「정보시스템연구」 제14권 제1호
한국정보시스템학회
2005년 6월, pp. 1~17

If you can't align, give up : The Way of Successful IT Investment

강태경* · 박상혁**

<목 차>

Ⅰ. Introduction

As the level of industrial competition intensifies and the scope of business activities globalizes, companies have been devoted diverse efforts to gain competitive edge via strategic use of information technologies (Clemons and Kimbrough, 1986). For the last decade or so evidence has been accumulated that an effective use of information technologies plays a crucial role both for designing and implementing business strategies and for coordinating and harmonizing every day organizational activities. Many organizations, however, have experienced that the performance gained from IT portfolio is lower than their expected values (Chan, Huff, Barclay, and Copeland, 1997; Henderson, Venkatraman, and Oldach, 1996).

The underlying premise in "contingency theory" is the proposition that organizational performance is the result of a "match" or "fit" between several factors (Van de Ven and Drazin, 1985; Venkatraman, 1989). Better performance is realized when there is a good fit, or congruency, between contingent factors, and not otherwise. In the context of this study,

* 진주국제대학교 경영정보학과 부교수, tgkang21@empal.com
** 진주산업대학교 전자상거래학과 조교수, spark@Jinju.ac.kr

contingency theory would suggest that, while IT strategy and IT portfolio may have separate impacts on performance of IT, the two together may also affect performance significantly. In other words, the impact of IT strategy on performance is contingent on whether directions of IT portfolio were also implemented.

The strategic usages of IT can convey important competitive advantages with an operational productivity. For this reason, many firms have heavily invested in IT and computing power. However, many firms were getting their expected results by IT portfolio, but some other firms had to be satisfied with poor results. The question of whether or not benefit lead to expected performance is not easy to answer. The purpose of this study is to investigate the relationship among orientations of IT strategy, directions of IT portfolio, and IT performance to resolve this problem. From this, we derive the following research questions:

1. What relationships exist between IT strategy and IT performance?
2. What relationships exist between IT strategy and IT portfolio?
3. What relationships exist between IT portfolio and IT performance?

Ⅱ. Framework and Research Hypotheses

2.1 Framework

Most IS research on IT strategy has been theoretical and conceptual. Some studies have discussed the various mechanisms used information technologies to promote business performance (Chan, Huff, Barclay, and Copeland, 1997; Cho and Park, 2003; Davern and Kauffman, 2000; King, 1978; Venkatraman, 1989). Other studies have proposed new methods of managing information resources for gaining competitive advantages (Porter, 1996; Tallon, Kraemer, and Gurbaxani, 2000). There have also been several studies that proposed new theoretical models of strategic alignment between business and information systems sectors (Henderson and Venkatraman , 1993; Henderson, Venkatraman, and Oldach, 1996). The relationship between IT strategy and performance has been studied extensively during the past two decades.

Our approach is similar to the previous researches. However, despite the rise of studies of IT strategy as an academic discipline, few have attempted to address the unified model of IT strategy and its related factors. This study focuses on contingency approach. In contrast to

the previous papers, this research takes the unified viewpoint identifying the relationships among three translated factors and its six attributes as well as from the business strategy translated into IT strategy, IT portfolio, and IT performance as shown in Figure 1 and Table 1.

The previous studies using contingency approach are investigates some factors affects on IT performance. These factors are strategic alignment between business strategy and IT strategy, fit or harmonize between information technology and organization structure, organizational efforts of IT management, strategic role of information technology, and strategic information system planning (Chan and Huff, 1993; Chan, Huff, Barclay, and Copeland, 1997; Premkumar and King, 1992, 1994; Sabherwal and Chan, 2001; Tallon, Kraemer, and Gurbaxani, 2000). However, there are no comprehensive empirical studies in order to investigate the relationship between IT strategy and IT performance. Chan et. al. (1993, 1997, 2001) dealt with directly to this relationship using empirical methodology, but research interest was strategic alignment between business strategy and IT strategy rather than the relationship between IT strategy and IT performance. In this reason, they don't deal with such specific attributes of IT strategy affects on such specific IT performance attributes. The first difference of this study from previous similar researches is investigates the relationship of specific attributes between IT strategy and IT performance as well as the relationship between its strategy and performance. And the second difference is this study addresses the question of IT strategy direct effects on IT performance. In this question, this study calls attention to the necessity of new mediated factor between IT strategy and IT performance in order to more comprehensive explanation. This study suggests IT portfolio as a new mediated factor to link IT strategy and its performance. IT portfolio means the specific types of information system such as ERP, DSS, KMS, EIS, CRM, CALS/EC, and etc. We expect that IT strategies be intimately linked with IT portfolio and performance. This study examines the relationship among IT strategy, IT portfolio, and IT performance. The model used can be seen in Figure 1.

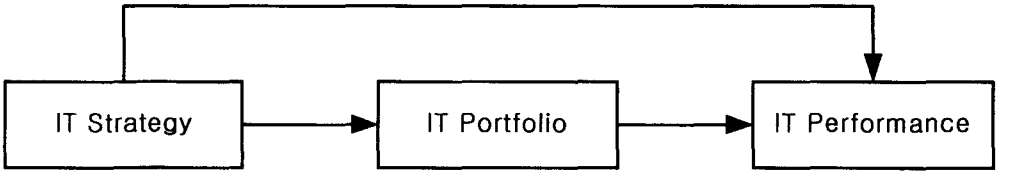

Figure 1. Conceptual Model for the Relationship among IT Strategy, IT Portfolio, and IT Performance

In characterizing business strategy, Porter (1996) suggests that corporations differentially focus on two key business objectives, operational effectiveness and strategic positioning. Operational effectiveness has focused on efficiency and effectiveness through business processes, while strategic positioning entails to extent market reach and to change market practices. As shown in Table 1, Porter's distinction between two objectives of business strategy can be translated into two orientations of IT strategy, two directions of IT portfolio, and two perspectives of IT performance. In this study, IT strategy has two dimensions which are operation orientation and market orientation. The firms that are focus on operation orientation using IT to reduce cost and to increase speed and productivity through overall business process. On the other hand, the firms that are focus on market orientation using IT to extent market, to reinforce customer relationship, and to improve market practices. And IT portfolio has two investment directions which are internal systems and external systems. Internal systems are ERP, DSS, KMS, Groupware, and etc. related to internal business process. External systems are IOS, EDI, SCM, CRM, CALS/EC, and etc. related to external business process. Finally, IT performance also has two perspectives that are operational performance and competitive performance.

Table 1. Linking Business Strategy with Dimensions of IT Strategy, IT Portfolio, and IT Performance.

Business Strategy	IT Strategy	IT Portfolio	IT Performance
Operational Effectiveness Efficiency Effectiveness	***Operation Orientation*** Using IT to reduce cost, and to increase speed and productivity	***Internal System Focused*** ERP, DSS, KMS, EIS, and Groupware	***Operational Performance*** Standardization, process time, decision making, and knowledge sharing
Strategic Positioning Market reach Market practices	***Market Orientation*** Using IT to extent market, to reinforce customer relationship, and to improve market practices	***External System Focused*** IOS, EDI, SCM, CRM, and CALS/EC	***Competitive Performance*** Market share, sales, price competency, customer relationship, and differentiation

2.2 Hypotheses

Three categories of research variables are discussed in Table 1: the IT strategy, IT portfolio, and IT performance. Each category has two research variables. As shown in figure 2, the first hypotheses are to investigate the relationship between IT strategy and IT performance: H1a, H1b, H1c, and H1d. The second hypotheses are to investigate the relationship between IT strategy and IT portfolio: H2a, H2b, H2c, and H2d. And the third

hypotheses are to investigate the relationship between IT portfolio and IT performance: H3a, H3b, H3c, and H3d.

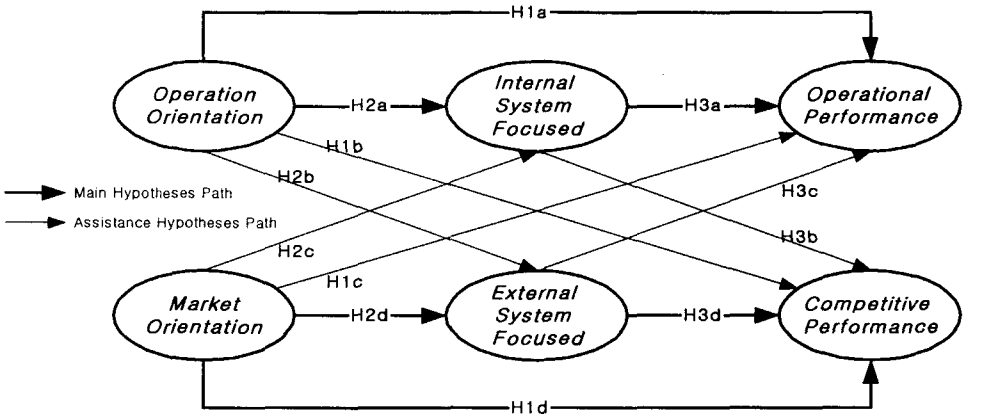

Figure 2. Hypothesized Relationship among IT Strategy, IT Portfolio, and IT Performance

• *The Relationship between IT Strategy and IT Performance*

First, we hypothesized that the use of "operation orientation IT strategy" and/or "market orientation IT strategy" are related to the different types of IT performances (Chan and Huff, 1993; Tallon, Kraemer, and Gurbaxani, 2000). As Porter (1996) studied, strategic objectives can be classified into two types: operational effectiveness and strategic positioning. So, pursuing to maximize operational efficiency or to deliver differentiated products and services with IT should lead to the different types of performance: the operational and competitive performance.

The firms that are focus on "operation orientation of IT strategy" have defined strategic objectives for IT centered on operational performance. In such cases, IT is primarily used to reduce operating costs and to improve efficiency and effectiveness of business operations by focusing on quality, speed, flexibility, and time to market. In contrast, the firms that are focus on "market orientation of IT strategy" use IT to create or enhance customer relationship and market position. In this case, if the firms have more concentrated on "market orientation of IT strategy" will perceived higher level of competitive performance such as customer relationship, market share, sales, and market practices.

Therefore this study presented four research hypotheses in Table 2. Specially, we want to prove that results between main hypotheses (H1a and H1d) and assistant hypotheses (H1b and H1c) differ markedly.

Table 2. Hypotheses for Relationship between IT Strategy and IT Performance (H1)

H1	Hypotheses Statements	Role
H1a	The higher level of operation oriented IT strategy, the higher level of operational performance.	Main
H1b	The higher level of operation oriented IT strategy, the higher level of competitive performance.	Assistant
H1c	The higher level of market oriented IT strategy, the higher level of operational performance.	Assistant
H1d	The higher level of market oriented IT strategy, the higher level of competitive performance.	Main

▪ *The Relationship between IT Strategy and IT Portfolio*

We also hypothesized that firms, if they rely heavily on operation orientation of IT strategy, will resort to use the internal information systems more than the external (Cash, McFarlan, McKenney, and Applegate, 1992; Earl, 1989; Johnston and Carrico, 1988; Weil, 1992). For example, the firms with "operation orientation IT strategy" will focus on the internal information systems such as ERP, KMS, DSS, EIS, and Groupware to improve process innovation of business operations or effective decision making. On the other hand, if the firms have more focused on "market orientation IT strategy", their IT portfolios will be concentrated on the external information systems such as IOS, EDI, SCM, QR, CRM, and CALS/EC.

Therefore we proposed four research hypotheses in Table 3. Two main hypotheses that we hope to prove are H2a and H2d. And the H2b and H2c are assistant hypotheses.

Table 3. Hypotheses for Relationship between IT Strategy and IT Portfolio (H2)

H2	Hypotheses Statements	Role
H2a	The higher level of operation oriented IT strategy, the higher level of focus on internal systems.	Main
H2b	The higher level of operation oriented IT strategy, the higher level of focus on external systems.	Assistant
H2c	The higher level of market oriented IT strategy, the higher level of focus on internal systems.	Assistant
H2d	The higher level of market oriented IT strategy, the higher level of focus on external systems.	Main

▪ *The Relationship between IT Portfolio and IT Performance*

Higher level of focus on the internal information systems will correspond to higher degree of operational effectiveness more than competitive effectiveness (Cash, McFarlan, McKenney, and Applegate, 1992; Circu and Kauffman, 2000).

In this perspective, we extend the relationship between IT portfolio and IT performance to

say that firms with more focused on internal information systems will more realize higher levels of operational performance than competitive performance, and the firms with more concentrated on external information systems will more realize competitive performance than operational performance.

We regards that the internal information systems such as ERP, KMS, DSS, EIS, and Groupware are to gain operational performance comes from using IT to foster greater flexibility and efficiency of business operations, and the external information systems such as IOS, EDI, SCM, QR, CRM, and CALS/EC are to gain competitive performance by using IT to promote customer relationship and market position.

Therefore, we assumed that the firms with more "internal systems focused" for IT portfolio will realize higher level of operational performance, and other firms with more "external systems focused" for IT portfolio will also realize higher level of competitive performance.

As shown in Table 4, four research hypotheses were developed which provided answers to this our assumption. The two main hypotheses (H3a and H3d) are to test dealt with the relationship that exists between "internal systems focused operational performance" and "external systems focused competitive performance". And the other two assistant hypotheses (H3b and H3c) are to prove the relationship that exists between "internal systems focused - competitive performance" and "external systems focused - operational performance".

Table 4. Hypotheses for Relation between IT Portfolio and IT Performance (H3)

H3	Hypotheses Statements	Role
H3a	The higher level of focus on internal systems, the higher level of operational performance.	Main
H3b	The higher level of focus on internal systems, the higher level of competitive performance.	Assistant
H3c	The higher level of focus on external systems, the higher level of operational performance.	Assistant
H3d	The higher level of focus on external systems, the higher level of competitive performance.	Main

Ⅲ. Data and Methodology

The field survey method was used to examine the research hypothesis. Survey instruments were designed based on existing research on IT strategic use of information systems. Table 5 shows measurement items and their references for our study. As it mentioned in the previous section, it generates three constructs and six variables: operation orientation (IT strategy), market orientation (IT strategy), internal systems focused (IT portfolio), external systems focused (IT portfolio), operational performance (IT performance), and competitive performance (IT performance). Executives and managers were asked to rate the extent to

which they agreed with each item using a seven point Likert scale where "1" indicates "do not agree absolutely" and "7" indicates "agree completely".

In order to test the foregoing hypotheses, during mid to late 2003, we mailed survey to a random sample of business or information executives and managers in Korea manufacturing firms. A total of 779 questionnaires are sent to sample firms by a mail or directly. Returned usable questionnaires were totally 135 and the survey response rate was 17.3%. The sample represents a variety of manufacturing areas including machine and steel (28.9%), electronic (11.9%), lumber (10.4%), petrochemical (8.1%) industry and others (59.3%). The sales of the companies included in this study vary as well: 15.1% of the companies sell less than 50 billion won, 19.3% between 50 billion and 100 billion won, 45.1% 100 billion and 200 billion won, and 21.5% of the companies sell over 200 billion won.

Table 5. Measurement Items of Research Variables with References

Variables	Measurement Items	References
Operation Orientation (IT Strategy)	***The strategic objectives of IT are ···***	Berger(1988) Chan, Huff, Barclay, and Copeland (1997) Porter(1996) Tallon, Kraemer, and Gurbaxani (2000)
	to improve manager's task productivity	
	to support decision making information	
	to improve coordination	
	to reduce operational and managerial cost	
	to reduce operational speed and time	
	to promote internal process innovation	
Market Orientation (IT Strategy)	***The strategic objectives of IT are ···***	Benjamin and Wigand(1995) Berger(1988) Bloch, Pigneur, and Segev(1996) Chan, Huff, Barclay, and Copeland (1997); Porter(1996) Tallon, Kraemer, and Gurbaxani (2000)
	to enhance customer relationship	
	to enhance suppliers relationship	
	to promote distribution process innovation	
	to increase sales and market share	
	to enhance product and service differentiation	
	to enhance the barrier of market entry	
Internal Systems Focused (IT Portfolio)	***Our IT portfolios are concentrated on ···***	Carter(1990) Diamond(1994)
	information systems for internal users	
	decision support systems for manager	
	data and documentation exchange systems	
	enterprise resource planning systems	
	transaction processing systems	
	the knowledge management systems	
External Systems Focused (IT Portfolio)	***Our IT portfolios are concentrated on ···***	Bloch, Pigneur, and Segev(1996) Clark and Stoddard(1997) Reggins and Mukhopadhyay(1994)
	information systems for external users	
	customer relationship management systems	
	marketing information analysis systems	
	information systems to enhance supplier relationship	
	material purchasing and product sales systems	
	information systems for outbound logistic innovation	
Operational	***Does our information technology ···***	Berger(1998); Sethi and

Performance (IT Performance)	reduce cost of business operations	King(1994); Grover, Kettinger, and Teng(1995); Tallon, Kraemer, and Gurbaxani (2000); Kwon(2003)
	help task standardization and simplification	
	reduce the time for transaction processing	
	improve cooperation and coordination	
	improve decision making and business analysis	
	improve information and knowledge sharing	
Competitive Performance (IT Performance)	***Does our information technology ···***	Berger(1998); Sethi and King(1994); Grover, Kettinger, and Teng(1995); Tallon, Kraemer, and Gurbaxani (2000); Kwon(2003)
	improve the process of purchasing and procurement	
	help the innovation of distribution and sales process	
	maintain the competency of market price	
	improve the relationship of suppliers	
	help differentiation of product and service	
	enhance market entry barrier	
	help new customer acquisition and retention	
	improve sales and market share	

Ⅳ. Hypotheses Test and Results

4.1 Reliability and Validity Analysis

Because structural equation modeling is our primary technique for examining the relationships proposed in the hypotheses, we first computed a confirmatory factor analysis (CFA) on the data to test the measurement model. Our purpose was to ensure that the constructs or research variables were empirically distinct from one another and that specific items measured the constructs that they were intended to measure. CFA allows for tests to be conducted for unidimensionality, convergent validity, and divergent validity of the scales employed in the study.

Table 6. Result of Reliability Analysis and Confirmatory Factor Analysis for Measurements

Constructs	Variables	Cronbach's alpha	Fit Indices	Guidelines
IT Strategy	*Operation Orientation*	.8631	χ^2=16.323 p=0.130 GFI=0.968 AGFI=0.918 RMR=0.123 NFI=0.963	GFI ≥ 0.9 AGFI ≥ 0.8 RMR ≤ 1.0 NFI ≥ 0.9
	Market Orientation	.8510		
IT Portfolio	*Internal Systems Focused*	.8686	χ^2=17.993 p=0.055 GFI=0.967 AGFI=0.906 RMR=0.131 NFI=0.968	
	External Systems Focused	.8837		
IT Performance	*Operational Performance*	.8932	χ^2=43.051 p=0.092 GFI=0.944 AGFI=0.903 RMR=0.116 NFI=0.948	
	Competitive Performance	.9010		

Through the internal consistency reliability, we know that six factors with eigen values

greater than one were extracted from all the measures in this study. Since all of Cronbach's alpha about six factors are above 0.7 and confirmatory factor analysis using AMOS 4.0 was executed for unidimensionality, we confirm reliability and validity for our research (see Table 6). Table 6 shows the Chi square values and other fit indices along with reported guidelines for good model fit (Arbuckle and Wothke, 1999).

4.2 Results of Hypotheses Test

In assessing the research model, no one statistic is viewed as the single best indicator of fit; rather, researchers examine an array of fit indices in order to obtain a broad understanding of the distinctiveness of the measures and the extent to which the model fits the data. Table 7 is a result of research model test using AMOS 4.0. Because the $\chi 2$ statistic is dependent upon sample size, we instead used the ratio of $\chi 2$ to degrees of freedom. We obtain a value of 1.81, which falls within the suggested value of three or below (Carmines and McIver, 1981). We also computed the fit statistics: GFI, AGFI, NFI, CFI, RMR, TLI, and RMSEA (see Table 7). Theses statistics indicate that the full research model provides a good fit of the model approximately.

Table 7. Fit Indices and Guidelines for Model Analysis

Fit Index	Guidelines	Model Fitness
χ^2		309.011, d.f.= 171 ($p<0.01$)
GFI	≥ 0.9	0.852
AGFI	≥ 0.8	0.761
NFI	≥ 0.9	0.896
CFI	≥ 0.9	0.949
RMR	≤ 1.0	0.2
TLI	≥ 0.9	0.925
RMSEA	≤ 0.08	0.078

The standardized path coefficients for this model and results of hypothesis are presented in Figure 3 and Table 8. These results indicate that proactive operation oriented IT strategies such as BPR and process innovation are positively related to the focus on the internal and external information systems and investment efforts on the internal information systems is expected to show positive relationship with operational and competitive performance. In opposition to the previous cases, companies pursuing market oriented IT strategy may have a tendency to invest in external information systems for competitive advantages.

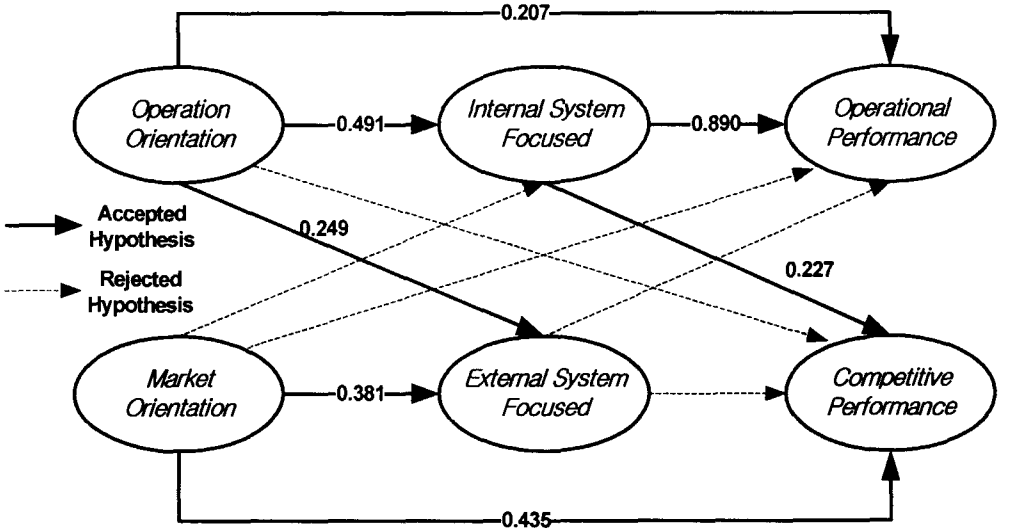

Figure 3. Path Coefficients for the Research Model

As shown in a Figure 3 and Table 8, the results of structural model can be summarizing according to three research problems.

First, in the relationship between IT strategy and IT performance (H1a, H1b, H1c, and H1d), operation orientation (path=0.207) demonstrated a direct effect on operational performance of IT (H1a), and market orientation (path=0.435) demonstrated a strong effect on competitive performance of IT (H1d). But the relationship between operation orientation and competitive performance was not significant, and the relationship between market orientation and operational performance was also not significant, failing to support H1b and H1c.

Second, in the relationship between IT strategy and IT portfolio (H2a, H2b, H2c, and H2d), operation orientation (path=0.491 and path=0.249) demonstrated a strong direct effect on internal systems focused and external systems focused (H2a and H2b), and market orientation (path=0.381) demonstrated a strong effect on external systems focused (H2d). But the relationship between market orientation and internal systems focused was not significant, failing to support H2c.

Finally, in the relationship between IT portfolio and IT performance (H3a, H3b, H3c, and H3d), internal systems focused (path=0.890 and path=0.227) demonstrated a very strong direct effect on operational performance and competitive performance of IT (H3a and H3b). But the relationship between external systems focused and operational performance of IT was not significant, and the relationship between external systems focused and competitive performance was also not significant, failing to support H3c and H3d.

Table 8. Results of Hypotheses

	Path between Variables		Path Coefficient	t value	Sig.	Results
	Independent Variable	Dependent Variable				
H1: The Relationship between IT Strategy and IT Performance						
H1a	***Operation Orientation***	Operational Performance	0.207	3.777	0.000	Accept
H1b		Competitive Performance	0.020	0.333	0.739	Reject
H1c	***Market Orientation***	Operational Performance	0.004	0.097	0.923	Reject
H1d		Competitive Performance	0.435	7.618	0.000	Accept
H2: The Relationship between IT Strategy and IT Portfolio						
H2a	***Operation Orientation***	Internal Systems Focused	0.491	8.208	0.000	Accept
H2b		External systems Focused	0.249	4.640	0.000	Accept
H2c	***Market Orientation***	Internal Systems Focused	0.079	1.881	0.060	Reject
H2d		External Systems Focused	0.381	6.030	0.000	Accept
H3: The Relationship between IT Portfolio and IT Performance						
H3a	***Internal Systems Focused***	Operational Performance	0.890	9.301	0.000	Accept
H3b		Competitive Performance	0.227	3.506	0.000	Accept
H3c	***External Systems Focused***	Operational Performance	0.058	0.823	0.411	Reject
H3d		Competitive Performance	0.130	1.385	0.166	Reject

V. Conclusions

5.1 Findings

This study's findings have some potentially implications to IS researchers and executives.

First, we found that the similar firms in manufacturing industry have very different strategic objectives for IT, which means that the context of IT strategy is a key factor that should be considered by IS researchers investigating IT payoffs.

Second, we found that by analyzing the dimensions in IT strategy, we can be classifying IT strategy into two perspectives: operation orientation, and market orientation. We consider these two perspectives of IT strategy important since it is likely that strategic orientation of IT influence a firm's IT investment and consequently the extent to which these investments will contribute to performance of IT.

Third, we found that the primary locus of IT performance is consistent with IT strategy.

For example, executives and managers in "operation orientation" focus firms perceive their most significant performance from IT in production and operations activities that are central to using IT for operational efficiency and effectiveness. Similarly, executives and managers in "market orientation" focus firms perceive their highest IT performance in customer relations and market position, which is again consistent with their strategic objectives of using IT to enhance strategic positioning.

Finally, this study shows that IT strategies affect the types of IT portfolios performed and IT performances. The IT strategy was related to the IT performance positively. The companies that are focused on operational orientation were operational performance higher than competitive performance. The companies that are focused on market orientation were competitive performance higher than operational performance. The companies that are putting a focus with operational orientation were concentrated on an internal information system than an external information system. On the other hand, the companies that are putting a focus with market orientation were concentrated on external information systems than internal information systems. The companies that are concentrated on internal information systems were operational performance higher than competitive performance. The results emphasize manager's efforts to fit between IT strategy and IT portfolio to be realized IT performance. For this reason, a homogeneous enforcement of IT strategy does not often result in improvements in performance in proportion to the investments in technologies. So, companies with a hope to improve performance through the use of information systems should take into consideration business contexts such as the nature of IT strategies and priority of technology investments.

5.2 Limitations and future research

Despite some valuable research findings, there are a number of problems and limitations that remain to be explored.

This study uses perceptual rather than objective measures. We can measure IT strategy, IT portfolio, and IT performance using subjective perceptions and this is the method utilized in this study. Although using multiple questionnaire items for this purpose can be a flexible and generalizable method, but selecting items to satisfy theoretical adequacy is not easy and response data depending on respondent's subjective perception can be bias. Future study should examine more objective measures of IT strategy, IT portfolio, and IT performance such as return on investment, return on assets, sales growth, market share, and etc.

The low response rate (17.3%) and small sample size (135 firms) raises the potential for

bias, such that managers replying to this questionnaire may be different in some way from those of the general population. Although this study has not statistical problems, we cannot completely exclude the possibility of response bias. Future studies should generate higher response rates and cross validate the findings with those of this study.

Factors other than the ones under investigation may be associated with organizational outcomes, thereby necessitating careful selections of control variables such as company size, the ratio of IT investment to revenue, time lags between IT investment and its effects, and other factors significantly affects the relationship among IT strategy, IT portfolio, and IT performance. However, this study doesn't deal with these control factors. Future studies should include these additional control factors in order to enhance the internal validity of research findings.

References

Arbuckle, J.L. and W. Wothke(1999), *AMOS 4.0 User's Guide*, Smallwaters Corp.

Benjamin, R.I. and R. Wigand(1995), Electronic Markets and Virtual Value Chains on the Information Superhighway, *Sloan Management Review*, Winter, pp.62-72.

Berger, P., Kobielus, J. G. and Sutherland, D. E.(1988), *Measuring Business Value of Information Technologies*, ICIT Press, Washington DC.

Bloch, M., Y. Pigneur and A. Segev(1996), On the Road of Electronic Commerce-a Business Value Framework, *Gaining Competitive Advantage and Some Research Issues, Working Paper*, http://is-2.stern.nyu.edu/~mbloch/docs/ roadtoec/ec.htm.

Carter, J.R.(1990), The Dollars and Sense of Electronic Data Interchange, *Production & Inventory Management Journal*, 31(2), pp.22-26.

Cash, J. I., McFarlan, F. W., McKenney, J. L. and Applegate, L. M.(1992), *Corporate Information Systems Management: Text and Cases*, 3rd eds., Homewood, IL: Richard D. Irwin.

Chan, Y.E. and Huff, S.L.(1993), Strategic Information Systems Alignment, *Business Quarterly*, 58(1), pp.51-55.

Chan, Y.E., Huff, S.L., Barclay, D.W. and Copeland, D.G.(1997), Business Strategy Orientation, Information Systems Orientation and Strategic Alignment, *Information Systems Research*, 8(2), pp.125-150.

Chircu, A. M. and Kauffman, R. J.(2000), Limits to Value an Electronic Commerce-Related IS Investment, *Journal of Management Information Systems*, 17(2), pp.59-80.

Cho, N.J. and Park, K.H.(2003), "Barriers Causing the Value Gap between Expected and Realized Value in IS

Investment: SCM/ERP/CRM", *Information Systems Review*, 5(1), pp.1-13.

Clark, T.H., and Stoddard, D.B.(1996), Interorganizational Business Process Redesign: Merging Technological and Process Innovation, *Journal of Management Information Systems*, 13(2), pp.9-28.

Clemons, E.K. and Kimbrough, S.O.(1986), Information Systems, Telecommunications and Their Effects on Industrial Organizations, *Proceedings of the 7th ICIS*, San Diego, pp.99-108.

Davenport, T.H.(1993), *Process Innovation: Reengineering Work Through Information Technology*, Ernst & Young.

Davern, M.J. and Kauffman, R.J.(2000), Discovering Potential and Realizing Value from Information Technology Investment, *Journal Management Information Systems*, 16(4), pp.121-143.

Diamond, G.(1994), Good Old Phone and Fax Stifle Growth of "New" Electronic Data Interchange. *Computing Canada*, pp.38-39.

Earl, M.J.(1989), *Management Strategies for Information Technology*, Prentice Hall.

Grover, V., Jeong, S. R., Kettinger, W. J. and Teng, J. T. C.(1995), The Implementation of Business Process Reengineering, *Journal of Management Information Systems*, 12(1), pp.109-144.

Henderson, J.C. and Venkatraman, N.(1993), Strategic Alignment: Leveraging Information Technology for Transforming Organization, *IBM System Journal*, 38(2-3), pp.472-488.

Henderson, J.C., Venkatraman, N., and Oldach, S.(1996), *Aligning Business and IT Strategies, Competing in the Information Age*, Oxford University Press.

Johnston, H. R. and Carrico, S. R.(1988), Developing Capabilities to Use Information Strategically, *MIS Quarterly*, pp.37-50.

King, W.R.(1978), Strategic Planning for Management Information Systems, *MIS Quarterly*, 2(1), pp.27-37.

Kwon, D.(2003), The Effect of Valuation Logics of Information Technology on the Company Performance: Pluralistic Assessment of Paradox, Ph.D., Dissertation, Case Western Reserve University.

Porter, M.E.(1996), What is Strategy?, *Harvard Business Review*, 74(6), pp.61-77.

Premkumar, G. and King, W. R., An Empirical Assessment of Information Systems Planning and the Role of Information Systems in Organizations, *Journal of Management Information Systems*, 9(2), 1992, pp.99-125.

Premkumar, G. and King, W. R., The Evaluation of Strategic Information System Planning, *Information and Management*, 26, 1994, pp.99-125.

Reggins, F.J., and Mukhopadhyay, T.(1994), Interdependent Benefits from Interorganizational Systems: Opportunities for Business Partner Reengineering, *Journal of Management Information Systems*, Vol.11, No.2, pp.37-57.

Sabherwal, R. and Chan, Y. E., Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders, *Information Systems Research*, 12(1), 2001, pp.11-33.

Sethi, V. and King, W. R.(1994), Development of Measures to Assess the Extent to Which an Information Technology Application Provides Competitive Advantage, *Management Science*, 40(12), pp. 1601-1627.

Tallon, P.P., Kraemer, K.L., and Gurbaxani, V.(2000), Executives' Perceptions of the Business Value of Information Technology: A Process-oriented Approach, *Journal of Management Information Systems*, 16, 4, pp.145-173.

Venkatraman, N.(1989), Strategic Orientation of Business Enterprise, *Management Science*, 35(8), pp.942-962.

Weill, P.(1992), The Relationship between Investments in Information Technology and Firm Performance: A Study of the Valve Manufacturing Sector, *Information Systems Research*, pp.307-333.

<Abstract>

성공적인 정보기술투자 전략에 대한 연구

강태경 · 박상혁

기업성과에 미치는 정보기술의 전략적 영향력이 높다는 인식으로 인해, 많은 기업들이 정보기술에 대한 투자를 증대하고 있다. 하지만, 정보기술전략과 정보기술 성과간의 관계를 직접적으로 규명한 실증연구는 찾아보기 힘들다. 본 연구에서는 정보기술에 의한 성과가 다르게 나타나는 원인이 기업이 정보기술로부터 얻고자 하는 전략적 목표가 다르기 때문이고 서로 다른 목표에 의해 정보기술의 투자 방향이 다르게 나타난다는 것이 초점을 맞추고자 한다.

따라서 본 연구는 다음과 같은 연구문제를 도출하였다. 1) 정보기술전략은 정보기술 투자 포트폴리오와 어떤 관계가 있는가? 2) 정보기술전략은 정보기술성과와 어떤 관계가 있는가? 3) 정보기술 투자 포트폴리오는 정보기술성과와 어떤 관계가 있는가?

이러한 문제의 분석을 통해 정보기술전략4, 정보기술 투자 포트폴리오, 정보기술성과 간의 관계를 규명하는데 본 연구의 목적이 있으며, 이를 통해 정보기술성과가 다르게 나타나는 현상을 설명하고자 한다.

Keywords: 정보기술전략, 정보기술 투자 포트폴리오, 정보기술성과, IT Strategy, IT Portfolio, IT Performance

* 이 논문은 2005년 1월 28일 접수하여 1차 수정을 거쳐 2005년 3월 11일 게재 확정되었습니다.