjected changes throughout the implementing process, indicating that the provider's outsourcing flexibility should be achieved during the process. Flexibility is typically associated with the ability to respond to some uncertainty or change (Kumar & Stylianou, 2014). Outsourcing flexibility can be achieved in a cooperative relationship with minimal variance between client and supplier (Weigelt & Sarkar, 2012; Annosi et al., 2022). Thus, transaction cost and outsourcing flexibility are proposed as OISS processes through developing an information exchange structure that can address uncertainty.

Transaction cost is an implicit cost when firms delegate the task to others instead of managing it by themselves in the buyer-seller context (Chang et al., 2019; Zhou & Xu, 2012). Coordination cost, operational risk, and opportunism risk, proposed by Hong et al. (2010), are adopted to examine transaction cost that possibly occurred during outsourcing. Since these factors have been validated in the previous study (Hong et al., 2010), in this study, they will be considered reflective second-order constructs to measure transaction cost. *Coordination cost* are the cost incurred to monitor, control, and manage the work (Cha et al., 2009). In this study, it refers to one perceiving the underlying costs to facilitate information exchange during system development, implementation, or maintenance (Chang et al., 2019). A firm engaging in OISS requires a high level of coordination or managerial processes; for example, they are required to formulate an IT strategy or incorporate new applications into existing internal resources in order to address business challenges (Cha et al., 2009). *Operational risk* is caused by the complexity of the task, which inevitably involves complicated operations, cross-national coordination, the constraint of a communication system, or limited understanding due to differences in culture, language, or shared experiences (Aron et al., 2005; Shaikh & Henfridsson, 2017). Operational risk is that one perceives the extent of underperformance or information misinterpretation in OISS due to a lack of common goals or information asymmetry (Aron et al., 2005; Hong et al., 2010; Xu & Beamon, 2006). If the task is difficult to be

standardized or codified, the cost from operational risk will be increased (Papazafeiropoulou & Spanaki, 2016), which commonly occurs in system design as the vendors do not fully understand their clients' intra-firm operations. *Opportunism risk* is defined as the self-interested behavior of partners that violates contract terms (Williamson, 1985). Self-interest indicates the desire for lower costs and higher profits (Whipple & Roh, 2010). An OISS relationship built in an imbalanced power structure often gives rise to opportunistic behaviors (Xu & Beamon, 2006), which can be seen as partners' self-interested behavior, intending to lower costs and receive higher profits (Whipple & Roh, 2010). Thus, opportunism risk is defined in this study as one perceiving the possibility of opportunistic behaviors taken by system vendors, seeing the amount of cost invested (Whipple & Roh, 2010).

Outsourcing flexibility pertains to the capacity of an outsourcing relationship to adapt and modify the extent, nature, or scope of business services provided (Tan & Sia, 2006). In this study, it refers to the extent to which both exchange parties are willing and able to make changes to adapt to un-expectancies (Tan & Sia, 2006). Risks such as team member turnover, insufficient knowledge among teams, and changing or ambiguous requirements in a software project may increase the problems associated with OISS (Wallace et al., 2004); an outsourcing relationship of flexibility is therefore needed to mitigate those risks. Tan and Sia (2006) suggested that outsourcing flexibility includes four dimensions: robustness, modifiability, new capability, and ease of exit, with a common feature for possibilities of mutual accommodation responding to market change. An organization needs to consider different dimensions of flexibility simultaneously to be flexible (Sia et al., 2008; Tan & Sia, 2006). Arrangements for an outsourcing relationship need to be flexible and sufficient to redeploy resources or embrace new technologies to maintain service quality and accommodate fluctuating quantity. In cases of being stuck in a relationship, companies also need to consider their ease of exit. Thus, in this study, these four dimensions will be adopted as reflective second-order constructs for outsourcing flexibility.

Robustness means a vendor's ability to deal with external changes involving a client's fluctuation in service volume, varying requests, exception handling, and urgent or special case processing (Sia et al., 2008). A robust vendor in OISS means that it has sufficient and capable human resources to support its client's OISS project, such as setting built-in capacity to make critical resources available is one way for the vendor to achieve robustness (Chang et al., 2019). In this study, it is defined as one perceiving the system provider's ability to accommodate the client's unexpected operational changes beyond projected capacity (Tan & Sia, 2006). *Modifiability* means the vendor's ability to provide various attributes of services or products by setting up new configurations and altering processing workflow or business rules (Sia et al., 2008; Tan & Sia, 2006). Modifiability and robustness differ because the former requires essential changes to the existing working process instead of merely increasing capacity (Jordan & Graves, 1995). Since the client in OISS frequently makes changing requirements on system functions (Wallace et al., 2004), the OISS service provider should have modifiability to coordinate with its client. Thus, in this study, modifiability refers to one perceiving OISS provider's ability to accommodate the client's alternation of attributes beyond its existing services (Tan & Sia, 2006). *New capability* indicates the aptitude of an outsourcing relationship to adjust to novel government regulations, technological advancements, functional innovations, and comprehensive process transformations (Sia et al., 2008; Tan & Sia, 2006). Suppliers need to quickly perceive external changes and take actions, such as reengineering their firms' working processes or adopting new methods to more efficiently and effectively address complex task uncertainty than competitors (Worren et al., 2002). In an OISS context, the service providers are required to respond to the client firms' requests immediately as well as act to deal with the changes. Thus, a new capability in this study refers to one perceiving system providers' ability to implement new methods or facilities to pursue higher efficiency and effectiveness in task achievement (Tan & Sia, 2006). Finally, the ability of *ease of exit* means whether it is easy for a client to drop the existing relationship and transfer the outsourcing task to another vendor or bring it in-house (Tan & Sia, 2006). In OISS, the

firm's easiness to exit regarding vendor's unstable performance or pricing disagreements might result in relationship breakdown; the firm wants to outsource tasks back to in-house or retune its strategic partnering structure (Sia et al., 2008). Therefore, ease of exit is defined in this study as one perceives the easiness for firms to retreat from an outsourcing relationship to another or internal sourcing (Young-Ybarra & Wiersema, 1999).

With regard to OISS processes, the importance of contractual and relational governance has been proven to affect outsourcing performance in previous studies (Lacity et al., 2009; Lacity et al., 2011; Rai et al., 2012). Lacity et al. (2009) found that contractual and relational governance will determine the success of ITO. Lacity et al. (2011) identified that contractual and relational governance will affect the outcomes of business processing outsourcing. Rai et al. (2012) investigated that contractual and relational governance will affect the satisfaction of business processing outsourcing from a client's perspective. These studies only examine the direct relationship between governance and outsourcing performance. Due to the increasing complexity of an OISS project (Ko et al., 2021), such direct relationships might not be sufficient to fulfill a holistic view of OISS. To provide a more comprehensive understanding of OISS, transaction cost, and outsourcing flexibility are proposed in this study as OISS processes. Transaction cost was evidenced to affect ITO outcomes and decisions (Alaghehband et al., 2011; Aubert et al., 2004), whereas outsourcing flexibility is found to be positively affected by contractual and relational governance (Bui et al., 2019). It is expected to contribute to the literature about OISS processes and their relation to governance mechanisms and outsourcing performance.

Outsourcing performance refers to the satisfaction derived from the outcomes of outsourcing, which is assessed by comparing the anticipated and realized results of the outsourcing process (Rosin et al., 2019). Rosin et al. (2019) evaluated outsourcing performance by outsourcing efficiency and effectiveness in manufacturing. Srivastava and Teo (2012) evaluated outsourcing performance in performance of quality and cost. Quality is the attainment of goals, the quality of the system, and the vendor's service quality (Srivastava & Teo, 2012). Establishing a clear outsourcing goal can enhance the probability of achieving a successful outsourcing performance outcome (Brewer et al., 2013), where the performance is based on whether the targeted goals have been achieved and could contribute to outsourcing success (Deepen et al., 2008). When outsourcing, firms will establish goals; while achieving the set goals by a supplier corresponds to meeting existing expectations or significantly exceeding the goals and expectations, they will offer clients unexpected added value (Deepen et al., 2008). Thus, in this study, outsourcing performance will be evaluated by goal performance. When an OISS provider can provide services that meet the client firm's expectations or exceed the goals that were previously set, it will assist them in retaining the client firm and may also be beneficial by increasing customer loyalty and, consequently, customer lifetime value (Deepen et al., 2008). Thus, Deepen et al.'s (2008) concepts are adopted to examine OISS results from the direction of *goal achievement* and *goal* exceedance.

Goal achievement is when one perceives the extent of fulfillment in outsourcing expectations agreed upon by both parties before contract commencement (Wallenburg et al., 2010). In OISS, the client makes regulations or system performance standards in a contract or requests oral promises from the vendor; thus, meeting the client's requirement is the basic threshold in OISS. If outsourcing underperforms, the client then has to reconsider the goal and benefits for OISS. *Goal exceedance* means the amount of perceived surprise due to the vendor's outperformance (Wallenburg et al., 2010). It provides customers with unexpected added value (Verma, 2003), such as the OISS providers' adaptability to environmental changes or market demands (Chang et al., 2019; Deepen et al., 2008). Providers' willingness to achieve goal exceedance should show superior expertise in system development and service provision to satisfy and deeply impress their clients.

Finally, previous studies often adopted *task complexity* as an antecedent to outsourcing performance in business processing outsourcing or ITO (Mani et al., 2006; Susarla et al., 2010). Some scholars identified task complexity as a risk (Abdullah & Verner, 2012; Wallace et al., 2004), antecedent to process integration (Liu & Li, 2011), or task performance (Mani et al., 2010). According to Hærem et al. (2015), task complexity may also moderate organizational control because simple action patterns are easier to learn, control, and change than those complex ones. Thus, it is assumed that in OISS, task complexity can act as a moderator to moderate the relationships between governance mechanisms and OISS processes and is expected to enrich the literature on applying task complexity.

Firms often adopt IT outsourcing as a strategy to diminish organizational complexity and enhance competitiveness (Ensslin et al., 2020). However, the evaluation of IT outsourcing decision-making is typically intricate in nature; Liang (2019) defined task complexity as the level of demands on one's cognitive resources that influence the performance of a task. Engaging in tasks of high complexity demands that firms possess robust information processing capabilities and adept analytical skills (Liang, 2019). A complicated task is often composed of multiple subtasks requiring high coordination, and since each subtask has its own outcomes, the outcome of an integrated task becomes various and unpredictable (Bensaou & Venkatraman, 1996). In OISS, task complexity refers to the difficulties of the task itself; for example, whether a project involves new technology that has not been used before; whether a task is automated; whether a project involves many links to other systems; whether it requires considerable system integration and customization (Abdullah & Verner, 2012; Wallace et al., 2004). Task complexity affects managers of an increasing workload of communication and information processing, which raises the possibility of decision errors; completing a complicated task requires a high degree of specialization in each task field (Hsiao et al., 2010) and intensive information sharing (Nickerson & Zenger, 2004). Thus, task complexity in this study indicates the perceived degree of cross-departmental or cross-hierarchal coordination required to undertake the outsourced task (Narayanan et al., 2011).

Conceptual Framework

The information processing view is adopted as the theoretical lens to investigate goal performance while implementing an OISS project. A research framework is designed and expected to understand the overall impact of information processing on OISS in order to achieve the goal performance. Firstly, governance structure, relational governance, and IT coordination, are proposed as governance mechanisms to influence OISS processes (transaction cost and outsourcing flexibility). Governance structure, as reflected by goal expectations, activity expectations, and contractual flexibility, relational governance, as reflected by information sharing, trust, and conflict resolution, as well as IT coordination, as reflected by internal IT integration and external IT coordination, are considered as second-order reflective constructs and are assumed to negatively affect transaction cost (reflected by coordination cost, operational risk, and opportunism risk) and positively affect outsourcing flexibility (reflected by robustness, modifiability, new capability, and ease of exit). Moreover, transaction cost is assumed to have negative effects on goal achievement and goal exceedance, whereas outsourcing flexibility is assumed to have positive effects on goal achievement and goal exceedance. Finally, task complexity is considered to positively moderate the relationships between the governance mechanisms and OISS processes. The conceptual framework is depicted in Figure 1.
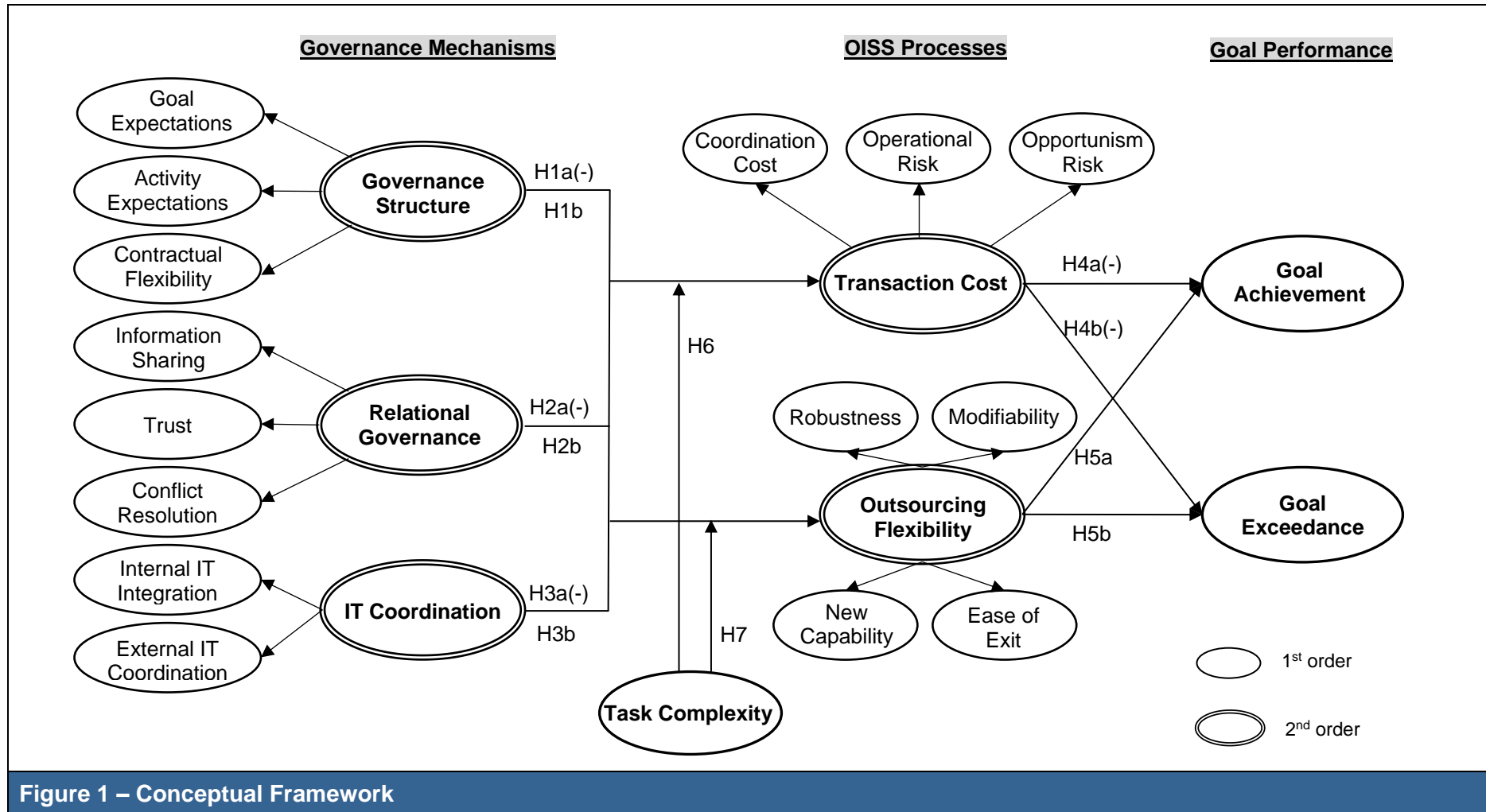
Figure 1 – Conceptual Framework

Hypotheses Development

Governance Structure, Transaction Cost, and Outsourcing Flexibility

The governance structure indicates that making normative contracts with specific common goals and expectations on appropriate conducts of exchange parties can save the amount of time, trouble, and money required for OISS; it restrains partner's undue behaviors (Wang et al., 2013); it assures that differences in culture, language, or shared experiences (Aron et al., 2005) or supplier's unwillingness to obey buyer's requirements (Xu & Beamon, 2006) would not bother outsourcing results. It also strengthens the firm's market responding capability with the support of outsourcing partners who can accommodate market variance and make adaptations for the focal firm (Wang et al., 2013). Being aware of each other's expectations of goals and specific behavioral patterns can cultivate a sense of group orientation, which incentivizes both parties to have reciprocal agreement on the needed adaptation for unexpected events (Noordewier et al., 1990).

In OISS, if the service provider can picture its client firm's ideal system with specified functions and follow the behavioral standard conducted by clients, transaction costs like operational risks or opportunism would be reduced. Outsourcing flexibility will thus be enhanced since the client can clarify their expectations to find the right provider with sufficient knowledge and staff to accommodate its demands before making contracts. The right provider can quickly respond to the client firm's demands. Consequently, common understandings of outsourcing goals and activity expectations enable firms to pay less on transaction cost during outsourcing and benefit more from the flexibility of collaboration.

A highly rigid contract would easily lead to other parties' intention to behave opportunistically (Whipple & Roh, 2010; Zhou & Xu, 2012). The time for renegotiation is reduced under the awareness of common goals and expected expectations behaviors by both parties. Seeing changing requirements is a common situation in system outsourcing; a flexible contract can mitigate a firm's coordination cost, opening up the room for renegotiation on contact contents, such as decreasing system functions or deferring project duration. As a whole, a flexible contract allows OISS providers to have space to make an adjustment, which is a way of empowerment that not only reduces transaction cost but increases the outsourcing flexibility. Thus, it is assumed that:

H1: Governance structure is (a) negatively related to the transaction cost of OISS and (b) positively related to the outsourcing flexibility of OISS.

Relational Governance, Transaction Cost, and Outsourcing Flexibility

Relational governance comprises information sharing, trust, and conflict resolution (Rai et al., 2012). Information sharing has the function of risk prevention and flexibility improvement. Information asymmetry is the central problem for quality fade, a performance of undersupply deriving from either the operational risk or opportunistic risk induced by suppliers (Chang et al., 2019). Lech (2022) also found that, when implementing ERP projects, knowledge asymmetry will increase the ambiguity of interpreting the projects. One way to mitigate information asymmetry is through intensive communication through formal or informal channels (Wagner & Johnson, 2004). If outsourcing changes are informed earlier, OISS providers can have more time to deploy necessary resources, such as IT engineers, to cope with the client's time and request. Trust stands as a pivotal determinant of outsourcing success because it encourages exchange partners to behave for mutual interest with built-in flexibility; as a self-enforcing safeguard, trust is especially critical in the restraint of opportunism (Liu et al., 2009). It is assumed that a lack of trust in OISS implies the client's anxiety about the provider's expertise and integrity to fulfill its project, namely, high operational risk or

opportunism. With trust, OISS providers are supposed to be more willing to respond to clients' extra demands by using their built-in capacity.

Conflict of interest is an issue for any principal-agent relationship (Fayezi et al., 2012). If a conflict cannot be settled well, a cleft of dissatisfaction would appear in a relationship, reducing both parties' willingness for information exchange and discounting trust in each other; they might eventually lead to relationship breakdown (Fayezi et al., 2012). Whipple and Roh (2010) pointed out that quality fade arises because exchange parties cannot align goals due to a conflict of interest. Hence, in OISS, inappropriate conflict resolution might discourage provider activeness from sharing information, undermining communication in terms of efficiency and effectiveness, and thus increasing the transaction cost of outsourcing; also, the room for negotiation might be reduced, decreasing OISS provider's passion for service, thereby lowering outsourcing flexibility. Therefore, it is assumed that:

H2: Relational governance is (a) negatively related to the transaction cost of OISS and (b) positively related to the outsourcing flexibility of OISS.

IT Coordination, Transaction Cost, and Outsourcing Flexibility

IT coordination is composed of internal IT integration and external IT coordination in this study. Internal IT integration provides common access to data throughout the entire organization, which catalyzes information exchanges across different functions and aligns cross-functional goals, thereby positively strengthening the relationship between inter-functional coordination and customer responding capability (Roberts & Grover, 2012). In this study, integrated data can allow OISS providers to execute OISS projects more smoothly and effortlessly because they do not have to collect clients' data from diverse departments; that is, both parties can spend less time on information exchanges. For outsourcing flexibility, it has been empirically evidenced that higher internal integration leads to higher outsourcing performance (Narayanan et al., 2011), indicating that the OISS provider can quickly respond to the client's demand with access to integrated data and further increases the provider's motives to make system adjustments on client's request.

Xu and Beamon (2006) suggested that IT empowerment enables firms to reduce the cost of communication and coordination; hence, decreasing operational and opportunism risks. Firms can facilitate communication, monitoring, and project enforcement by investing IT in areas like monitoring applications, communication systems, group decision support systems, negotiation systems, or collaborative application development systems to magnify the gains from OISS (Cha et al., 2009). Han and Mithas (2013) indicated that an airline corporation could monitor its outsourced call center operations, reducing coordination cost, operational risk, and opportunism risk. Likewise, for outsourcing flexibility, since those IT investments allow both parties to have a consistent view of data (Roberts & Grover, 2012), increasing knowledge transfer from the OISS provider to the client firm, the client firm can simply inform the OISS provider of its problems through coordinated IT system, asking for an instant response such as system modification or maintenance (Sinkovics & Roath, 2004). Therefore, it is assumed that:

H3: IT coordination is (a) negatively related to the transaction cost of OISS and (b) positively related to the outsourcing flexibility of OISS.

OISS Processes and Goal Performance

OISS performance can be measured by cost and service quality (Chang et al., 2019; Srivastava & Teo, 2012), and transaction cost might affect the client's estimation. For instance, the value of OISS might be discounted if the client firm spent days waiting for the provider's rescue for system breakdown or if the outsourced system does not fit the client's condition

due to operational risk, such as a communication gap or even if the outsourced system is embedded with faults and error resulting from opportunism risk. On the contrary, if obstacles such as coordination problems, incongruent goals, or the provider's undue behaviors are removed, the client's expectations may be more easily achieved (Deepen et al., 2008). The worthiness of outsourcing might surpass the attractiveness of in-house sourcing. Since an incremental relation between achievement and exceedance exists, it is possible to assume that if the OISS provider cannot achieve the client's goal because of the great transaction cost, it would be difficult to exceed the client's expectations. Thus, it assumes that:

H4: Transaction cost of OISS is negatively related to (a) goal achievement and (b) goal exceedance of OISS.

Outsourcing flexibility was one factor in adopting an application service provider (Altaf & Schuff, 2010; Sinkovics & Roath, 2004). Frequently changing requirements is one of the risks in OISS (Wallace et al., 2004); therefore, OISS service providers' adaptability to client firms' requirements plays a crucial role, implying a relationship of high outsourcing flexibility might bring client satisfaction. A relationship with robustness, OISS providers preparing sufficient engineers and knowledge are more capable of dealing with clients' sudden requirements, such as calling for system repair (Tan & Sia, 2006). A relationship with modifiability and new capability, in which the OISS provider allows a client to change system functions overnight or adopt high-edged technology at a reasonable price, might satisfy the client (Wallace et al., 2004). A relationship with ease of exit, in which the client could be easily released from an unfavorable relationship, for example, low expertise, might make the client feel more comfortable and allow the client to look for a better OISS provider. The mitigation of OISS risk could be helpful for the client's goal attainment (Srivastava & Teo, 2012). If the OISS provider can provide its service quickly and precisely, the client firm's satisfaction might evolve into a surprise, exceeding their expectations. Thus, it is assumed that:

H5: Outsourcing flexibility of OISS is positively related to (a) goal achievement and (b) goal exceedance of OISS.

Moderating Effects of Task Complexity

The amount of uncertainty reduction might be affected by task complexity, where task scope and criticality can increase outsourcing uncertainty (Sanders et al., 2007). Scope indicates the range of outsourced tasks, while criticality means the extent of the importance of the outsourced task to the customer's core competencies. Hui et al. (2008) suggested that more efforts are needed to coordinate and integrate these tasks if great work is distributed. Namely, large scope and high criticality would involve more interdependent activities to coordinate the outsourcing task, while the task of small scope and low criticality would need a low level of inter-firm coordination. Moreover, people find it hard to deal with highly complex tasks as it is difficult to sort out a clear solution from multiple sources involving greater skills, knowledge, cognitive abilities, memory capacities, and task efforts (Liu & Li, 2011). The complexity could obstruct human cognition, further undermining the organizational capability for information processing (Liu & Li, 2011).

High uncertainty in the IS/IT market would increase both contract negotiation costs and adjustments with suppliers (Ren et al., 2010). The client firm would feel challenged to establish a complete contract with the service provider, cultivating the growth of opportunism and ex-post performance problems (Ren et al., 2010). Uncertainty would incur more conflicts and bargaining, hampering the outsourcing relationship. For IT coordination, if a software project requires cooperation from various departments, which raises task complexity, the effect of IT as both an integrator and a coordinator would consequently diminish due to divergent opinions. Thus, it is proposed that:

H6: The negative effects of (a) governance structure, (b) relational governance, and (c) IT coordination on transaction cost are moderated by task complexity

The primary source of uncertainty comes from the difficulty in describing requirements (Susarla et al., 2009). Transaction cost is supposed to go up with task complexity because it takes efforts for internal ITs to integrate cross-departmental or cross-hierarchal opinions, especially if the involved departments are not familiar with system operations. Therefore, problems with frequently changing requirements might incur another transaction cost called maladaptation, where the OISS provider exhibits unwillingness or inflexibility to adapt to the client's swinging requirements. The OISS provider may take advantage of the client firm's need to renegotiate the ongoing contract, haggling or bargaining with the client because the vendor cannot adapt to unfolding contingencies such as shirking the scope of an outsourced software project (Susarla et al., 2009). In addition, internal IT might find it hard to communicate with external vendors and internal departments despite the support of technology as a facilitator (Bharadwaj et al., 2007). Thus, it is proposed that the uncertainty deriving from task complexity would moderate the effect of governance mechanisms on outsourcing flexibility.

H7: The positive effects of (a) governance structure, (b) relational governance, and (c) IT coordination on outsourcing flexibility are moderated by task complexity

Research Methods and Results

Mix-methods research has drawn extensive attention to IS scholars, where research combining qualitative and quantitative elements has gained momentum in the IS field (Venkatesh et al., 2016). By combining qualitative and quantitative research results, this type of method can offer a comprehensive understanding of the phenomenon (Venkatesh et al., 2013). It can also provide strong inferences to the research results (Zhang & Venkatesh, 2017). Corresponding to the research inquiry of this study to understand how a client firm assesses the goal performance of an OISS provider, a qualitative approach allows a deep understanding of the practice to ensure the designed conceptual framework corresponds to reality (Venkatesh et al., 2016). The rationale or theory behind the relationships can be better comprehended by utilizing qualitative data (Eisenhardt, 1989). To enhance the qualitative results and provide a more complete picture, the subsequent quantitative approach can further provide empirical evidence and a generalized result for the proposed framework (Jiang et al., 2022). Therefore, a sequential approach was adopted. First, a research framework was developed from the literature (see Figure 1). A qualitative study is employed to ensure the framework is reasonable and reliable, as well as to understand how client firms, in practice, put efforts into utilizing governance mechanisms to reduce transaction cost and increase outsourcing flexibility, leading to goal performance (Chang et al., 2014). The qualitative study can also validate whether the constructs and measurements are suitable and reliable in practice through in-depth interviews with firms. Second, a quantitative study was adopted to provide empirical evidence for the conceptual framework, where a questionnaire survey was designed to obtain quantitative data for analysis (Chang et al., 2014).

Qualitative Study

Research Design and Data Collection

For the qualitative study, three case studies on using OISS in Taiwanese companies were conducted via semi-structured interviews. The target firms were chosen based on convenience sampling because each could represent the industry that might require OISS providers (Leek & Christodoulides, 2012). Two of them were large manufacturers that require OISS providers. The remaining one was in the service industry, which required an OISS provider to assist them in operating different stores in different locations. All respondents were

managers from client firms that had experience interacting with OISS providers, thereby becoming suitable interviewees for this study. Each interviewee was provided with pre-organized questions to guide the interviews (Appendix A). The interview questions were formed according to the conceptual framework and reviewed by one distinguished IS professor before formal interviews. Through the interview process, an attempt was made to understand how the firms practically utilize governance mechanisms to provide OISS and reach their goal performances. During the execution of the interviews, it was permitted by the interviewees to record. After the interviews, the authors carefully transcripted and coded the content, and all the authors checked that the transcript corresponded to the recording.

Summary of Case Organizations

The background of the case firms is illustrated as follows. Firm A is a company in the optoelectronics industry with outsourcing experience in ERP systems. They started their business in 1950 in Taiwan, initially a manufacturer of backlight units (BLU) and liquid crystal modules (LCM), and expanded the business to optoelectronics around 2000. Currently, they are devoted to the industry with the manufacturing of applied materials and the application of the flat panel display. The interviewee is a senior IT manager who shared outsourcing experiences and worked in the IT department. On the other hand, firm B is an LED manufacturer with outsourcing experience in manufacturing executive systems (MES). Firm B started its business in 1996, majoring in LED applications on phone screens, laptops, and televisions. The interviewee is also a senior project manager in the IT department who shared experiences in outsourcing the MES. Firm C is a chain restaurant with outsourcing experience in points of sale (POS) systems. Firm C is a relatively young firm in the industry to open branches in different locations, focusing on hotpot. The Interviewee is the general manager with experience in outsourcing POS. According to the case results from the interviews, there were several common viewpoints:

(1) Governance structure: Both firm A and B agreed that they were required to gather information from the OISS providers, evaluate them, and clarify the required functions internally before selecting the providers to achieve goal expectations. They need to internally build a mutual understanding of the outsourcing sizes and functions to choose an appropriate OISS. After confirming a provider, a formal contract will be conducted, stating what functions the OISS provider has to build into the system and the compulsory services the provider has to provide during the execution of the contract. In the contract, they set up the activity expectations, such as performance goals to regulate the providers' behaviors and also performance indicators to examine the system's ability and service quality.

> *"We usually discuss our expectations with the system supplier to see whether they can satisfy our requirements. (…) We would also negotiate with them to achieve a mutual understanding (…) and develop the performance indicator of what they should achieve".* (firm A)

Moreover, both firms leave contract flexibility for each other, adjusting the content with the selected provider. For firm A, they could accept reasonable modifications when both sides agreed, while for firm B, if the modifications were without additional charges, it is acceptable. However, for firm C, they direct chose one provider with a brief statement of their requirements, such as the practical functions they required while operating the business with the system. The contract was made according to the quotation the OISS provider provided with a rough promise for performance goals and the possibility for contract flexibility. If firm C requires any new additional functions not stated in the original contract, additional charges might be required. *"We have to pay an extra price if we need new functions".* (firm C)

(2) Relational governance: Before system implementation, the frequency of exchanging information was high since the OISS provider was required to understand the client firm's requirements for making a contract and offer a suitable system, especially for firm A and B, since their systems are more complicated than firm C. Yet, the frequency of information sharing dropped during the maintenance stage. During their exchanges of information, trust and tacit agreement were essential. The former is that the firms could trust the knowledge and experiences of the OISS while the trust was built during the IT systems implementation from the cooperation of the firms' employees and the OISS engineers. Trust remained a vital aspect of maintaining long-term relationships. "*I could say that (…) trust for me is the belief in the knowledge and experience of the system supplier. (…) I could judge from it to decide which provider I could rely on*". (firm A)

Particularly for firm C, since most of the employees did not have the system knowledge, they relied more on the OISS to provide service whenever they needed it. The tacit agreement facilitated the information exchange for the involved parties to understand each other easily and smoothed the coordination during the system implementation. Although some conflicts might occur during the process, they all try to make peace to allow the project to run smoothly in order to maintain the relationships between the parties.

> "*Conflicts rarely occur while we implemented the system, (…) according to my experience(…). If there was a conflict, it must be that we were rushed to find the system supplier, (…) and we did not have enough discussion until we finalized the contract*". (firm A)

Since firm C highly relied on the OISS, they had no choice but to make peace with the OISS. "*I have to make a good relationship with them (OISS provider). By doing so, they would be more willing to answer my questions and requirements*". (firm C)

(3) IT coordination: ERP, MES, and POS were closed systems; it was not required to integrate with an external or existing system for ERP, MES, and POS. For internal IT coordination, ERP and POS required previously integrated data for OISS to increase their convenience in delivering the system. "*It would be (…) much easier for the system supplier to understand our circumstances (…) if we could integrate all the information before outsourcing the system*". (firm B)

With regard to external IT coordination, firm A frequently coordinated with the OISS provider during the implemented state, while firm B and C were more frequent during the maintenance and updating stage. All three firms communicated with OISS through e-mails and phones, with firm A adopting additional routine meetings, firm B adopting a few engineer visits, and firm C with remote control. Firm C was satisfied with the remote control as their employees lacked the ability to operate the system. OISS provider could solve their problems via remote control.

(4) Transaction cost: All managers agreed that coordination cost existed due to unavailable immediate support from OISS. For firm A and B, they were required to bear the cost since OISS could not only focus on firm A or firm B; they had other ongoing projects simultaneously.

> "*When we were working with our supplier with the system, (…) during the developing stage, (…) we had to spend extra time communicating with the system supplier because they did not provide service to us only. (…) They had other clients as well*". (firm B)

Waiting for OISS's response to the problems might be another cost because the information was conveyed through emails, and probably, a meeting would be required to solve the issues. Sometimes, the problems could not be solved until the OISS engineers were at the site physically. Unless the system was designed internally without outsourcing, the cost mentioned

above was inevitable. *"It would be impossible to reduce coordination cost if we did not build the system by ourselves*〞*.* (firm A)

For firm C, since their employees lacked IT knowledge, they entirely relied on the OISS provider to offer all the technical solutions; thus, coordination cost occurs with the obstacles in communicating in the IT language. Operational risks also exist in different types. For firm A, due to a better-designed contract and the internal IT experts, they were aware of the potential operational risk during the process; thus, they had already reduced the risks while preparing the contracts. For firm B, although some bugs in the systems could be found, they were solved during the maintenance stage. Firm C was required to adapt to the system due to the lack of experience in outsourcing POS. Both firms mentioned that opportunism risk would only occur when what the OISS promised was beyond their abilities. The opportunism risk for firm A and B was reduced since they were carefully evaluated before choosing the OISS provider, considering their reputation and experiences of their previous projects. Firm C was unable to identify opportunism risk due to a lack of IT knowledge.

(5) Outsourcing flexibility: All three firms agreed that the OISS providers could achieve robustness of the system quality before the deadline of the project. Yet, an issue with time was emphasized in all the firms. Firm A is concerned about the time arrangement during the system implementation. It was due to the allocation of the engineers from the OISS provider. They expected the OISS provider to deliver the system before the deadline.

> *"Adjustments were common during the project. (…) This was discussed beforehand when fixing the contract. They (the suppliers) would normally accept them (the adjustments). But the time (to fix the adjustment) has to be negotiated. (…) You can't just ask them to come".* (firm A)

For firm B, if they had new requirements, OISS generally negotiated a new delivery time to ensure the system quality. The system was delivered in time for firm C, but the managers were unsatisfied with the time to respond to the calls. Concerning modifiability, all the OISS providers to the three firms were trying to revise for customers' demands with negotiation for a new delivery time or to be within the scope defined in the contract. Firm B and C both mentioned that the OISS providers would satisfy their requirements before the system delivery. Firm C particularly mentioned that if the requirement were made after delivery, the revision would be limited. All managers confirmed the new capability was similar to modifiability because there was a change in the demands. A variation occurred in the ease of exit. Firm A tended to avoid it as they considered it a risk. They have reduced the possibility of exit during the evaluation period for a potential OISS provider. Firm B would change the provider if needed. They could easily replace the current OISS provider with another as they have identified all the requirements in the contract. Although it might cause them inconvenience to switch to a new OISS provider, they would still do so if needed. Also, sometimes, they would not write every item/condition in the contract to make it flexible during the system implementation. Firm C emphasized that they could not change it because the POS varies among OISS providers. The current one was exclusively made for them; it is almost impossible to leave the OISS provider or start from scratch and spend more expense on the system.

(6) Goal performance: Regarding goal performance on achievement and exceedance, all three firms were satisfied with the goal achievement in that each supplier met the original contract. Each firm evaluated the goal achievement based on fulfilling the original contract, and all three OISS providers met their expectations. Because the performance goal and indicators were already defined in the contract, it was difficult for the OISS providers to provide additional services for the firms to experience goal exceedance of their performances. Only firm B experienced goal exceedance in terms of expertise and service quality, while the OISS provider responded or satisfied their demand for revision immediately. Firm A mentioned that it would be challenging to feel exceedance as a buyer's demand could never be satisfied. To

remain outsourcing, flexibility was necessary, not an additional service that would drive goal exceedance. Firm C could not identify such an exceedance since they could not use an advanced system. They required a system that could fulfill their basic business requirements despite any advanced technology that might be offered during the system implementation.

(7) Task complexity: Both firm A and B agreed that integrating all departments and knowledge with the current situation, as well as the support for top management, makes the system's implementation complicated. Firm A stated that it was difficult to communicate with the OISS provider when the implementation date was delayed due to firm A's management board. Therefore, the complexity mainly came from the inner side instead of the OISS provider. As for firm B, due to the discussed project being ERP, it did not require a company-wide collaboration; however, if it was in other cases, it would also require a company-wide integration, resulting in the complexity of carrying out an OISS project. "*If it is for other systems like ERP, it will need input from other departments and also meet the satisfaction from them, so it's going to get complicated*". (firm B)

On the other hand, firm C focused on communication with the OISS in the initial stage as the manager himself lacked the knowledge of such a system. Firm C's managers and employees could not deliver their problems clearly and precisely for the OISS engineers to understand what they were trying to convey; thus, it increased the complexity while implementing the system.

The summary of the case organizations is shown in Appendix B. According to the discussions of the case studies, the constructs and framework were ensured. Some adjustments were made and provided in Appendix C. The interviewees confirmed that the proposed framework was suitable for OISS. Firm C reminded the importance of internal IT professionals when outsourcing systems; therefore, two more questions were added to verify the IT knowledge of the respondents and whether the respondent firms are with the IT department and remote control. The construct of new capability was incorporated into modifiability because of the overlapped meaning found during the discussions of modifiability and new capability, where the firms viewed them as similar concepts. Items in several constructs, such as internal IT integration or external IT coordination, were added or modified to measure the OISS more precisely. Overall, the conceptual framework is revised in Figure 2 based on the results of the interviews.
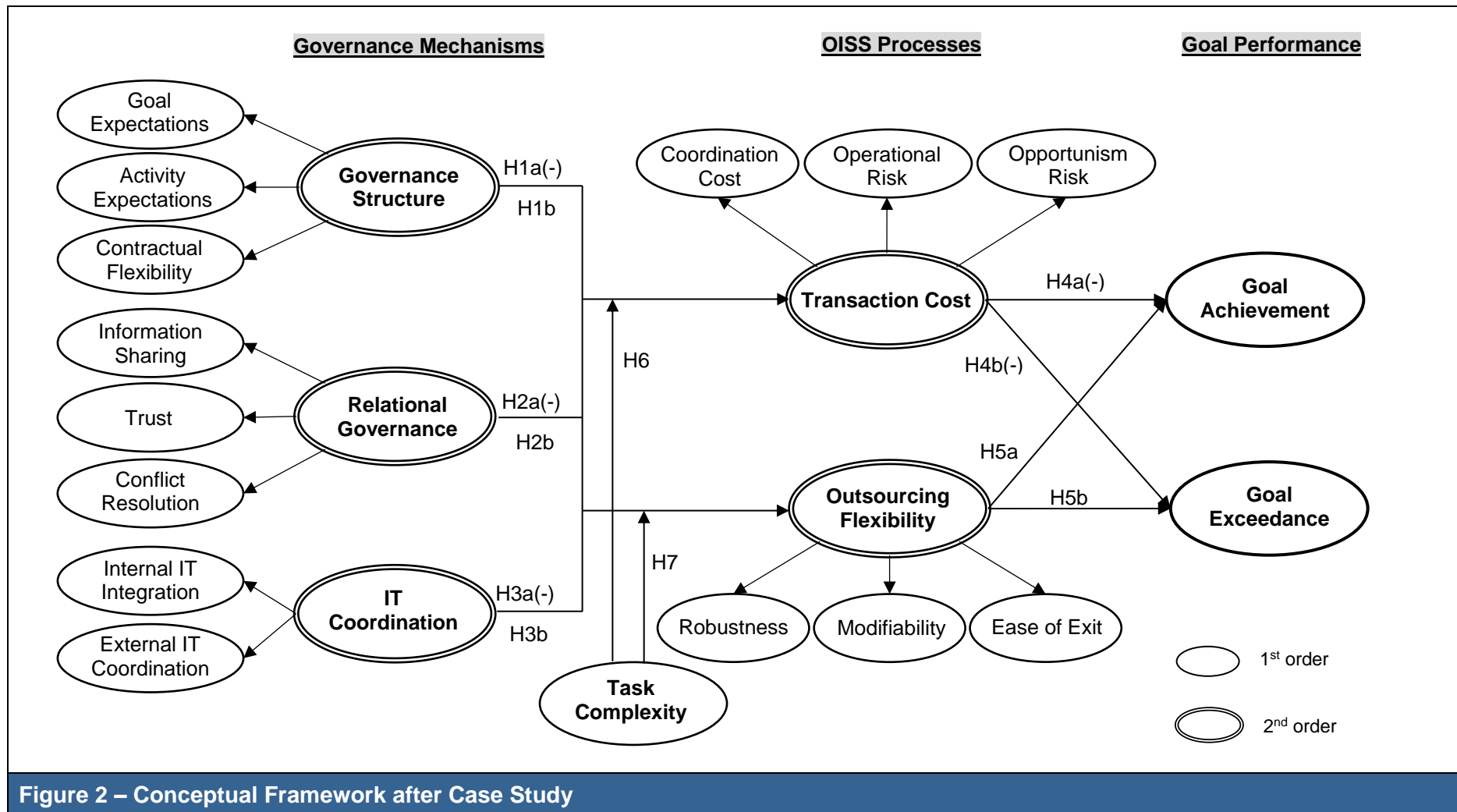
Figure 2 – Conceptual Framework after Case Study

Moreover, although OISS was mainly for small and medium companies to initially fill the IT competence gap (Martins et al., 2015), specifically, they tend to implement ERP systems to survive (Goman & Koch, 2021). Yet, the implementation risk might inhibit adoption, and large companies are more prepared to mitigate the risks caused by OISS (Martins et al., 2015). This is also confirmed by the case results, where one interviewee suggested that firm size can be a vital factor; it can be inferred that large companies can provide more insights into the research framework. Thus, large companies are more suitable to be the research target of this study.

Quantitative Study

Research Design and Data Collection

For the quantitative study, the research framework (see Figure 2) was used to design a questionnaire to examine the development of OISS in Taiwan. Eight constructs and items are first developed for client firms in OISS and are summarized with measurement items in Appendix D. Most of the measurements are adopted from previous research on outsourcing and modified to fit the OISS context. After the case study, a pilot test was then conducted to test the feasibility of the modified constructs and items. Some adjustments were made after the pilot test result was juxtaposed with the overlooked information from case studies. The measurement items were revised after the case studies and the pilot test, which were then confirmed to conduct the formal survey in this study.

A survey approach is adopted for the quantitative study. 6 items are included in the original questionnaire for the OISS background of respondents, with 8 for the respondents' demographic; 52 main items are adapted based on the previous literature to validate the research framework. Respondents are first required to choose one type of OISS project to show that they have OISS experience and proceed further to the questionnaire. A seven-point Likert scale was adopted, in which the respondent's answers ranged from 1, "strongly disagree," to 7, "strongly agree."

To examine the credibility and reliability of the survey, a pilot test was conducted. A sample consisting of 32 responses from those who work in the IT department with experience in outsourcing information systems was collected with convenience sampling. The results indicated that three constructs that did not pass the standard were contractual flexibility, opportunism risk, and ease of exit; thus, the wording of the items was adjusted for the formal questionnaire. For the constructs that passed the standard, the value of Cronbach's alpha ranged from .750 to .961. After the case study and pilot test, there were 68 questions in the questionnaire, consisting of 7 items checking the respondent's OISS background, 53 main items to test the proposed hypothesis, and 8 questions for the survey of respondent demographics.

Formal questionnaires were distributed in Taiwan with an online questionnaire to the employees (including managers and staff) with experience with OISS. The questionnaire was distributed to related job discussion communities on PTT, one of Taiwan's most influential bulletin board systems. 218 questionnaires were collected, with 4 invalids due to no OISS experience. In addition, 8 were removed due to the company size being small, which did not correspond to the research setting. Thus, there was a total of 206 responses remaining for data analysis. SPSS 26 and SmartPLS 4 were utilized for the quantitative data analysis and hypotheses testing.

Results of the Data Analysis

Table 2 shows that 54.4% of respondents were male, and 45.6% were female. Most of the respondents were between 26 and 35 years old. Although nearly 45% were in the manufacturing industry, with the rest of the respondents scattered in various industries, 88.8% were from the IT department. The majority of respondents were staff or lower-level managers. As for the company scale, 47.6% of respondents were from large companies with more than 10,000 employees, and 21.8% were from companies with 501 to 1000 employees. The respondent's OISS background was also included. 40.3% had undertaken OISS for three to five years; 96.1% came from a company with an independent IT department. The outsourced system projects were various: 18.4% in EIP, 18.4% in SCM, 16% in KMS, and 11.2% in ERP, and the other options were around 2.4%. Nearly half of the reported systems were under remote governance by the OISS provider. When answering the timing of participation in their reported system, 59.2% of respondents started from the beginning, 22.8% during system implementation, and 18% in the stage of system maintenance.

Table 2 – Demographics Analysis (*n*=206)

Category		Frequency (%)		Category		Frequency (%)	
Gender	Male	112	54.4	**Industry**	Electronic and appliance	22	10.7
	Female	94	45.6		Chemical Material	28	13.6
Age	21-25	11	5.3		Basic Metal	8	3.9
	26-30	64	31.1		Plastic Products	21	10.2
	31-35	61	29.6		Transport Equipment	5	2.4
	36-40	50	24.3		Apparel Machinery	15	7.3
	41-45	18	8.7		Precision Instruments	39	18.9
	<46	2	1.0		IC semiconductor	30	14.6
Department	IT	183	88.8		Electro-Optical	17	8.3
	Marketing	3	1.5		Food and Beverage	3	1.5
	HR	9	4.4		Wholesale and Retail	5	2.4
	Finance	2	1.0		Financial Services & Insurance	13	6.3
	Manufacturing	3	1.5	**Company scale**	51-100	6	2.9
	RD	4	1.9		101-500	27	13.1
	Sales	2	1.0		501-1000	45	21.8
Seniority	0-5	93	45.1		1001-5000	20	9.7
	6-10	65	31.6		5001-10000	10	4.9
	11-15	35	17.0		>10000	98	47.6
	16-20	11	5.3				
	21-25	2	1.0				
Management Level	Staff	106	51.5	**Firm Age**	<= 5	2	1.0
	Junior manager	62	30.1		6-10	36	17.5
	Mid manager	33	16.0		11-15	57	27.7
	Senior manager	5	2.4		16-20	37	18.0
Background	ERP	23	11.2		21-25	10	4.9
	BPM	22	10.7		26-30	4	1.9
	EIP	38	18.4		> 30	60	29.1
	SCM	38	18.4	**Experience in OISS (years)**	<1	25	12.1
	CRM	24	11.7		1-3	48	23.3
	POS	23	11.2		3-5	83	40.3
	KMS	33	16.0		5-10	35	17.0
	Others	5	2.4		15-20	13	6.3
With indepen. IT dept.	Yes	198	96.1		<20	2	1.0
	No	8	3.9	**Entering Time for System**	From beginning	122	59.2
Remote governance	Yes	105	51.0		Middle of system implement.	47	22.8
	No	101	49.0		Middle of system maintenance	37	18.0

Descriptive statistics were provided in Table 3; the mean values ranged from 6.02 (AE3) to 3.42(OR3), and the standard deviations were between 0.802 (AE1) and 1.971 (OR3). The reliability of the constructs was examined through item-to-total value conducted by SPSS 26, which ranged from .474 (AE1) to .816 (OR2), indicating internal consistency. Three items (CC1, CC2, and CC3) were deleted due to failure to reach the standard of item-to-total (>.40). As the research model is complicated and the sample size was small, partial least squares structural equation modeling (PLS-SEM) was adopted in this study using Smart PLS 4 to evaluate the reliability and validity of the model. A measurement model with all reflective constructs was conducted for the confirmatory factor analysis (Sarstedt et al., 2019). The factor loading ranged from .706 (CF1) to .949 (OR1). AE1 was deleted because the factor loading was lower than .70. All the remaining items satisfied the criterion, demonstrating the appropriateness of the constructs for evaluating each variable. Moreover, the *t*-values all met the standard, ranging from 15.491(CF1) to 161.061(OR2). In Appendix E, all factor loadings were above .70, and all items for each construct were greater than others, meaning no cross-loading issue occurred. It also demonstrated high reliability, with each item being appropriate for its corresponding construct.

Furthermore, Cronbach's alpha (>.70), composite reliability (CR) (>0.70), and average variance extracted (AVE) (>.50) were calculated to check the convergent and discriminate validity. In Table 4, the value for Cronbach's alpha ranged from .702 to .938, meaning good reliability, while the CR, ranging from .704 to .939, and AVE, ranging from .527 to .890, met the standard. As for the discriminate analysis, the diagonal values (square foot of AVE) were greater than the correlations between the constructs, showing each construct was discriminated from others. In order to evaluate whether potential common method bias exists, Harman's one-factor test was employed, and the initial factor accounts for only 29.54% of the variance, falling below the 50% threshold (Shiau & Luo, 2013). In addition, the highest correlation between the two constructs (EIT-CR) was .699, which is below the threshold of .90. Thus, CMV was not an issue.

Table 3 – Descriptive Analysis of Scale Items on Each Variable (*n*=206)						
Measure items		**Mean**	**S.D.**	**ITT (>.40)**	**FL (>.70)**	***t*-value (>1.96)**
Governance Structure *(Rai et al., 2012)*						
Goal expectations						
GE1	Based on the contractual agreements, our OISS provider knows which goals we associate with the OISS project.	6.00	.867	.589	.798	33.353
GE2	Based on the contractual agreements, our OISS provider knows which expectations have to be fulfilled.	5.71	1.004	.615	.788	30.223
GE3	Based on the contractual agreements, our OISS provider knows which outcome we expect from system outsourcing.	5.98	.932	.688	.769	34.048
GE4	Overall, we reach a consensus with our OISS provider.	5.96	.954	.552	.730	19.289
Activity expectations						
AE1	The OISS provider received clear performance targets through our service level agreement.	6.00	.802	.474	.869	38.391
AE2	Through our performance measures and targets, we were able to make clear what we expect from our OISS provider.	5.97	.826	.476		deleted
AE3	Overall, our company and OISS provider are clear in the performance indicators.	6.02	.880	.532	.893	59.159
Contractual flexibility						
CF1	Our contract enables us to renegotiate terms at short notice.	5.90	.942	.468	.706	15.491
CF2	In our contract, it is defined in detail when and how new requirements can be implemented.	5.91	.879	.559	.733	19.135
CF3	In our contract, it is defined in detail to which conditions new requirements can be implemented.	5.88	1.036	.551	.740	21.565
CF4	Adjusting service level agreements costs a lot, such as money and time.	5.90	.942	.563	.725	20.217
Relational Governance *(Rai et al., 2012)*						
Information sharing						
IS1	Our OISS provider and we provide each other with sufficient information to perform outsourcing.	6.01	.823	.528	.770	21.342
IS2	Our OISS provider and we effectively exchange information with each other.	5.82	.965	.574	.766	24.552
IS3	Our OISS provider and we have built well communication approaches.	5.73	.934	.640	.843	39.138
Trust						
T1	Trust is a crucial part of our business relationship.	5.95	.810	.635	.819	33.665
T2	We can trust our OISS provider to behave fairly.	5.76	.861	.573	.761	26.179
T3	Our OISS provider does not take advantage of the relationship.	5.89	.822	.559	.807	29.251
Conflict resolution						
CR1	Our OISS provider and we could reach an agreement on most issues when resolving conflict.	5.95	.888	.560	.807	28.284
CR2	Our OISS provider and we solve conflicts to the advantage of both sides.	5.88	.872	.607	.785	26.476
CR3	Overall, our company and OISS provider could peacefully resolve conflicts.	5.99	.867	.572	.785	28.434

Table 3 – Descriptive Analysis of Scale Items on Each Variable (*n*=206)						
Measure items		**Mean**	**S.D.**	**ITT (>.40)**	**FL (>.70)**	***t*-value (>1.96)**
IT coordination *(Roberts & Grover, 2012)*						
Internal IT integration						
IIT1	If our company can integrate internal information through other information systems before outsourcing, the speed of system outsourcing will thus be raised.	5.91	.824	.603	.885	65.533
IIT2	If our company can integrate internal information through other information systems before outsourcing, the efficiency of system outsourcing will thus be raised.	5.88	.861	.547	.870	56.669
External IT coordination						
EIT1	Our company can communicate with OISS providers through IT approaches at high speed, such as email, remote connection, or project management systems.	6.00	.841	.518	.783	22.109
EIT2	Our company can communicate with OISS providers through IT approaches in real-time, such as email, remote connection, or project management systems.	5.89	.984	.581	.757	22.400
EIT3	Our company can efficiently communicate with OISS providers through IT approaches, such as email, remote connection, or project management systems.	5.96	1.023	.621	.863	46.406
Transaction Cost *(Hong et al., 2010)*						
Coordination cost						
CC1	Exchanging information with the OISS provider takes a long time.	5.67	1.094		deleted	
CC2	Waiting for the provider's response to our request takes a long time.	5.54	1.240		deleted	
CC3	Waiting for the provider's action on our request takes a long time.	5.58	1.238		deleted	
Operational risk						
OR1	We think the outsourced system easily breaks down.	3.66	1.838	.806	.949	150.497
OR2	We think the outsourced system didn't fit our company very well.	3.46	1.886	.816	.945	161.061
OR3	We have problems obeying contracts.	3.42	1.971	.746	.937	115.239
Opportunism risk						
OPP1	We think our company's outsourcing project is difficult to fulfill for the OISS provider.	4.46	1.863	.760	.934	77.688
OPP2	We think the OISS provider has difficulties completing our project with good quality before the deadline.	4.40	1.866	.807	.942	133.195
OPP3	We think the OISS provider did not evaluate itself before taking our outsourcing project.	4.33	1.732	.748	.936	96.836
Outsourcing Flexibility *(Tan & Sia, 2006)*						
Robustness						
R1	Our OISS provider is usually able to handle variations in service volume with no detrimental effect on process efficiency and quality.	5.62	.959	.545	.801	32.239
R2	Our OISS provider contains a built-in capacity for transactional variation.	5.68	1.061	.528	.807	29.718
R3	Our OISS provider can handle transactional variation in a timely and error-free manner.	5.83	.933	.477	.778	22.562

Table 3 – Descriptive Analysis of Scale Items on Each Variable (*n*=206)					
Measure items	**Mean**	**S.D.**	**ITT (>.40)**	**FL (>.70)**	***t*-value (>1.96)**
Modifiability					
M1 The OISS provider can easily modify our outsourced projects in response to new opportunities.	5.74	.876	.547	.790	24.931
M2 The OISS provider can rapidly modify our outsourced projects without incurring a prohibitive cost.	5.81	.962	.606	.795	27.200
M3 The OISS provider can manage changes in outsourced projects in a timely and error-free manner.	5.75	.959	.569	.796	28.447
Ease of exit					
E1 We would find a substitute if we are not pretty satisfied with the OISS provider.	5.50	1.039	.457	.800	19.942
E2 Changing our OISS provider would not significantly affect our future operating performance.	5.41	.987	.503	.824	25.271
E3 Overall, we are not pretty dependent on this OISS provider.	5.48	1.129	.427	.767	16.738
Goal Achievement *(Deepen et al., 2008)*					
ACH1 Our OISS provider delivers its service always with the required quality.	5.69	.937	.535	.740	19.235
ACH2 The relationship with this OISS provider is very good.	5.74	1.113	.549	.769	24.067
ACH3 Our OISS provider completely fulfills the goals and expectations we jointly set prior to this logistics outsourcing relationship.	5.65	1.034	.527	.723	17.499
ACH4 We are very satisfied with our OISS provider.	5.84	1.002	.641	.826	28.020
Goal Exceedance *(Deepen et al., 2008)*					
EX1 The goals and expectations we jointly set prior to this arrangement were significantly exceeded.	5.84	.924	.609	.827	25.717
EX2 The relationship between the actual costs for this project and the overall service performance is much better than expected.	5.68	.989	.541	.815	26.432
EX3 We are significantly more satisfied with the quality of our OISS provider's services than we expected.	5.62	1.065	.584	.807	24.162
Task Complexity *(Chang et al., 2019; Narayanan et al., 2011)*					
TC1 Our outsourced system project is sophisticated because we have to integrate people from different departments.	4.72	1.520	.760	.904	56.421
TC2 Our outsourced system project is sophisticated because it requires a great deal of specialized knowledge in different disciplines	4.96	1.330	.634	.811	17.866
TC3 Our outsourced system project is sophisticated because it does not secure support from the management board.	4.98	1.476	.779	.914	59.979

Table 4 – Result of Reliability, Convergent Validity, and Discriminant Validity Analysis (*n*=206)

Var.	Mean	S.D.	α	CR	AVE	GE	AE	CF	IS	T	CR	IIT	EIT	OR	OPP	R	M	E	ACH	EX	TC
GE	5.911	.946	.774	.777	.596	.772a															
AE	6.012	.841	.712	.716	.776	.521	.881a														
CF	5.920	.946	.702	.704	.527	.669	.458	.726a													
IS	5.853	.916	.705	.710	.630	.670	.337	.577	.793a												
T	5.864	.833	.711	.713	.634	.680	.523	.635	.623	.796a											
CR	5.940	.875	.704	.704	.628	.656	.393	.614	.610	.627	.792a										
IIT	5.893	.842	.702	.704	.770	.533	039	.536	.534	.525	.520	.878a									
EIT	5.947	.952	.721	.725	.644	.646	.448	.570	.595	.611	.699	.577	.802a								
OR	3.513	1.899	.938	.939	.890	-.267	-.263	-.248	-.272	-.280	-.262	-.207	-.212	.944a							
OPP	4.396	1.819	.931	.932	.879	-.274	-.059	-.276	-.350	-.329	-.257	-.159	-.257	.639	.937a						
R	5.712	.988	.709	.711	.632	.493	.417	.503	.509	.474	.563	.435	.540	-.158	-.153	.795a					
M	5.769	.932	.706	.706	.630	.449	.330	.479	.547	.545	.566	.378	.410	-.151	-.147	.634	.793a				
E	5.463	1.053	.713	.717	.636	0.24	.227	.241	.296	.23	.248	.254	.243	.194	.237	.324	.459	.797a			
ACH	5.728	1.024	.764	.770	.586	.626	.494	.517	.551	.494	.585	.599	.613	-.184	-.106	.457	.460	.371	.766a		
EX	5.715	.997	.751	.753	.667	.557	.416	.584	.474	.508	.493	.444	.484	-.023	-.033	.534	.623	.505	.587	.816a	
TC	4.883	1.447	.850	.863	.770	.048	-.104	.124	.109	.142	.105	.099	.148	.537	.082	.071	.092	.203	.105	.111	.878a

Notes: **a**Square root of AVE value

GE= Goal expectations, AE= Activity expectations, CF= Contractual flexibility, IS= Information sharing, T= Trust, CR= Conflict resolution, IIT= Internal IT integration, EIT= External IT coordination, OR= Operational risk, OPP= Opportunism risk , R= Robustness, M= Modifiability, E= Ease of exit, ACH= Goal achievement, EX= Goal exceedance, TC= Task complexity

The path analysis was conducted using Smart PLS4 with 5000 random samples for the bootstrapping algorithm, displaying a full model in Figure 3. The results showed that H1b (β = .122, *t*-value = 2.070, *p*<.05) and H2b (β = .505, *t*-value = 6.096, *p*<.001) were supported, indicating that governance structure and relational governance both positively affected outsourcing flexibility. H2a (β = -.374, *t*-value = 3.336, *p*<.01) was also supported, meaning relational governance negatively affected transaction cost. Transaction cost was found to negatively affect goal achievement (H4a, β = -.122, *t*-value = 2.132, *p*<.05), while outsourcing flexibility was found to positively affect both goal achievement (H5a, β = .533, *t*-value = 9.692, *p*<.001) and goal exceedance (H5b, β = .694, *t*-value = 17.741, *p*<.001). Thus, H4a and H5 were all supported. However, H1a (β = -.062, *t*-value = .696), H3a (β = .066, *t*-value = .688), and H3b (β = .068, *t*-value = .539) were not supported, meaning that governance structure and IT coordination was not negatively related to transaction cost, with a similar result for IT coordination to outsourcing flexibility. H4b (β = .018, *t*-value = .404) was not supported as well, showing that transaction cost did not display a negative effect on goal exceedance.

The moderating effects of task complexity were conducted by using hierarchical regression analysis. 6 hypotheses were assumed that task complexity would moderate the relationships among governance mechanisms, transaction cost, and outsourcing flexibility. H6 was for the relationships between governance mechanisms and transaction cost. According to model 3 in Table 5 for transaction cost, the interaction effect of governance structure and task complexity (H6a, β = .181, *t* = 2.765, *p*<.01), relational governance and task complexity (H6b, β = .245, *t* = 3.922, *p*<.01), and IT coordination and task complexity (H6c, β = .264, *t* = 3.713, *p*<.01) displayed statistically significant influences; thus, H6 was supported. For H7 of outsourcing flexibility, the interaction effect of governance structure and task complexity (H7a, β = .217, *t* = 3.559, *p*<.001), relational governance and task complexity (H7b, β = .271, *t* =4.796, *p*<.001), and IT coordination and task complexity (H7c, β = .162, *t* = 2.319, *p*<.05) displayed statistically significant influences; thus, H7 was supported. A summary of all hypotheses is provided in Table 6.

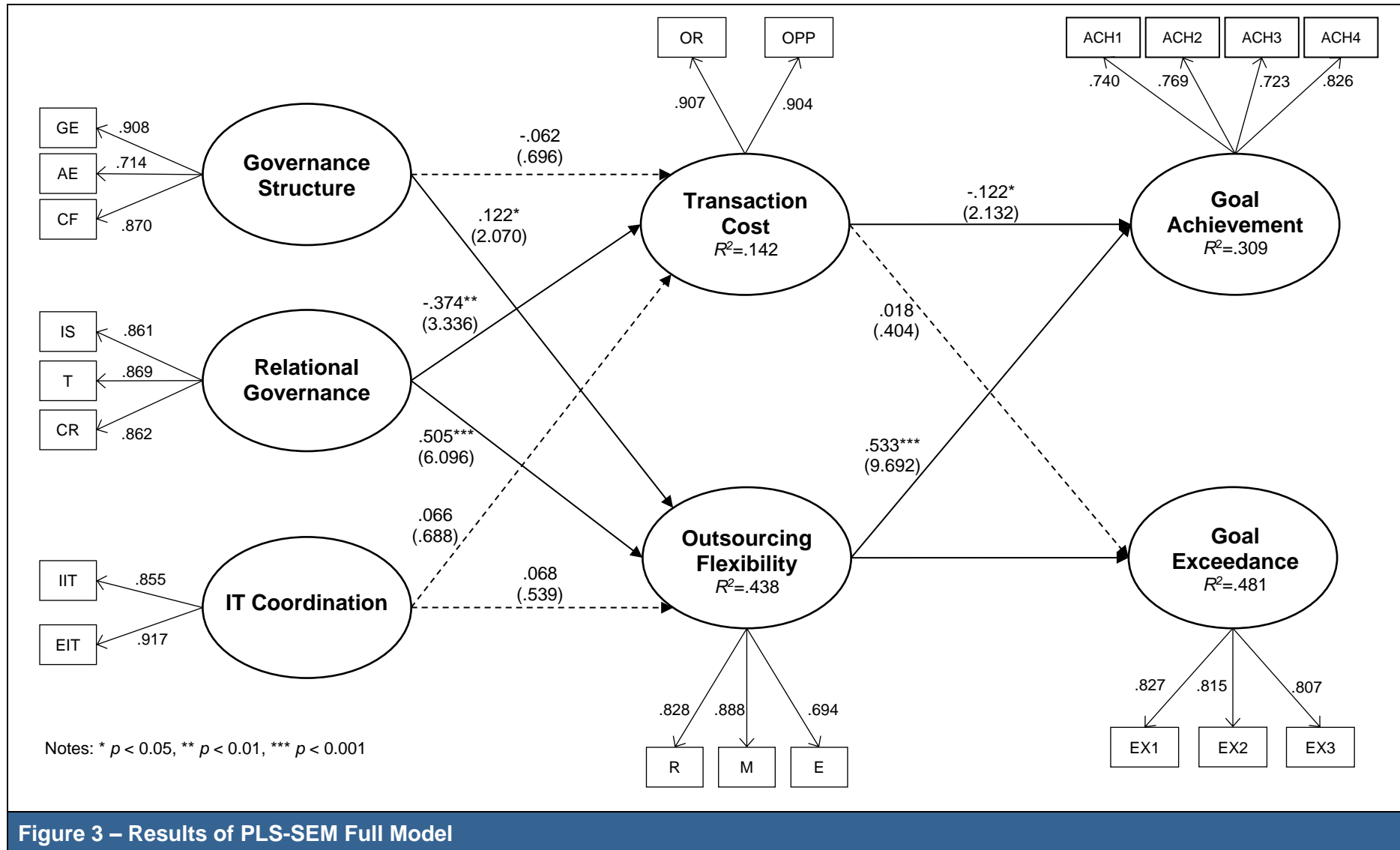**Figure 3 – Results of PLS-SEM Full Model**

Table 5 – Moderating Effect: Task Complexity (*n*=206)

Dependent Variable	Transaction cost						Outsourcing flexibility					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Main Effect	β	t	β	t	β	t	β	t	β	t	β	t
Governance structure	-.317***	-.4.766	-.337***	-5.470	-.356***	-5.838	.556***	9.565	.550***	9.515	.527***	9.315
Task complexity			.365***	5.936	.299***	4.587			.122*	2.108	.042	.702
Two-way: GS x TC					.181**	2.765					.217***	3.559
R^2	.100		.233		.261		.310		.324		.364	
Adjusted R^2	.096		.236		.250		.306		.318		.355	
F-value	22.713***		30.879***		23.810***		91.496***		48.740***		38.583***	
△ R^2	.100		.133		.028		.310		.015		.040	
VIF-value	1.000		1.003		1.016-1.176		1.000		1.003		1.016-1.176	
Dependent Variable	Transaction cost						Outsourcing flexibility					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Main Effect	β	t	β	t	β	t	β	t	β	t	β	t
Relational governance	-.371***	-5.715	-.427***	-7.194	-.481***	-8.156	.634***	11.711	.625***	11.448	.565***	10.594
Task complexity			.405***	6.828	.326***	5.373			.067	1.224	-.020	-.368
Two-way: RG x TC					.245**	3.922					.271***	4.796
R^2	.138		.299		.349		.402		.406		.467	
Adjusted R^2	.134		.292		.339		.399		.401		.459	
F-value	32.660***		43.290***		36.031***		137.143***		69.489***		59.016***	
△ R^2	.138		.161		.050		.402		.004		.061	
VIF-value	1.000		1.019		1.078-1.207		1.000		1.019		1.078-1.207	
Dependent Variable	Transaction cost						Outsourcing flexibility					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Main Effect	β	t	β	t	β	t	β	t	β	t	β	t
IT coordination	-.267***	-3.962	-.324***	-5.182	-.420***	-6.369	.526***	8.839	.515***	8.574	.457***	7.071
Task complexity			.393***	6.294	.301***	4.603			.078	1.297	.022	.336
Two-way: ITC x TC					.264**	3.713					.162*	2.319
R^2	.071		.223		.273		.277		.283		.301	
Adjusted R^2	.067		.215		.262		.273		.276		.291	
F-value	15.695***		29.138***		25.244***		78.125***		40.034***		29.056***	
△ R^2	.071		.152		.050		.277		.006		.019	
VIF-value	1.000		1.021		1.205-1.406		1.000		1.021		1.205-1.406	

Notes: *$p<.05$; **$p<.01$; ***$p<.001$

Table 6 – Result of SEM Path Analysis and Moderating Effects (*n*=206)	
Hypotheses	**Result**
H1a(-) Governance Structure → Transaction Cost	Not supported
H1b Governance Structure→Outsourcing Flexibility	Supported
H2a(-) Relational Governance →Transaction Cost	Supported
H2b Relational Governance →Outsourcing Flexibility	Supported
H3a(-) IT Coordination →Transaction Cost	Not supported
H3b IT Coordination →Outsourcing Flexibility	Not supported
H4a(-) Transaction Cost →Goal Achievement	Supported
H4b(-) Transaction Cost →Goal Exceedance	Not supported
H5a Outsourcing Flexibility →Goal Achievement	Supported
H5b Outsourcing Flexibility →Goal Exceedance	Supported
Moderating Effects: Task Complexity	**Result**
H6a Governance Structure → Transaction Cost	Supported
H6b Relational Governance →Transaction Cost	Supported
H6c IT Coordination →Transaction Cost	Supported
H7a Governance Structure→Outsourcing Flexibility	Supported
H7b Relational Governance →Outsourcing Flexibility	Supported
H7c IT Coordination →Outsourcing Flexibility	Supported

In Figure 4, three plots were used to express that when task complexity was high, the impact of governance mechanisms on transaction cost reduction was weaker. The initial transaction cost was similar regardless of whether the task was high or low. However, as the client strengthened its governance, there would be a significant difference in transaction cost. On the other hand, three plots revealed that when task complexity was high, the impact of governance mechanisms on outsourcing flexibility enhancement was more robust. Although the initial outsourcing flexibility for the highly complex task was visibly lower, its outsourcing flexibility significantly improved as the client strengthened its governance approaches.
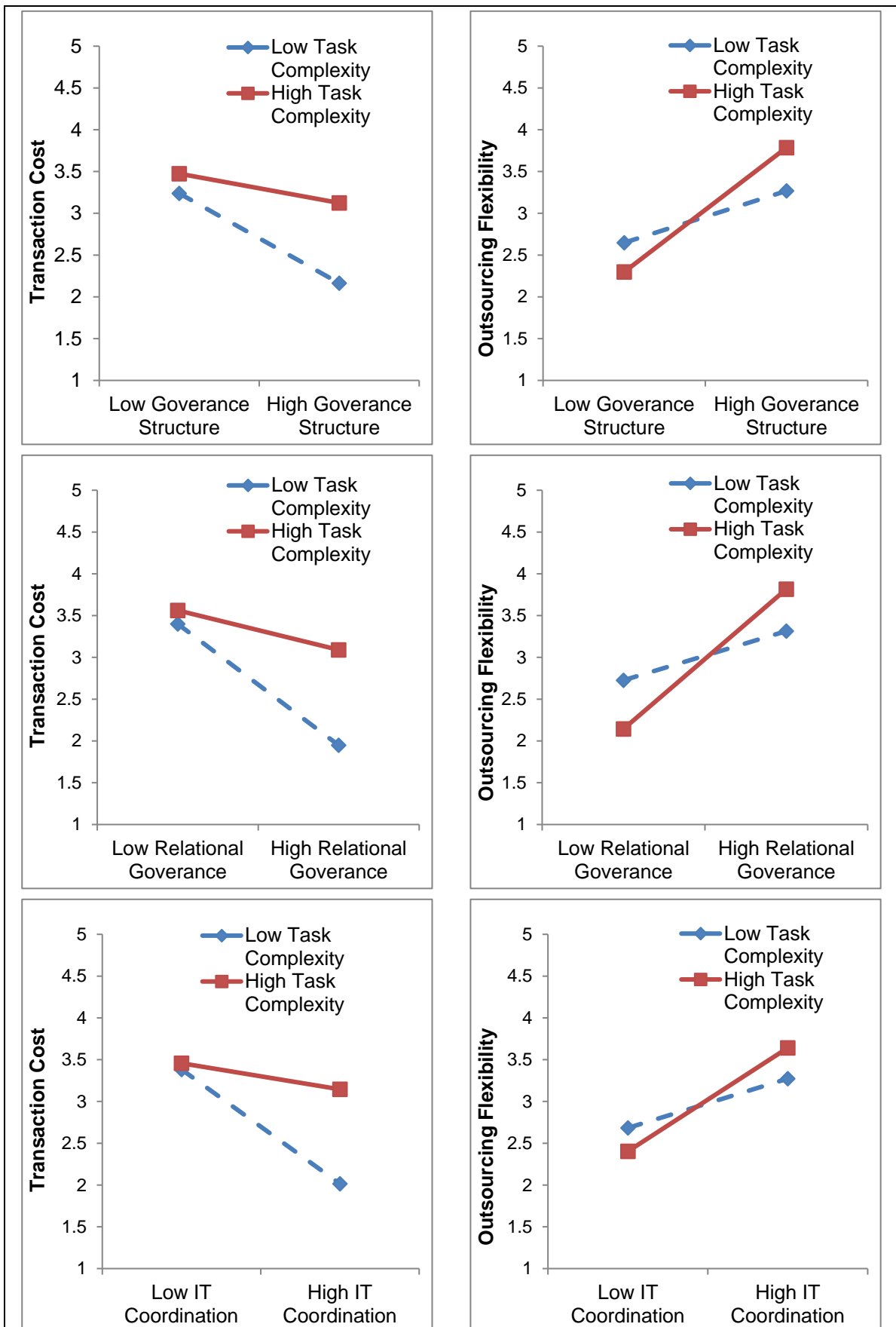
Figure 4 – Transaction Cost and Outsourcing Flexibility with Task Complexity on Governance Mechanisms

Discussions

Governance Structure on Transaction Cost and Outsourcing Flexibility (H1)

H1a was not supported, although prior studies in buyer-seller relationships had proven its effectiveness in reducing transaction cost (Wang et al., 2013; Whipple & Roh, 2010). A possible explanation for the unsupported result could be drawn from the qualitative study, where the interviewees indicated that the mitigation of the operational risk lies in the professional ability of OISS providers. During the implementation of the OISS project, the degree of operational risk and opportunism risk depends on the OISS provider's expertise and mutual understanding of the client and the provider before making the formal contract. Although they may try to clarify all the scope and goals within the contract, the details of implementing the system would still be challenging to identify in the contract. Thus, this would leave for further communication during the implementation. When a problem occurs, if the supplier cannot provide professional suggestions for the client firm to assist them in saving human resources to monitor the system, the operational risk would easily break as the provider fails to meet its demands. For opportunism risk, it is unlikely for the client firm to put morality inside the contract. They can only assess the OISS providers during the selection phase to decide whether the provider is reliable or not. Thus, opportunism risk would not be reduced.

On the other hand, H1b was found to be supported, meaning that governance structure positively influenced outsourcing flexibility (H1b). The results corresponded with previous research (Noordewier et al., 1990; Wang et al., 2013). One of the interviewees indicated that although system suppliers can make some adjustments outside of the contract, the client has to wait until that system provider can send its engineers because the provider has many clients to serve. In other words, although the contract is set up with space for content adjustments when to realize this adjustment is not written up in the contract but left for negotiations under the table. This has proven the existence of outsourcing flexibility; thus, H1b is supported.

Relational Governance on Transaction Cost and Outsourcing Flexibility (H2)

H2a and H2b were supported. Relational governance was a critical antecedent to ITO success (Lacity et al., 2009), and this has evidenced why relational governance could lead to OISS success. Operational risk and opportunism risk can be reduced through information sharing in a trust-based relationship (Lyu et al., 2023). In OISS, some system errors can be avoided if internal IT engineers frequently communicate with their providers (Wagner & Johnson, 2004). They trust their OISS provider on its expertise and virtues, expecting a low degree of operational risk and opportunism risk. They can pacify conflicts over system programs, solving unnecessary system problems. Therefore, relational governance negatively influences transaction cost with effective goal performance (Chang et al., 2019; Rai et al., 2012).

Outsourcing success came from outsourcing flexibility in the context of OISS. The case results revealed that intensive information sharing is necessary during system implementation because the OISS provider must understand its client's operational flow to make a customized system fitting for its usage. When the client firm greatly trusts its provider, the provider would respond to the client firm's request more actively through human resource deployment and service time arrangement. Conflicts commonly occur when it comes to time and system quality. When the client firms and OISS providers can resolve the conflicts through negotiation and reach a compromise from their good relationships, the client firm's perception of outsourcing flexibility will improve.

IT Coordination on Transaction Cost and Outsourcing Flexibility (H3)

IT coordination was shown to be neither directed to transaction cost (H3a) nor outsourcing flexibility (H3b), although it was indicated that the usage of IT could strengthen the buyer-seller

relationship (Paulraj & Chen, 2007; Roberts & Grover, 2012). The negligible contribution of IT coordination to transaction cost might be a contextual problem. Although IT coordination can facilitate information sharing, the determinant still relies on relational governance; before IT coordination, the client firm must share information for the OISS provider to understand their circumstances. As supported by one of the interviewees, the manager indicated that IT coordination had a limited impact on transaction cost because the cost does not lie in the technology but in other factors, such as a good relationship. Besides, because the rise of opportunism risk in OISS depends on the provider's morality, it is the provider who chooses to bid on the client firm's project. It is difficult for the client firm to know whether the OISS provider has sufficient human resources to actually execute their projects. Thus, IT coordination became effortless to prevent providers' opportunistic behavior.

For H3b, a possible explanation for the unsupported result might be that IT infrastructure plays only as a magnifier for transmitting information, implying that when people get used to such a magnifier, its effect on outsourcing flexibility might be neglected (Bharadwaj et al., 2007). Although one of the interviewees indicated that outsourcing flexibility was a required service in the OISS business, if the work of integrating the information across the departments within the client firm is not carried out smoothly, there is still a limit for the OISS provider to offer flexible service. Moreover, since the majority of the respondents from the sample were staff from the IT department, they were accustomed to the IT environment; thereby, they might become insensitive to the operational improvement of the IT when making adjustments to the system or asking for service solutions. Therefore, IT coordination was not influential in outsourcing flexibility.

Transaction Cost on Goal Achievement and Goal Exceedance (H4)

Transaction cost is implicit, and OISS performance could be measured by cost and service quality (Srivastava & Teo, 2012). Following H4a, goal achievement was found to be negatively influenced by transaction cost. This result is predictable in OISS because what the client wants after making a contract is no more than an expected system provided on time. A client cannot be satisfied if any software bug sabotages the function of the system or the provider cannot fulfill its duty on time. Thus, H4a was supported.

H4b was not supported. A possible reason might be the usage of the exceedance. Unlike goal achievement, goal exceedance requires a service that is unexpected and unregulated in the contract (Verma, 2003). The interviewee indicated that providing such a service would significantly satisfy the client. However, it is usually difficult for the client to feel satisfied, although the results of the OISS project were excellent. A nearly flawless system provided on time is just an essential OISS requirement, which is already expected while outsourcing. Thus, the result of H4b was beyond the expectation of this study.

Outsourcing Flexibility on Goal Achievement and Goal Exceedance (H5)

H5a and H5b were supported, as outsourcing flexibility was strongly positive to both goal achievement and goal exceedance, which proved that the provider's flexibility to the client firm's demand was essential in OISS (Altaf & Schuff, 2010; Sinkovics & Roath, 2004). As shown from the case study, because frequently changing requirements are common in OISS, some client firms would ask for an oral promise to deal with such conditions before entering a formal relationship; some would set a specific response time in the contract. Therefore, the agility of OISS providers to the client firms' demand is being considered in evaluating goal achievement. Frequent adjustments are one of the risks for firms in OISS since the OISS provider may not respond (Wallace et al., 2004). It would be better if such risk is mitigated as early as possible. Therefore, it is inferred that a provider's flexibility can surprise a client when it responds with preciseness and quickness by equipping itself with sufficient system

engineers to deal with all its client firms. The result of H5b provides evidence that the provider's agility to the client evokes is the key to goal exceedance.

Moderating Effect: Task Complexity (H6 & H7)

H6 and H7 were proved to have moderating effects on governance mechanisms. The effects of the governance mechanism were different from the level of task complexity (Narayanan et al., 2011; Whitley & Willcocks, 2011). Such a difference lies in the type of system implemented by the OISS provider. The governance mechanisms were found to significantly influence the reduction of transaction cost but little on outsourcing flexibility improvement for low complexity tasks, which had less cross-departmental coordination or low degree of professionals. In OISS, the system with low task complexity might indicate systems like supply chain management systems or MES, which did not involve the participation of other departments. Thus, operational risk became less because the provider only had to satisfy one or two departments under their instructions and monitoring. Opportunism risk could also become lower because such a task required less inter-firm or inter-departmental coordination, which was supposed to be easier to complete if the provider had not constrained itself to bid on this task initially. Besides, a low complexity task was a system implementation project of a small scale, which the provider was less willing to make adjustments due to little benefits, or the task was referred to as a system sold with a modular package, and the client accepted it when making contract without adjusting later.

For high-complexity tasks, governance mechanisms were found to have a weak influence on transaction cost reduction but a significant on outsourcing flexibility improvement. In OISS, a system with high task complexity might indicate systems like ERP, which involve participation from many other departments. Thus, operational risk became challenging to reduce because the OISS provider had to meet every department's requests, which would otherwise complain to the internal IT department or the responsible coordinator, attributing it to operational risk. A high task complexity system would typically entail higher opportunism risk since higher profit was generated from the provider's human resource investment (Ren et al., 2010). If the provider could not assign enough engineers to support, opportunism risk might break. Besides, the OISS provider could also anticipate more client adjustments after internal communication to complete a highly complex system outsourcing project. Therefore, the governance mechanisms could catalyze a provider's outsourcing flexibility by initially well-informing the provider's duty and monitoring its progress during the indentureship.

Implications, Limitations, and Suggestions

Theoretical Implication

Several theoretical implications can be inferred from the integrated results of this study. Firstly, while academic scholars have extensively applied the information processing view in business processing outsourcing and IT multi-outsourcing to discuss outsourcing performance (Barua & Mani, 2014; Mani et al., 2010; Oshri et al., 2019), the effects of applying the information processing view on OISS remained unclear. As the complexity of the OISS has increased, thereby increasing the failure rate (Ko et al., 2021), it is of great importance to understand such a phenomenon from the perspective of the information processing view. The more complex an OISS project is, the more communication it requires to reduce the failure rate and the uncertainties (Ko et al., 2021). The information processing view can be viewed as a bridge to match the characteristics of tasks with governance mechanisms (Mani et al., 2010; Narayanan et al., 2011). The results of this study have extended the discussion of the information processing view to OISS and prove that governance mechanisms can affect the OISS processes with potential factors of transaction cost and outsourcing flexibility, leading to the ultimate goal performance of OISS.

Second, previous studies have identified several components as governance mechanisms, such as mechanistic tools, relational control, and IT investment in organizational design (Galbraith, 1974), as well as governance structure, relational process, and IT coordination technologies in business processing outsourcing (Mani et al., 2010). A systematic review done by Lacity et al. (2011) on business processing outsourcing has identified that business processing outsourcing and ITO are different subjects. In this study, OISS serves as a service firm to provide service to the client firm and is different in nature from ITO. Thus, the components of the governance mechanisms were modified from Mani et al. (2010) and Rai et al. (2012) in this study to governance structure, relational governance, and IT coordination to be more suitable for discussing OISS. The results of this study have contributed to the relevant literature that governance structure is a critical factor for outsourcing flexibility, as well as relational governance can decrease transaction cost and increase outsourcing flexibility, thereby providing empirical evidence to OISS.

Third, although previous studies have identified the effects of different governance on outsourcing performance (Huber et al., 2012; Lacity et al., 2009; Lacity et al., 2011; Rai et al., 2012), these effects are proven to be direct relationships and conducted in the context of business processing outsourcing and ITO. An OISS project's growing complexity requires a holistic, comprehensive understanding of OISS (Ko et al., 2021). Transaction cost and outsourcing flexibility were proposed in this study to represent OISS processes due to mixed results of previous findings in ITO outcomes (Alaghehband et al., 2011; Aubert et al., 2004; Bui et al., 2019). The results indicated that transaction cost was affected by relational governance, resulting in reduced goal achievement; outsourcing flexibility was impacted by governance structure and relational governance, leading to positive influences on goal achievement and goal exceedance. The results have provided empirical evidence that OISS processes are required to link governance mechanisms and goal performance. Another contribution to the existing literature lies in extending goal performance to OISS. Srivastava and Teo (2012) suggested that outsourcing performance is often measured by quality and cost. Deepen et al. (2008) proposed that outsourcing performance can be measured by goal achievement and goal exceedance. Since an outsourcing goal could enhance a successful outsourcing performance outcome (Brewer et al., 2013), goal achievement and goal exceedance are proven in this study to measure the outsourcing performance of OISS.

Finally, as previous studies generally adopted task complexity as an antecedent to outsourcing performance (Liu & Li, 2011; Mani et al., 2006; Susarla et al., 2010), task complexity can also act as a moderator (Hærem et al., 2015). Task complexity was proven in this study in that it could act as a catalyst for the effects of governance mechanisms on OISS processes, where weakening effects were found on governance mechanisms to transaction cost and strengthening effects were found on governance mechanisms to outsourcing flexibility. The results of this study enrich the literature on OISS that task complexity can moderate the relationships between governance mechanisms and OISS processes.

Managerial Implication

Some managerial suggestions are provided for client firms and OISS providers. First, the governance mechanisms proposed in this study are more like a catalyst for the client firms, pushing OISS providers to do their best to fulfill the contract. The expertise and morality of an OISS provider seriously influence the processes of conducting an OISS project, further affecting the ultimate goal performance of the OISS project. Therefore, it is suggested that, before determining a formal partner, the client firms should implement a discreet evaluation of the providers' expertise and available human resources of OISS providers. OISS providers might provide their previous experience in implementing similar projects. The client firms can check with their previous clients to understand whether this provider is reliable. Moreover, they can also check with the provider during the selection stage to understand how many other

ongoing projects they have now in order to determine whether they have sufficient human resources to carry out the intended OISS project.

Second, the governance mechanisms are found to compensate for the congenital disability if the client firm does not deliberately undertake the OISS provider's evaluation beforehand. Although the governance structure was found to affect outsourcing flexibility positively, it is suggested that the client firm should make a promise-oriented contract for future negotiation if it expects to make frequent adjustments. The client firm should make a common understanding with its OISS provider on expected outcomes, describing the desired systems and expected operations as precisely as possible. Synchronous work is also suggested so that both parties can interpret the project scope mutually (Lech, 2022). Besides, the client firm should make the OISS provider execute the contract expectations, such as asking for a specific response time or examining the final product system with a clear standard. The client firm can negotiate with the OISS provider inside the contract for future discounts with unexpected adjustments or clarify the range for acceptable adjustments.

Third, the data analysis has revealed that relational governance is a critical factor. Relational governance is the rescuer of the client firms because it is highly effective for transaction cost reduction and outsourcing flexibility enhancement. Therefore, it is suggested that the client firm can proactively provide the necessary project-related information to the OISS provider to let the provider understand the situation in which they need assistance as quickly as possible and take necessary actions immediately. Besides regular meetings and training with the provider, they can build a communication platform exclusively for this project. By doing so, the client firm can feel that there is always a communication channel with the provider whenever they have questions and issues. The OISS provider can allocate a coordinator dedicated to this project to communicate with the client firms. In addition, the client firm should consider how to solve conflicts while communicating such requirements. It is suggested that the OISS provider should be aware of the penalties if it defaults, and the client should always make a backup plan in case any accident occurs.

Fourth, outsourcing flexibility was found to be affected by governance structure and relational governance as well as affect goal performance, indicating that the client firm values outsourcing flexibility and might require adjustments and negotiations in OISS. Therefore, it is suggested that the OISS provider should ensure that there will be a quick rescuer if the system turns out of function; the client firm should ask for the latest response time or require the OISS provider to be on board for certain days, which can be made in a contract. The OISS providers can leverage their project coordinator with their engineers to react to the demands of the client firms as soon as possible and provide a certain service time or the latest response time to act on the client firms' requests. A specific communication channel, as suggested previously, can solve the client firm's anxiety. In this case, the conflicts over the OISS provider's sluggishness can be avoided, and the client firms' sensitivity to the waiting time can be reduced.

Finally, as the data was mainly collected in Taiwan, a fast-growing country with IT outsourcing projects (Statista, 2023c), the practical insights from the interviewees and the results of the data analysis could provide OISS providers in Asia, or specifically Mandarin-speaking region, in handling OISS projects with their client firms. The results of this study proved that relational governance is the most critical factor, meaning that information sharing, trust, and conflict resolution should require attention from the practitioners in this region to reduce the uncertainty caused by transaction cost and raise the flexibility that the client firms perceive. By doing this, OISS providers can excel at the goal and probably develop a long-term relationship with the client firms, which could bring about more collaboration in the future.

Limitations and Suggestions

Several limitations and suggestions for future studies are provided. First, the constructs in this study were borrowed from business processing outsourcing studies to identify the differences between business processing outsourcing and OISS, specifically for governance mechanisms. In this study, the constructs of governance mechanisms were adopted from Mani et al. (2010) and Rai et al. (2012) to better fit the context of OISS. Although a qualitative study was employed to ensure suitability in practice, some unsupported results were found in the quantitative study. The governance structure was found to have no effect on transaction cost, and IT coordination was found to have no effect on both transaction cost and outsourcing flexibility. Future studies could analyze the governance structure and IT coordination for OISS research more deeply since IT coordination was evidenced to affect business processing outsourcing (Mani et al., 2010). Moreover, even though the unsupported results were able to draw explanations from the firsthand experiences of the managers of the client firms with OISS experiences in the qualitative study, there might be a need for more clarification of the results. Future studies can attempt to design a more suitable research framework specific to the OISS context, thereby designing a better governance mechanism leading to OISS success.

Furthermore, regarding the sample, in the qualitative studies, one of the interviewees was from a restaurant chain in the service industry. Although the company size was not large and contradicted the assumption of this study for a larger company, it was still taken into consideration because the nature of that firm did require an OISS provider to assist them in operating their business and could provide other insights into OISS. Future studies could select more suitable cases to provide more practical experiences in the OISS context. In addition, in the quantitative study, the majority of the respondents were IT staff (51.5%). Although the research objective of this study is to understand the OISS from the perspective of the client firms, IT staff might not be able to judge from an organizational point of view if compared with managers. Parts of the unsupported results might be due to the majority of the respondents being IT staff. Thus, future studies could be more specific to recruit respondents from a managerial level to obtain practical insights for the OISS.

Conclusion

With the ISO project becoming more complicated, OISS was proposed to deal with the complexity as a service provider and from the perspective of the client firm. The conceptual framework drawn from previous literature to understand how client firms assess the goal performance of an OISS provider was developed. It was verified by the qualitative approach with interviews from managers of the client firms having experience in OISS and further empirically tested with managers and staff from the IT department through a survey-based quantitative approach. The results of the case study and data analysis can provide novel insights into OISS. Firstly, the developed conceptual framework has proven to be able to apply in OISS, extending the literature on information processing view to OISS. Moreover, governance mechanisms proposed in this study were demonstrated to affect OISS processes. In particular, relational governance was found to effectively decrease transaction cost and increase the outsourcing flexibility of OISS processes. Practically, it is suggested that the OISS providers can proactively provide project-related information to the client firms as well as a communication channel and project coordinator exclusively for the OISS project in order to maintain a good relationship with the client firms. The governance structure was also evidenced to affect outsourcing flexibility effectively. Before making a contract, the OISS providers are recommended to provide a promise-oriented contract if they anticipate that there might be frequent adjustments during the expectation of the project. Secondly, transaction cost and outsourcing flexibility were confirmed as requirements to connect governance mechanisms and goal performance owing to the growing complexity of the OISS projects. Regarding transaction cost and goal achievement, in practice, OISS providers can assist the

client firms in describing the desired systems and expected operations as precisely as possible and reach a mutual understanding of how to proceed with the project and the project goals to reduce the transaction cost and achieve the target goals. As for outsourcing flexibility, goal achievement, and goal exceedance, the OISS providers are expected to allocate sufficient engineers to respond to the clients' requests immediately and make backup plans to offer flexibility to enable the client firms to perceive that, besides what the contract regulates, the providers' performances are beyond their expectations. Overall, the results of this study contributed to the literature on OISS, particularly in the Asian-Pacific region, with empirical evidence from Taiwan. Future studies can draw on the results of this study to explore more on OISS.

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Appendix A. Interview Questions

Table A – Interview Questions	
Construct	**Question**
Respondent's OISS background	• What OISS projects have you ever dealt with? For how long? • Why did the company outsource those projects? • What difficulties did you encounter during outsourcing? • What's the greatest difference among OISS projects? • What was the critical factor leading to outsourcing success?
Governance structure	• How did you find and choose your OISS provider? • Generally, what was included in the OISS contract, e.g., goal, expectation, and performance measurements? Why was it included or excluded? • What's the effect of a contract on OISS management? • Have you ever revised the contract in the middle of system development? Why? And what's the reaction of the OISS provider?
Relational governance	• Aside from the contract, how did you manage your OISS provider's behavior? • Did trust bring any effect on the result of the OISS project? • How did you exchange information with your OISS provider? Were there any difficulties? • Did you have any conflict with your OISS provider? How did you solve it?
IT coordination	• What's the influence of internal IT integration on OISS? • What's the influence of external IT coordination on OISS?
Transaction cost	• During the implementation of the OISS project, did you fall into any unexpected conditions? • Was there any communication difficulty with your OISS provider? • Did the OISS provider underperform, compared with your original expectation? • Was there any skimpy work by your OISS provider?
Outsourcing flexibility	• What's emphasized when the outsourcing project is adjusted halfway, e.g., time, expense, or quality? • Did your OISS provider still successfully meet your expectations after adjustment halfway? • What is the reason, you think, that made your OISS provider agree with the halfway adjustment? • Did your company rely on that OISS provider? What's the effect?
Goal achievement and exceedance	• In what aspects did your OISS provider fulfill your company's expectations for OISS? • What do you think an OISS provider should do to fulfill a client's expectations? • What do you think an OISS provider should do to surpass a client's expectations?
Task Complexity	• What kind of OISS project, you think, is complicated? • How would a complicated task influence outsourcing results? • How would a complicated task influence your communication with the OISS provider or the phenomenon of skimpy work? • Do you think a complicated task would influence the possibility of making adjustments in halfway outsourcing for your company?

Appendix B. Summary of Interviews from Case Organizations

Table B – Summary of Interviews from Case Organizations			
Case Organizations	Optoelectronics Industry **Firm A:** ERP	LED Manufacturing **Firm B:** MES	Chain Restaurant **Firm C:** POS
Industry	Optoelectronics	LED manufacturing	Food
Capital asset	2.88 billion	8.47 billion	8 million
Employees	6500	3900	25
Interviewee	Senior IT manager	Project manager in IT depart.	General manager
IT expertise	Yes	Yes	No
System	ERP	MES	POS
Governance structure			
- Goal expectations	The client firm makes tenders to all possible OISS providers and evaluates them on their experience, expertise, quotations, etc. The contract is made based on quotations with information about the system and its required functions in detail.		Without making OISS provider evaluations, the client firm invites OISS providers to make a cost estimate, according to which the contract roughly describes the system and its required functions.
-Activity expectations	The contract normally includes performance indicators as a way to regulate OISS providers' behaviors.		The contract does not include performance indicators. There's only an oral promise for the implementation deadline.
-Contract flexibility	The client firm can request contract adjustments within a reasonable range without huge expenses.	The contract does not clarify the scenario for adjustment. Normally, the OISS provider will accept it, but with a cost.	The contract does not mention the scenario for adjustment, but normally, the OISS provider will accept the client firm's request.
Relational governance			
-Information sharing	Intensive communication occurs before making a contract and during system implementation. In the maintenance stage, the frequency drops.		Information sharing occurs before system implementation, after which the frequency drops.
- Trust	Coming from the belief in OISS providers' experience and expertise, trust is the foundation of long-term collaboration.		Reliance births trust.
-Conflict resolution	Both parties will attempt to make peace unless one of them does not want to keep a collaborative relationship anymore. Yet, there are still scruples in communication.		Since system operations totally rely on the OISS provider, the client firm will try its best to make peace.
IT coordination			
-Internal IT integration	For ERP outsourcing, OISS providers' convenience can be increased by providing integrated data on client firms, OISS providers, production, and accounting subjects.	For MES, it does not require internal IT integration, but if there is integrated data for the OISS provider, the outsourcing speed can be raised.	There's no preceding system integration; yet, it needed to integrate data from previous storage in the PC.
-External IT coordination	Email, routine meetings, or project center created by the OISS provider.	Maintenance contracts require external engineers to be on-site; Email and phone are the other two ways.	Remote control, phone calls

Table B – Summary of Interviews from Case Organizations			
Case Organizations	Optoelectronics Industry **Firm A:** ERP	LED Manufacturing **Firm B:** MES	Chain Restaurant **Firm C:** POS
Transaction cost			
-Coordination cost	An irreducible cost mainly because the OISS provider cannot stand by for the client firm's problems.		Obstacles to communicating with OISS providers due to undertaker's lack of IT knowledge
-Operational risk	The system with flaws is probably out of carelessness. The bargaining room is not related to operational risk.	The risk of buried bugs can be reduced through maintenance contracts.	Though not as convenient as expected, the client firm has to adapt itself to the system.
-Opportunism risk	Normally, the OISS provider will follow the contract regulation. The risk occurs only when the provider makes the deal beyond his ability, but the client firm can consider the provider's reputation and human forces in provider evaluation to reduce opportunism risk to the minimum.		The undertaker cannot identify the OISS provider's opportunism if it really exists.
Outsourcing flexibility			
-Robustness	OISS providers can generally develop systems with robust quality before the deadline. Only the time from response to action needs to be negotiated.		
-Modifiability	OISS providers will try their best to accommodate the client firms' demand for either increasing or decreasing new functions in the system.	OISS providers will try their best to accommodate the client firm's demands, but they are generally not welcome to outsource down-scaling.	OISS providers will try their best to accommodate the client firm's demands but usually do not act on them immediately.
-New capability	Similar to modifiability by its nature		
-Ease of exit	Avoiding this risk by considering it in provider evaluation	Though it is quite difficult to find another suitable OISS provider, replacing the current provider will not incur a huge impact.	Leaving the current OISS provider will incur a devastating impact on business operations due to a high degree of reliance.
Goal achievement	Normally, OISS providers can fulfill all the requirements listed in the contract.		
Goal exceedance	There's no perfect match in expectations, and the OISS provider's own performance indicators are running his engineers.	If the OISS provider's performance is in terms of expertise or service qualities, some providers outperform the client firm's expectations.	Exceeding expectations is unnecessary because they do not know how to manipulate an over-advanced system.
Task complexity	Task complexity comes from the extent of integrating different departments and knowledge and the degree of support from leaders. Outsourcing tasks can be standardized by setting performance indicators on the product.		The difficulty lies in the communication with the OISS providers.
Other suggestions	If the topic is focused on ERP, it is suggested to ask what OISS provider is in charge of the outsourcing. Company size might be relative to the framework.	It is suggested to choose between software outsourcing or hardware outsourcing. OISS providers' performance can be more specific.	n/a

Appendix C. Adjustment after Case Study

Table C – Adjustment after Case Study	
Adjustment	**Reason**
(1) Increase two items when asking about the respondent's outsourcing background: Whether a company has its own IT department. Whether the OISS provider can have a remote control on the outsourcing system.	➢ An expert is more vital than a group of outsiders, and the function of remote control is supposed to facilitate inter-firm coordination.
(2) Incorporate the construct of new capability into modifiability.	➢ The two constructs share much in nature.
(3) Provide examples to evaluate the OISS provider's performance for goal achievement and exceedance items.	➢ Respondents might be confused without explications on the OISS provider's performance.
(4) Independently create items for internal IT integration.	➢ The original items are unsuitable for every system outsourcing, while this study does not specifically target one.
(5) Independently create items for external IT coordination.	➢ The original items are not suitable for OISS.
(6) Slightly modify the items for conflict resolution, opportunism risk, operational risk, robustness, and task complexity.	➢ The original items are not suitable for OISS.

Appendix D. Summary of Construct Definition and Key References

Table D – Summary of Construct Definition and Key References			
Constructs	**Definitions in this study**	**Key references**	**Items**
Governance Structure	The extent to which one perceives the ownership and control structure used to formalize the relationship.	Mani et al. (2010)	
Goal Expectations	The extent to which one perceives a shared understanding with its system provider about OISS objectives and goals prescribed in a formal agreement.	Reuer & Ariño (2007)	3
Activity Expectations	The extent to which one perceives a common understanding of the standards of conduct prescribed with its OISS provider in an OISS contract.	Reuer & Ariño, (2007); Rai et al. (2012)	3
Contractual Flexibility	The degrees of one perceives the extent of renegotiation that the outsourcing contract allows.	Rai et al. (2012)	3
Relational Governance	The extent to which one perceives encourages OISS providers and client firms to operate within the contract spirit and foster an informal relationship by promoting information exchange beyond the contract scope.	Rai et al. (2012)	
Information Sharing	The extent to which one perceives the proactive information sharing with meaningful and useful content carried out by the people who have been in an OISS project.	Chang et al. (2019); Rai et al., (2012)	3
Trust	The extent to which one believes that the OISS provider will behave reliably predictably without opportunistic performance.	Rai et al. (2012)	3
Conflict Resolution	The extent to which one perceives the amount of effort put in by the OISS provider and the client firm to reach an amicable agreement and joint resolution.	Rai et al., (2012)	3
IT Coordination	The extent to which one perceives the OISS provider and the client firm engage in an IT platform where they communicate and coordinate smoothly.	Sheu et al. (2006)	
Internal IT integration	The extent to which one perceives the extent of access to corporate data allowed by a firm's information system.	Roberts & Grover (2012); Narayanan et al. (2011)	4
External IT Coordination	The extent to which one perceives the function and effect of inter-firm coordination through IT.	Saraf et al. (2007)	4
Transaction Cost	The extent to which one perceives the implicit cost when firms choose to delegate the task to others instead of managing it by themselves.	Chang et al. (2019); Zhou & Xu (2012).	
Coordination Cost	The extent to which one perceives the underlying costs to facilitate information exchange during system implementation or system maintenance.	Chang et al. (2019)	3
Operational Risk	The extent to which one perceives the extent of underperformance or information misinterpretation in OISS due to a lack of common goals and information asymmetry.	Aron et al. (2005); Hong et al. (2010); Xu & Beamon (2006)	4
Opportunism Risk	The extent to which one perceives the possibility of opportunistic behaviors taken by the OISS provider seeing the amount of cost that has been invested.	Whipple & Roh (2010)	3

Table D – Summary of Construct Definition and Key References			
Constructs	**Definitions in this study**	**Key references**	**Items**
Outsourcing Flexibility	The extent to which one perceives the OISS provider and the client firm is willing and able to make changes to adapt to unexpectancies	Tan & Sia (2006)	
Robustness	The extent to which one perceives an OISS provider's ability to accommodate a client's unexpected operational changes beyond projected capacity.	Ross et al. (2008); Tan & Sia (2006)	4
Modifiability	The extent to which one perceives an OISS provider's ability to accommodate a client's alternation of attributes beyond its existing services.	Tan & Sia (2006)	3
New capability	The extent to which one perceives an OISS provider's ability to implement new methods or facilities to pursue higher efficiency and effectiveness in task achievement.	Tan & Sia (2006)	3
Ease of Exit	The extent to which one perceives the easiness for firms to retreat from an outsourcing relationship to another or to internal sourcing.	Young-Ybarra & Wiersema (1999)	3
Goal Achievement	The extent to which one perceives the extent of fulfillment in outsourcing expectations agreed by the OISS provider and the client firm before contract commencement.	Wallenburg et al. (2010)	4
Goal Exceedance	The extent to which one perceives the amount of surprise due to OISS provider's outperformance.	Wallenburg et al. (2010)	3
Task Complexity	The extent to which one perceives the cross-departmental or cross-hierarchal coordination required to undertake the outsourced task.	Chang et al. (2019); Narayanan et al. (2011)	3

Appendix E. Result of Cross-Loading Analysis (*n*= 206)

Table E – Result of Cross-Loading Analysis (*n*= 206)															
	GE	**AE**	**CF**	**IS**	**T**	**CR**	**IIT**	**EIT**	**OR**	**OPP**	**R**	**M**	**E**	**ACH**	**EX**	**TC**
GE1	**.798**	.296	.505	.476	.448	.524	.478	.426	-.270	-.240	.359	.327	.152	.559	.388	.023
GE2	**.788**	.414	.490	.496	.558	.553	.431	.541	-.198	-.142	.447	.372	.174	.431	.437	-.002
GE3	**.769**	.558	.596	.534	.539	.465	.407	.491	-.180	-.226	.412	.317	.180	.503	.477	.054
GE4	.730	.311	.463	.563	.555	.488	.323	.538	-.179	-.239	.293	.376	.242	.437	.408	.075
AE1	.441	**.869**	.357	.292	.440	.374	.380	.369	-.155	.040	.413	.359	.216	.460	.376	-.054
AE3	.475	**.893**	.447	.302	.481	.322	.310	.419	-.301	-.135	.327	.229	.186	.413	.359	-.126
CF1	.451	.132	**.706**	.417	.365	.418	.354	.407	-.139	-.274	.298	.306	.101	.243	.332	.098
CF2	.469	.431	**.733**	.475	.550	.447	.539	.422	-.232	-.253	.419	.385	.267	.481	.551	.122
CF3	.501	.320	**.740**	.419	.453	.491	.345	.358	-.143	-.163	.289	.402	.204	.383	.472	.086
CF4	.520	.415	**.725**	.366	.462	.425	.315	.467	-.199	-.124	.442	.297	.116	.375	.329	.057
IS1	.460	.179	.368	**.770**	.402	.465	.340	.337	-.183	-.248	.329	.372	.186	.294	.325	.087
IS2	.608	.371	.539	**.766**	.546	.450	.452	.581	-.224	-.269	.507	.429	.298	.545	.491	.070
IS3	.523	.248	.461	**.843**	.529	.533	.470	.488	-.237	-.313	.374	.493	.218	.462	.315	.103
T1	.635	.440	.571	.536	**.819**	.539	.469	.463	-.258	-.292	.362	.372	.148	.490	.393	.169
T2	.543	.410	.530	.494	**.761**	.492	.407	.524	-.260	-.261	.380	.510	.195	.331	.400	-.001
T3	.438	.399	.410	.456	**.807**	.463	.372	.475	-.147	-.230	.391	.426	.210	.352	.423	.168
CR1	.479	.164	.472	.508	.408	**.807**	.429	.505	-.182	-.175	.341	.431	.198	.428	.352	.078
CR2	.514	.334	.486	.512	.536	**.785**	.346	.558	-.215	-.242	.519	.501	.209	.430	.496	.063
CR3	.566	.433	.500	.428	.541	**.785**	.464	.595	-.225	-.191	.472	.410	.182	.534	.318	.110
IIT1	.447	.313	.481	.440	.408	.479	**.885**	.536	-.083	-.073	.431	.353	.250	.572	.404	.106
IIT2	.489	.373	.460	.499	.516	.433	**.870**	.475	-.287	-.210	.330	.310	.195	.477	.376	.066
EIT1	.417	.286	.392	.371	.418	.510	.377	**.783**	-.154	-.170	.397	.325	.142	.495	.342	.171
EIT2	.596	.330	.526	.600	.506	.595	.544	**.757**	-.228	-.287	.456	.327	.228	.474	.423	.100
EIT3	.531	.454	.449	.451	.539	.571	.459	**.863**	-.129	-.159	.442	.334	.210	.507	.395	.090
OR1	-.238	-.271	-.265	-.277	-.265	-.220	-.169	-.159	**.949**	.618	-.148	-.130	.199	-.148	-.026	.497
OR2	-.280	-.192	-.274	-.269	-.266	-.261	-.238	-.228	**.945**	.637	-.133	-.146	.209	-.196	-.022	.487
OR3	-.237	-.282	-.159	-.222	-.261	-.262	-.179	-.214	**.937**	.552	-.167	-.151	.138	-.177	-.018	.539

Table E – Result of Cross-Loading Analysis (*n*= 206)															
	GE	**AE**	**CF**	**IS**	**T**	**CR**	**IIT**	**EIT**	**OR**	**OPP**	**R**	**M**	**E**	**ACH**	**EX**	**TC**
OPP1	-.237	-.022	-.226	-.341	-.246	-.174	-.110	-.211	.587	**.934**	-.112	-.079	.231	-.087	-.013	.104
OPP2	-.291	-.118	-.317	-.366	-.373	-.311	-.216	-.277	.642	**.942**	-.230	-.236	.194	-.168	-.155	.089
OPP3	-.240	-.022	-.229	-.274	-.303	-.234	-.117	-.232	.565	**.936**	-.084	-.094	.244	-.039	.083	.036
R1	.318	.223	.333	.362	.273	.424	.308	.378	.046	-.049	**.801**	.492	.317	.232	.338	.158
R2	.440	.355	.414	.469	.412	.441	.400	.435	-.152	-.200	**.807**	.526	.260	.486	.470	.076
R3	.421	.422	.456	.382	.450	.481	.328	.478	-.279	-.115	**.778**	.495	.192	.371	.469	-.074
M1	.327	.155	.352	.461	.352	.395	.282	.264	-.017	-.168	.507	**.790**	.310	.348	.460	.174
M2	.292	.267	.345	.392	.424	.464	.248	.302	-.156	-.043	.568	**.795**	.359	.260	.416	.024
M3	.451	.361	.444	.450	.520	.486	.372	.409	-.181	-.143	.432	**.796**	.423	.489	.607	.025
E1	.111	.119	.116	.204	.108	.169	.119	.095	.235	.246	.242	.363	**.800**	.169	.357	.244
E2	.258	.230	.246	.212	.208	.175	.260	.267	.135	.116	.303	.387	**.824**	.375	.452	.176
E3	.199	.191	.209	.295	.234	.253	.225	.212	.095	.215	.225	.348	**.767**	.338	.394	.061
ACH1	.452	.272	.376	.364	.252	.346	.469	.453	-.106	-.016	.340	.295	.356	**.740**	.497	.104
ACH2	.500	.394	.388	.454	.460	.513	.520	.454	-.230	-.132	.395	.390	.179	**.769**	.372	-.001
ACH3	.370	.371	.359	.427	.386	.444	.386	.453	-.051	-.067	.336	.298	.271	**.723**	.430	.171
ACH4	.576	.466	.454	.441	.410	.482	.454	.517	-.159	-.102	.329	.413	.334	**.826**	.502	.066
EX1	.334	.330	.394	.344	.377	.361	.337	.374	.086	.028	.445	.446	.447	.436	**.827**	.164
EX2	.466	.288	.426	.437	.435	.434	.351	.406	-.038	-.072	.421	.588	.452	.471	**.815**	.097
EX3	.567	.410	.620	.376	.431	.411	.403	.405	-.107	-.033	.443	.483	.330	.536	**.807**	.006
TC1	-.036	-.105	.092	.120	.090	.018	.104	.088	.508	.117	.045	.058	.237	.107	.102	**.904**
TC2	.127	-.019	.146	.0750	.166	.186	.124	.191	.372	-.046	.121	.133	.107	.092	.085	**.811**
TC3	.049	-.138	.096	.0900	.125	.900	.040	.121	.521	.124	.031	.061	.179	.079	.104	**.914**

Notes: GE= Goal expectations, AE= Activity expectations, CF= Contractual flexibility, IS= Information sharing, T= Trust, CR= Conflict resolution, IIT= Internal IT integration, EIT= External IT coordination, OR= Operational risk, OPP= Opportunism risk , R= Robustness, M= Modifiability, E= Ease of exit, ACH= Goal achievement, EX= Goal exceedance, TC= Task complexity

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