기업의 핵심역량이 IT 아웃소싱 성과에 직접적인 관련이 있을 것인가?

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Does the Understanding of Core Competencies Matter to IT Outsourcing Performance?

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■ Abstract ■

IT outsourcing providers has been expanded from a single functional system to the entire IT service to gain sustainable competitiveness. This new trend of IT outsourcing need outsourcing management capability based on a firm's core capacity. Hiring external IT service providers to manage part or all of its information-related services helps a firm focus on its core business and provides better services to its clients, thus obtaining sustainable competitive advantage.

This research investigates the major factors that determine the level of a particular firm's success at IT outsourcing. Based on process innovation and core-competency theories, we identify three significant components of a firm's IT outsourcing management method (ITOMM): level of core-competency-based management, maturity of outsourced tasks, and maturity of outsourcing management. Comprehensive data collection was conducted through an outsourcing association. The survey data were analyzed using a structural analysis method. Maturity of outsourced tasks and maturity of outsourcing management were found to affect project performance directly, while level of core-competency-based management only indirectly impacted project performance through its positive impact on the other two ITOMM components.

Keyword : IT Outsourcing, Process Innovation, Core Competence, IT Outsourcing Management Method (ITOMM), Maturity of Outsourced Tasks, Maturity of Outsourcing Management

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1. INTRODUCTION

Information technology (IT) outsourcing is defined as the practice of using external service provider(s) to obtain information-related services [56, 60] ranging from application development and maintenance to systems operation, to end user computing support and systems planning and management [60]. Recently, the role of service providers has been enlarged from managing a single function or system efficiently to reconstructing entire information management processes in new ways to contribute to shareholder value across the enterprise [49].

This movement toward extensive and complex outsourcing agreements has been driven by the assumption that outsourcing information technology functions is a reliable approach to maximizing resource productivity [27, 49, 51]. Hiring external IT service providers to manage part or all of its information-related services helps a firm focus on its core business and provide better services to its clients, thus maintaining competitive advantage [49, 60]. Moreover, outsourcing rapidly changing and complex information technology reduces the risk of obsolescence of that technology [60]. All of these benefits, particularly cutting costs and improving the bottom line, make IT outsourcing an appealing option for today's firms.

The problem is that firms do not understand which part of their IT needs they can meet internally and which part can be outsourced without endangering their core operations [27]. The outsourcing practice entails a dramatic change in the governance process of information technology [16, 30], which in many cases may involve new types of risks, such as loss of essential skills and control over a supplier [51]. Poorly made decisions regarding these risks, and regarding which part of their IT needs to outsource, can jeopardize a firm's productivity.

Previous studies investigated the outsourcing phenomenon from the viewpoint of economic transactions or resource exchange to find the major drivers of IT outsourcing; such as cost reduction, core-competence-based management, resource disparity, and environmental factors [56]. Previous studies also examined the success factors for IT outsourcing practices, including relationship management and trust [38]. However, no study has looked into the outsourcing practice as a process innovation and explored the optimal conditions for the successful adoption of this process innovation.

This study is designed to illustrate the basic factors that contribute to a successful adoption of IT outsourcing and how a firm can best leverage outsourcers' capabilities. Based on ideas of process innovation and core-competence-based management, the current study identifies the factors that may affect outsourcing project performance. A research model is formulated to investigate the factors relating to IT outsourcing performance. The model is then tested by a sample of 200 firms. Finally, the results and their implications are discussed.

The findings of this study may contribute to the literature in two ways. First, it identifies the basic conditions necessary to make IT outsourcing successful. This understanding will allow practitioners and researchers to look at outsourcing from an angle that emphasizes, in a very practical way, what should be done when a firm decides to outsource its IT functions. Second, the current study examines the role of

outsourcing process management in determining the performance of an outsourcing project. In this study, IT outsourcing is defined as a process innovation with a weak appropriability and thus should be underpinned by a strong process management to generate an expected impact.

2. IT Outsourcing, Process Innovation, and Core Competency

In this section, we review the previous literature on IT outsourcing, discuss the characteristics of IT outsourcing as a process innovation, and elaborate on outsourcing management as a type of core competence.

2.1 Previous Literature on IT Outsourcing

Previous studies examined the drivers for IT outsourcing from a transaction, coordination, and production theory perspective [1, 2, 3, 9, 56, 63], a capability and resource-based view [7, 11, 17, 34, 36, 37, 49, 50, 51, 54, 64], innovation [9, 30, 39] and political process [35]. Previous studies also investigated the success factors for IT outsourcing such as a partnership and its quality [23, 28, 31, 38, 43] and trust [53].

Such studies indicate that the key drivers for IT outsourcing are, generally speaking, one of two types; those based on financial rationale and those related to technological motives [1, 56, 60]. The former includes operating cost reduction, cash generation for liquidity issues, and capital outlay replacement with periodic payments; while the latter comprises information systems quality improvement, immediate access to state-of-the-art technology, and utilization of vendors' expertise and economies of scale for efficiency. In addition, IT outsourcing decisions are sometimes made to comply with pressure from peers and other institutions [1]. This trend toward IT outsourcing is found in the electronic business arena too. Outsourcing in electronic business has been driven by such factors as altering the unpredictable and exponentially growing IT expenditures into predictable fixed costs, avoiding obsolescence of IT equipment and the resulting heavy upgrade, maintaining IT infrastructure with economies of scale, and utilizing skilled costly information systems (IS) experts [26].

The fundamental rationale for IT outsourcing, however, lies in the fact that the discrepancy in information quality and IS support quality between desired and actual level makes users dissatisfied and leads to IT outsourcing as a means of compensating for a firm's lack of internal IT resources [60]. By purchasing the resources deficient in a firm from external agencies that have more knowledge depth than the buyer, firms are also able to reduce to bare bones the complex management agenda and focus on their core competencies while enjoying the reduced costs [49, 50, 51, 60]. Such decisions make sense when considering the new form of open and networked firms underpinned by complex networks of horizontal and vertical interlinkages used to acquire and utilize resources [1].

Various factors contribute to IT outsourcing success or failure. The success of IT outsourcing practices can be affected by how the partnership between vendors and client firms is established and what the quality of the relationship between partners is [23, 28, 31, 38, 44]. The successful IT outsourcing can be achieved by building trust between the providers and buyers [54]. Such fac-

tors, and additional ones, will be discussed more fully later in this study.

IT outsourcing entails managerial risks to the client firms [56]. Major risks include loss of IT capability and innovative ability, loss of control over a supplier with respect to hidden costs and technological obsolescence, and loss of key IS employees [15, 51]. Client firms may also confront the risks of over dependence on vendors, lower responsiveness of vendors than internal units, loss of control over timing and quality of outputs, leakage of the business secrets or solutions to competitors, and loss of balance between cost reduction and value-added services [49]. The accompanying business risks imply that, against their own interests in IT outsourcing, companies may have vulnerability in managing IT outsourcing contracts if those contracts are incomplete because of the difference in the depth of knowledge and expertise between the suppliers and buyers ; in particular, in knowledge intensive environments or high tech industry [49, 56].

Although comprehensively discussing the drivers for IT outsourcing and the risks involved, the previous studies do not tell us the basic criteria to employ in evaluating the extent to which a firm's IT needs should be transferred to outside providers and what factors are critical to making an IT outsourcing project successful.

2.2 IT Outsourcing as Process Innovation

IT outsourcing symbolizes an emerging form of organizing resources, a form that is open and networked rather than closed and hierarchical [1]. This form of organization may improve resource productivity and performance of outsourcing firms; although it introduces new types of managerial risks, such as loss of essential expertise and control over service providers [51]. The introduction of IT outsourcing to a firm necessarily leads to a dramatic change in the governance process of information technology as well as information production process [16, 30]. Hence, the decision to outsource IT functions can be regarded as the adoption of a process innovation, a step that changes part or whole of a firm's activities relating to how they obtain information and support their business processes.

Innovation is defined as the early use of an idea, practice, or artifact that is novel to the relevant unit of adoption [5, 12, 32, 57]. Based on the focus area at which an innovation is aimed, innovations can be categorized into various types. Damanpour [13] identifies three pairs of innovation types ; administrative and technical, product and process, and radical and incremental. Administrative innovation refers to the wide range of changes in an administrative core such as organizational structure, administrative processes, and management; while technical innovation refers to the changes in basic work activities or the technological core with regard to products, services, and production process technology. Innovation radicalness can be understood in terms of performance and structural radicalness [32]. Robey [52] proposes similar distinctions among the types of innovations. He identifies product innovation; administrative innovation, or changes in internal control, coordination, and structure ; and technical innovation, or changes in production technology or work processes. Venkatraman [62] defines administrative innovation as the introduction of changes in the routines and procedures of internal arrange-

ments and external alignments of an organization. Zmud [65] categorizes innovations into product and process innovation. Product innovation refers to the introduction of new products or services to meet market need, which results in the expansion of the organization's domain [13, 65]. Process innovation represents the introduction of the changes to methods, procedures, or responsibilities within existing domains [13, 65]. Although in some cases process innovation is strictly defined as the innovation related to production process [16], it is more reasonable to define process innovation as including both administrative and technical innovations [65]. In this study, we follow the definition of process innovation of [65]. Hence, IT outsourcing in this study refers to a process innovation that adds new elements to both the administrative and technical processes of information systems management, ranging from development to maintenance.

The adoption of an innovation can significantly affect productivity and, in turn, improve performance of a firm [57]. However, simply adopting an innovation such as IT outsourcing does not guarantee automatic success or positive outcome for adoption units [16]. Considerable variance in the performance outcomes gained from the introduction of such an innovation has been reported by process innovation adoption studies [16]. The introduction of IT outsourcing likely entails managerial risks such as loss of critical expertise and loss of control over a supplier behavior [51]. Moreover, purchased resources or services cannot generate sustainable competitive advantage, because competitors can easily obtain those resources or services [14] and outsourcing companies cannot protect themselves from imitation [16]. This situation, where the innovator or the adopter of an innovation fails to gain rents associated with the innovation, is referred to as regime of weak appropriability [48].

Given the weak appropriability of IT outsourcing as a process innovation, successful adoption of the innovation requires corresponding changes in structure and administrative practices (Ettie and Reza) [16] or alternative methods of appropriation [40]. To make the adoption of IT outsourcing successful in a weak appropriability regime, outsourcing firms have to develop an effective and significant method of arranging the exchange [16]. This method is critical to success and will be discussed at length further into this study.

2.3 IT Outsourcing and Core Competency

Core competency refers not to products or functions, but to skill or knowledge sets that generate most of the value in services and manufacturing [25, 51]. It can also be viewed as knowledge or skills about the coordination of diverse production skills and the integration of multiple streams of technologies [25]. Core competencies provide competitive advantage to generate above normal rents [59]. IT outsourcing is related to core-competency-based management at both the departmental and organizational levels. At the departmental level, some of the information technology-related knowledge or skills are regarded as a type of core competency. Among various skills and knowledge; managerial skills [42], information quality, and information systems support quality [60] are the critical resources that bring sustainable competitive advantage. However, information sys-

tems expertise itself cannot provide sustainable competitive advantage and companies should focus their attention on effective information management rather than an internal computing infrastructure [34]. Therefore, if firms recognize their deficiency in important IT resources, they will outsource to obtain the needed resources from firms that have those skills and knowledge [60].

At an organizational level, outsourcing resources not related to core business activities, such as information technology and human resources management, helps management focus more on its core businesses by reducing management's agenda [49, 50, 51, 56]. Outsourcing, in particular core-competency-based outsourcing, helps firms maximize their resource productivity by focusing on their core competencies while utilizing the core competencies suppliers can provide [49]. Firms can enjoy the following benefits from using this strategy : 1) maximize resource productivity by concentrating their limited resources on their core competencies, 2) set up strong barriers against present and future competitors to protect their competitive advantages, 3) fully utilize external suppliers' capabilities which would otherwise be very expensive or hard to develop internally, 4) reduce managerial risks, and 5) correspond to market needs swiftly [51]. In this context, outsourcing resources is considered purchasing complementary resources, which is necessary to develop new capabilities [22].

The question is whether the purchased IT resources can be valuable resources to provide firms with a sustainable competitive advantage. Purchasable assets in imperfectly competitive strategic markets cannot make valuable resources that allow sustainable competitive advantage to a firm, because those assets are available to competitors too [58]. That is to say, no matter how complicated a job or expertise such as software development is, once it is defined and its requirements externalized so that external agencies can perform the tasks, it becomes a commodity that does not allow unique strategic position to capture above normal return [27].

Apparently, simply purchasing IT resources from external providers does not guarantee the success of, or abnormal returns to, the innovation-adopting (IT outsourcing) firm. To be successful, unique and heterogeneous mechanisms such as external and internal process integration should be introduced, simultaneously with IT outsourcing, to manage the innovation adoption and diffusion [16]. This mechanism in this study refers to *IT outsourcing management method* and is a type of governance mechanisms that are heterogeneous organizational resources [62]. *IT outsourcing management method* as a valuable resource has five characteristics : inimitability, durability, appropriability, substitutability, and competitive superiority [10]. Appropriability as in the process innovation refers to the ability of innovators to capture sustainable rents from the ownership [10], while substitutability means the possibility that the core competence a firm has replaces another one competitor has [47]. In sum, outsourced IT resources may not make valuable resources, but the management method for IT outsourcing can be regarded as a non-imitable valuable resource.

3. Research Model and Hypotheses

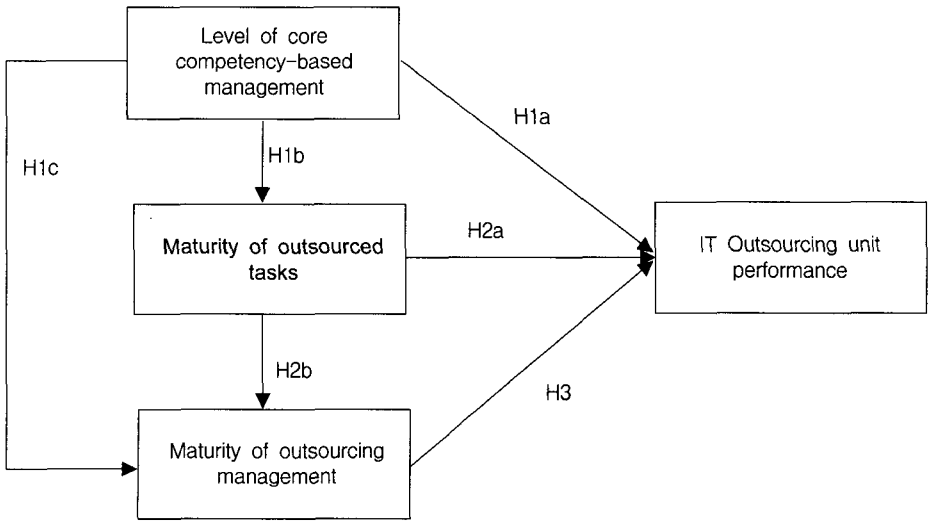
This study reveals how firms can maximize the potential benefits from IT outsourcing. The

literature review indicates that to be successfully implemented, IT outsourcing as a process innovation requires a unique and heterogeneous mechanism to manage the adoption and diffusion of the IT outsourcing practice. This method, the *IT Outsourcing Management Method (ITOMM)*, includes managerial and organizational processes, routines, or patterns of current practice and learning that are hard for a firm's competitors to imitate [59]. This method is also considered a type of corporate governance mechanism that, when effective, can constitute a valuable resource [62]. Hence, this distinctive way of accomplishing tasks forms the basis of a firm's organizational economies and operational efficiencies [41] and can mark its superiority in the realm of systems integration [10].

The IT outsourcing management method (ITOMM) proposed in this study is based on a strategic outsourcing concept [49, 50, 51] that consists of three components : level of core-competency-based management, maturity of outsourced tasks, and maturity of outsourcing management (see [Figure 1]). The research model describes the direct impact of these three components of ITOMM on the IT outsourcing project performance and the relationships among the three components. The remainder of this section will discuss the three components and their relationships with each other.

Core competency refers to skill or knowledge sets that are the source of sustainable competitive advantage [24, 51]. Core-competency-based management concentrates the limited resources of a firm on a small number of knowledge-based core competencies to effectively exploit outside expertise complementary to its core competencies [49].

The failure of business process reengineering efforts as a process innovation adoption sheds light on the importance of core-competency-based management [24]. Garvin [19] points out two fundamental reasons for the failure. First, reengineering efforts in the past failed to achieve



[Figure 1] The Proposed Research Model Level of Core-Competency-Based Management

their goals because they focused on just eliciting and coping with environmental changes without deliberating on how to utilize the resources companies possess. Second, not identifying opportunities and ranking priority led to the failure of business process reengineering efforts. Major objectives addressed by business process reengineering projects such as reductions in cycle times, defect rates, and costs, and faster execution cannot really be the objective of developing core competencies [24].

The level of core-competency-based management in this study is defined as the degree to which a firm relies on its core competencies as its management decision criteria. If a company relies on core-competency-based management it clearly specifies its core competencies; it has a system to manage those core competencies; the knowledge about the core competencies the company holds is likely to be well known by constituents of the firm; and, most importantly, the core competencies govern the behaviors of the firm's constituents as those behaviors relate to items such as management decisions about business directions and investments. Accordingly, if a firm relies on core-competency-based management, they may outsource even very complex and strategically important tasks, as well as less important tasks. Moreover, if the level of core competency-based management is high, the company will develop a very precise and effective management processes for IT outsourcing, which will positively affect the performance of outsourced projects. This discussion leads to the following hypotheses :

Hypothesis 1a : The more a firm relies on core-competency-based management, the greater the IT outsourcing project performance will be.

Hypothesis 1b : The more a firm relies on core-competency-based management, the greater the maturity of the outsourced tasks will be.

Hypothesis 1c : The more a firm relies on core-competency-based management, the greater the maturity of IT outsourcing management will be.

3.1 Maturity of Outsourced Tasks

As discussed above, the first thing firms must do before they decide whether to outsource their IT needs is to identify and manage their core competencies. Based on their knowledge about their core competencies; firms decide the number of, and the maturity of, the tasks to be outsourced. In some cases, a firm may decide to outsource strategically important and very complex tasks because they are not core competencies and the target quality of these outsourced tasks can be accomplished by the outsourcing management process. The maturity of outsourced tasks in this study is defined in terms of the degree of strategic value of the tasks, the amount of skill and knowledge needed to improve the competitive advantage of products/services, and the degree of coordination required.

The underlying logic for the determination of the scope and depth of outsourced tasks is that once a task and its requirement is defined and explicitly codified, external providers can perform the same task. Thus, it loses its strategic value and becomes a commodity [27]. Since this commodity can be traded in the market it no longer constitutes a core competency and is not

likely to contribute to abnormal rent generation [14]. Hence, to enjoy a sustainable competitive advantage, even with outsourced tasks, firms should develop an effective mechanism for managing the outsourced tasks or outsourcing process [16].

In sum, firms relying extensively on core-competency-based management extend their IT outsourcing to very complicated and even critical tasks, which leads to the development of effective outsourcing management systems. At the same time, the high maturity of outsourced tasks affects the performance of outsourcing projects, because the firm concentrates its attention and limited resources on core competencies. Hence :

Hypothesis 2a : The greater the maturity of the outsourced tasks is, the greater the IT outsourcing project performance will be.

Hypothesis 2b : The greater the maturity of the outsourced tasks is, the greater the maturity of IT outsourcing management will be.

3.2 Maturity of Outsourcing Management

To make strategic outsourcing successful, firms must carefully develop and implement unique mechanisms for control over the outsourcing process [49]. In the business process reengineering literature; the importance of management process, in addition to business processes, is highlighted [19]. As previously discussed, the adoption of IT outsourcing does not assure the expected outcomes, in some cases even cost reduction does not result. If a task is outsourced, there must be an effective control over the task performance to make it successful [16]. A lot of business process reengineering projects failed because they did not take into account management control process but focused only on the business process involved [19].

Thus, a control mechanism should be created. This control mechanism includes a systematic definition of responsibilities between a service provider and a client, a systematic procedure to review the contract, a level of implementation of the contract, a system for controlling risk management, and a method of measuring an IT outsourcing providers' service. This control system, by making the maturity of the outsourced tasks greater through explicitly detailing its parameters, enables a firm to gain beneficial outcomes from its IT outsourcing practices. Hence, we hypothesize :

Hypothesis 3 : The greater the maturity of the outsourcing management is, the greater the IT outsourcing project performance will be.

4. Research Methodology

We first developed research constructs and generated those measures. Next, we analyzed the research model using structural equation techniques.

4.1 Measurement Development

We developed a survey instrument based on an IT outsourcing maturity model from the IT Services Qualification Center (ITSQC) at Carnegie Mellon University (see <Table 1>). All questions were scored using a five-point scale where 1 represented 'strongly disagree,' and 5 repre-

sented 'strongly agree',

4.2 Sample Characteristics

The study was conducted with a direct visiting survey. The unit of analysis is a single firm. The firms, of varying sizes and industries, that participated in this study were registered with the Information Technology Outsourcing Association Institute in Korea (see <Table 2>). The data was collected from top IS executives or high-level managers of the firm's IT department.

4.3 Reliability and Validity

We first carried out the exploratory factor analyses to assess initial validity that showed no significant cross loading. The results of the exploratory factor analysis (EFA) indicated there were six different factors for all independent constructs and no cross loading above 0.40 [44]. (Due to page limitations, tables for EFA results are available upon request).

The reliability of first-order constructs was

〈Table 1〉 Items for the Constructs

Construct	Items	Question
Level of Core Competency-Based Management (LCC)	LCC1	The strategic direction is determined based on the core competencies we have.
	LCC2	Our employees performs tasks deeply related to core competencies we have.
	LCC3	The core competencies contribute to the entry to new business.
	LCC4	The core competencies contribute to our company's coping with market turbulence.
	LCC5	The core competencies provide cost advantages over our competitors.
Maturity of IT Outsourcing Management (MOM)	MOM1	The responsibilities and rights of providers and my company are clearly defined.
	MOM2	IT outsourcing contracts are periodically reviewed and renewed.
	MOM3	The review results are continuously reflected on the renewed contract.
	MOM4	We have a risk management system for IT outsourcing.
	MOM5	We have a quantitative measurement-based performance appraisal system of the IT outsourcing service provider.
Maturity of IT Outsourcing Task (MOT)	MOT1	It takes a while for the IT outsourcing service provider to learn our business environments.
	MOT2	It takes a while for the IT outsourcing service provider to implement the services.
	MOT3	The IT outsourcing service provider needs professional skills and knowledge to successfully provide the services.
	MOT4	The IT outsourcing service provider needs to have knowledge about related other areas as well as the contracting services.
Unit Performance (PER)	PER1	We could utilize the state-of-the-art technologies and skills through the IT outsourcing project.
	PER2	We could implement a better work process through the IT outsourcing project.
	PER3	We could better utilize human resources through the IT outsourcing project.

〈Table 2〉 Profile of the Responding Companies(n = 200)

Industry		
Industry Type	Frequency	Percent
Manufacturing	82	41.0
Communication	24	12.0
Banking/Insurance	20	10.0
Wholesale/Retail	17	8.5
Government	13	6.5
Construction	11	5.5
Transportation	7	3.5
Healthcare	5	2.5
Others	21	10.5
Total	200	Percent

IT Budget	Job Title	Frequency
Range	Frequency	Percent
Less than $1 million	43	21.5
$1 million - $5 million	70	35.0
$5 million - $10 million	27	13.5
$10 million - $50 million	42	21.0
$50 million and more	18	9.0

Number of Employee		
Range	Frequency	Percent
Less than 500	88	44.0
500-1000	37	18.5
1000-2000	32	16.0
2000-5000	21	10.5
5000 and more	22	11.0

Informants by Job Title		
IT Senior Executive	57	28.5
Senior Executive	50	25.0
IT Senior Manager	18	9.0
Senior Manager	14	7.0
CEO	6	3.0
IT System Consultant	55	27.5

measured using Cronbach alpha, composite factor reliability (CFR), and average variance extracted (AVE) (see <Table 2>).

All Cronbach's alpha values are well above the threshold of 0.70. Similarly, all CFR values are well above the cut-off value of 0.70 and all AVE values are well above the cut-off value of 0.50 [55], together providing support for the reliability of the constructs. Moreover, we carried out confirmatory factor analysis (CFA) for establishing the convergent and discriminant validity by estimating the measurement model. The CFA factor loadings, t-values and item R^2 were all considered (see <Table 4>). The software for the estimation of the measurement model and the SEM estimation of the research model was Mplus, developed by Muthén and Muthén[45]. Note that in the CFA, for each construct one item is used

〈Table 3〉 Reliability Measures for Model Constructs and Construct Correlation

Constructs	Alpha	CFR[a]	AVE[b]	Construct Correlation[c]			
				1	2	3	4
1. Level of Core Competency(LCC)	0.88	0.91	0.67	0.82			
2. Maturity of IT Outsourcing Task(MOT)	0.87	0.89	0.63	0.67	0.79		
3. Maturity of IT Outsourcing Management(MOM)	0.88	0.91	0.72	0.21	0.29	0.85	
4. Unit Performance(PER)	0.81	0.89	0.72	0.37	0.48	0.50	0.85

주) [a] Composite factor reliability [b] Average variance extracted [c] Value on the diagonal represents the square root of AVE

〈Table 4〉 Confirmatory Factor Analysis : Measurement Model

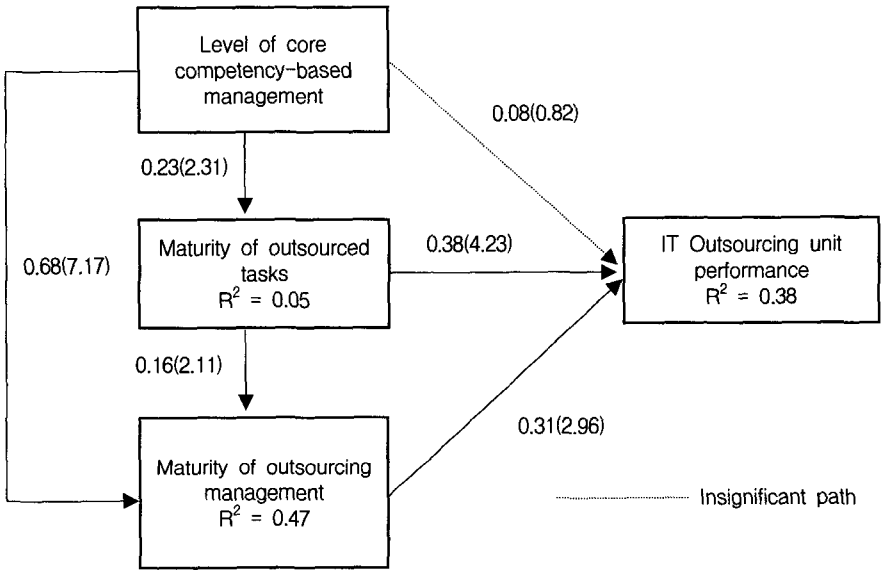
Constructs	Items	Loading	t-value	R^2
Level of Core Competency (LCC)	LCC1	0.89	13.66	0.57
	LCC2	0.97	13.66	0.61
	LCC3	0.89	13.04	0.60
	LCC4	1.00	0.00	0.61
	LCC5	0.88	10.92	0.53
Maturity of IT Outsourcing Management (MOM)	MOM1	0.84	12.71	0.75
	MOM2	1.00	0.00	0.76
	MOM3	0.85	17.06	0.55
	MOM4	0.76	8.85	0.46
	MOM5	0.82	12.01	0.70
Maturity of IT Outsourcing Task (MOT)	MOT1	0.98	16.23	0.58
	MOT2	1.00	0.00	0.49
	MOT3	0.90	12.76	0.58
	MOT4	0.77	10.34	0.64
Unit Performance (PER)	PER1	1.00	0.00	0.64
	PER2	0.86	10.04	0.40
	PER3	0.87	10.82	0.43

as a reference with factor loading equal to 1, while the loadings of the other items are computed using that reference item. The high values for factor loadings support convergent validity for the constructs. Furthermore, the t-values for factor loadings of manifest variables were well above 2, supporting the statistical significance of factor loadings [45]. Moreover, the high R^2 values for the indicators support the assertion that the indicators are good measures for the current construct.

Discriminant validity was checked by looking at the square root of the AVE for each construct and the correlation values of the construct with other constructs [18]. The square root of the AVE for each construct is greater than the correlation values of the construct with other constructs, providing evidence for the discriminant validity of constructs in the model (see <Table 3>). Furthermore, we assessed discriminant validity by comparing the original measurement model (CFA) with seven latent variables against other measurement models with seven constructs, which included every possible combination of collapsing two constructs into one [20]. Since combining any three latent variables adds three degrees of freedom to the model, the Chi-square of the original measurement model (CFA) should be greater than at least 11.34 ($p = 0.01$). Here, all differences are above 141.88 (The summary table containing these results is also available upon request). Therefore, the chi-square value in the original CFA was significantly better than the reduced measurement models and the discriminant validity criterion is met.

4.4Structural Model Test

The estimation results of the research including the estimated model parameters, their t-values, and R^2 values for constructs are shown in



[Figure 2] The Estimated Model

[Figure 2] below.

The normed chi-square was 1.56, which is desirably below the cut-off value of 3.0 [33]. RMSEA, CFI, and TLI were 0.052, 0.96, and 0.95 respectively ; indicating a relatively satisfactory model fit [5, 29, 33]. GFI was 0.89, above the recommended threshold, and AGFI was 0.87, also above the cut-off value of 0.80 or 0.90 [21]. These results suggest the measurement model adequately fits the data. In addition, we investigated the standardized RMR (SRMR) as an index for badness-of-fit. The SRMR for the measurement model was 0.053, well below the suggested threshold of 0.10, providing support for the model fit (Byrne 1998)[29].

The results show that, as hypothesized in H2a and H3, the maturity of outsourced tasks and maturity of outsourcing management significantly affect IT outsourcing unit performance (t-values well above 2). In addition, as hypothesized in H1b and c, the level of core-competency-based management has a statistically significant impact on the maturity of outsourced tasks and the maturity of outsourcing management (t-values 2.31 and 7.17, respectively). The maturity of IT outsourcing tasks turns out to positively influence the maturity of IT outsourcing management with t-value of 2.11. The high regression coefficient values for the maturity of outsourcing management (R^2 = 0.47) and IT outsourcing performance (R^2 = 0.38) indicate that the model has a reasonable explanatory power for IT outsourcing project performance.

5. Discussion and Concluding Remarks

Based on process innovation and core-competency theories, this research developed a framework for IT outsourcing success, the IT Outsourcing Management Method. The three significant components of the ITOMM are : level

of core-competency-based management, maturity of outsourced tasks, and maturity of outsourcing management. Higher levels of the ITOMM components were expected to, and did, result in higher IT outsourcing project performance. Maturity of outsourced tasks and maturity of outsourcing management were found to affect the project performance directly. This result indicates that as firms outsource a greater level of tasks that do not comprise core competencies and develop a heterogeneous, effective control mechanism; they can make their IT outsourcing projects successful.

Interestingly, the level of core-competency-based management doesn't directly affect the outsourcing project performance but indirectly affects it through its effect on the other two ITOMM components, maturity of outsourced tasks and maturity of outsourcing management. This result appears to be against the resource-based-perspective argument on the source of sustainable competitive advantage [4, 24, 48] and may be regarded as one of the studies where the effect of competence on performance varies across contexts (Rumelt 1994). However, considering core-competency-based management affects the scope and depth of the outsourced tasks as well as the maturity of outsourcing management, it is natural to assume that the level of core-competency-based management is critical to the performance of IT outsourcing projects. If a firm can identify and manage its core competencies, it knows what kind of contract management, performance management, and knowledge sharing expertise is related to its primary work ; what tasks should be outsourced because they fall outside the firm's core competencies; and what the best mechanism for a specific outsourcing project would be. Although all the knowledge about the outsourced tasks and their controlling mechanism can not be precisely predefined and should be structured over time, the identification of those areas in a firm that utilizes core-competency-based management is very important for the successful implementation of the outsourcing process [49].

In sum, the results indicate that firms employing a high level of core-competency-based management tend to successfully outsource even complex and strategically important tasks by developing heterogeneous outsourcing management systems. In turn, firms that have well-developed outsourcing control mechanisms and outsource tasks at a point of greater maturity experience higher performance in IT outsourcing projects.

This study has theoretical implications. It provides a significant and straightforward conceptual model for explaining the performance of IT outsourcing projects from the viewpoint of core-competency-based management and process innovation. This study could be easily extended to the relationship or alignment quality of outsourcing vendor and client organizations by including the evaluation of vendor-side core-competency issues [61]. Furthermore, the proposed model could be a basis for developing a full-scale model of performance factors such as IT outsourcing satisfaction and outsourcing decision.

This study also has significant implication for practitioners. Our model contributes to the managers' understanding of the role of core competencies in improving the performance of their IT outsourcing project. By focusing on the concepts of process innovation and core competency,

this study allows practitioners and researchers to look into their outsourcing practices from an angle that emphasizes, on a very practical level, what should be done when the firm decides to outsource its IT needs. In addition, the findings of this study provide some ideas with regard to the action a firm can take when it confronts a process innovation, whether IT outsourcing or otherwise, with weak appropriability.

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