Information Technology and Business Alignments among Different Divisions: A Comparative Analysis of Japan and South Korea

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Abstract—This paper empirically investigates whether information technology (IT) strategies, business strategies, and divisions are aligned to meet overall business goals for Korean Small and medium-sized enterprises (SMEs), based on structure based Strategic Alignment Model, and make comparison with those of Japanese SMEs. Using 2,869 valid responses of Korean Human Capital Corporate Panel survey, a result of this study suggests that Korean human resources (HR) departments have a major influence over IT strategy, which is the same as Japanese SMEs, even though their management styles are quite different. As for IT strategy, it is not related to other departments at all for Korean SMEs. The Korean management seems to possess a great power over each division, such as Sales/Service, Research and Development/Technical Experts, HR, and Production.

Keywords—IT-business alignment, structured based strategic alignment model, structural equation model, human resources department.

I. INTRODUCTION

THE competitive and ever fluctuating market is forcing many companies to spend huge amounts of money in the IT sector, since it has been increasingly accepted as a vital requirement for organizations to obtain competitive advantage and innovation [1]. In the context of business-IT alignment maturity, a potential influence of national cultures has been reported in several studies. Silvius [2] presents the influence of culture on business-IT alignment based on Hofstede's framework of cultural dimensions [3], by making hypotheses on relationships between cultural aspects and business-IT alignment maturity based on this conceptual mapping. International competition seems quite conformable with a variety of forms of business organization established in different countries.

In a previous study, using data from 345 responses from Japanese SMEs, a consolidated framework of structure-based Strategic Alignment Model (SAM) suggests that the HR department's great influence over other departments and its influence over business strategy. IT strategy is related to the HR department in some extent, but not related to other departments at all, and business strategy affects IT strategy [4]. Clear differences used to exist between the business systems and HRM in Japan and Korea [5]. A study of IT companies' HR practices in South Korea [6] suggests an importance of HR

practices in staying competitive for the future, and the role of HR has to be more strategic than operational, no matter what the industry is. This paper empirically investigates whether IT strategies, the business strategies, and divisions are aligned to meet overall business goals for Korean SMEs, and makes comparison with those for Japanese SMEs.

II. LITERATURE REVIEW

According to Roffey Park's Management Agenda 2009 in UK, the majority of line managers (81%) agreed that their HR department is 'out of touch with the rest of the organization, while 75% of line managers say that the function was "influential" in their organization, and 64% of line managers agree that it had "credibility" with leadership [7]. For the companies in the US, HR is said to be relatively decentralized, and HR departments generally have lower status than line departments [8]. On the contrary, Japanese HR departments have been characterized by the great power that they possess over other line departments [9]-[11]. Among divisions, differences in a role of HR departments are found between corporations in Japan and those in other countries. By centralizing personnel management, intensive accumulations of personnel information have been seen in Japanese HR departments. HR managers tend to have advantages of getting a higher status within companies with promising career paths. Japanese HR departments are also involved in determination of individual employee transfers [12]. Since Japanese HR departments could determine the individual personnel transfer issues together with the line managers, there is a check-and-balance relationship between the HR department and the line managers, called "personnel transfer dynamics" [13].

The HR departments in Korean firms have experienced radical changes. Kim and Bae [14] measured HR department effectiveness through the perception of a managing staff member engaged in a strategic planning function; a measure that intended to capture the extent to which HR contributes in enhancing the firms' competitive advantage by appropriately supporting line managers and employees. Their finding indicates that HR professionals should develop strong and constructive relationship with the line managers and the employees to achieve their goals successfully.

In order to build a more effective understanding and working relationship between line business and information systems (IS) departments, an effort to build partnership between the IS and other groups regarding the role and importance of IS to

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each corporation's business context would provide major impact [15]. Therefore, the importance of achieving alignment between business and IT is widely recognized by many researchers and practitioners, and most companies have significant work to do before achieving business-IT alignment successfully.

Henderson and Venkatraman [16] proposed the realization of business-IT alignment by balancing four areas: business strategy, IT strategy, organization platform, and IT platform, using the SAM. Recent research reveals positive effects of alignment on business performance with empirical evidences [17]-[20], [4], [1]. External and internal factors of both business and IT strategy must fit (have "strategic fit"), and functions of business and IT must be integrated in order to balance the four areas. King et al. [21] suggest that the firms with high IT alignment achieved better organizational performance than firms with low IT alignment. Not only the large firms but many small firms have achieved a high degree of alignment between their business strategy and IT [22].

III. RESEARCH MODEL AND HYPOTHESES

The previous studies have suggested that achieving business-IT alignment more successfully than competitors is one of the keys to gaining competitive advantage. In this paper, a modified SAM, "Structure-based Strategic Alignment Model (SSAM)," developed by Miyamoto [4], is used to investigate empirically whether IT strategies, the business strategies and divisions are aligned to meet overall business goals for Korean SMEs as shown in Fig. 1.
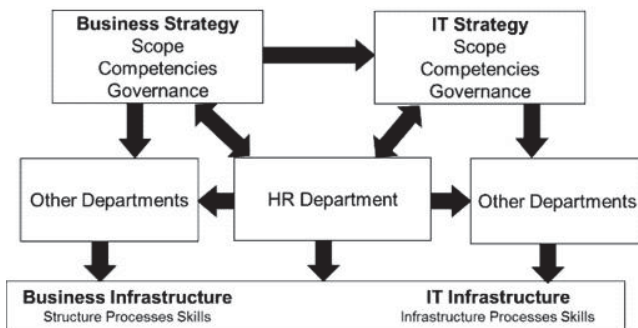

Fig. 1 SSAM [4]

Based on SSAM, the following four hypotheses are posited.
Hypothesis 1. Business strategy will affect IT strategy.
Hypothesis 2. HR department will affect other departments.
Hypothesis 3. HR department will affect IT strategy.
Hypothesis 4. Business strategy will affect other departments.

IV. SURVEY

Data were obtained from the Human Capital Corporate Panel survey, which is officially approved by Korea National Statistical Office. The first survey was started in 2005, and the fifth survey was completed in 2013. The survey is based on onsite interviews. This paper uses 2005 survey data, since it contains IT related questionnaires. The survey population includes corporations employing more than 100 workers and

listed in "KIS Corporate Data 2005," published by the Korea Information Service, or those which employ more than 300 workers and unlisted. 10,232 responses were collected; after omitting the missing data, 2,869 valid responses are used in this analysis. Most of the questionnaires used a five-point scale as follows; 1 = Poor, 2 =Inadequate, 3= Sufficient, 4 = Strong, and 5 =Extraordinary. More than half of respondents (63.5%) are working in the manufacturing industry, and 12% of those are working in the finance industry, and one quarter of respondents are working in non-finance sector (see Table I). Definition of variable is shown in Table II.

Table III contains the Pearson correlation coefficient between all pairs of 12 variables on different divisions with the two-tailed significance of these coefficients. Although relationships among variables of HR and other departments are significant but negative and weak, variables among HR are correlated fairly well and none of the correlation coefficients are particularly large; therefore, multicollinearity is not a problem for these data.

TABLE I
DESCRIPTION OF THE SAMPLES

	NR	NE/TR(%)
Manufacturing	1,821	63.5
Finance	344	12
Non-Finance	704	24.5

*TR denotes total respondents

V. RESULTS

Testing the efficacy of the structural equation model (SEM) was conducted by AMOS 22, and the major results of analysis are shown in Fig. 2. The path diagram highlights the structural relationships. In this diagram shown in Fig. 2, the measured variables are enclosed in boxes, latent variables are circled, and arrows connecting two variables represent relations, and open arrows represent errors. When SEM is used to verify a theoretical model, a greater goodness of fit is required for SEM analysis [23]; the better the fit, the closer the model matrix and the sample matrix. By means of various goodness-of-fit indices, including the comparative fit index (CFI) [24], Incremental Fit Index (IFI) [25], and the root mean squared error of approximation (RMSEA) [26], the estimated matrix can be evaluated against the observed sample covariance matrix to determine whether the hypothesized model is an acceptable representation of the data.

In general, fit indices (e.g., CFI and IFI) above 0.90 signify good model fit. RMSEA values lower than 0.08 signify acceptable model fit, with the values lower than 0.05 indicative of good model fit [26]. The research model is shown in Fig. 2; CFI=0.900, IFI=0.900, RMSEA= 0.068 (see Table III). The Path Coefficient for the structural model suggested that the regression coefficient for all constructs show significance. Since all of the indexes satisfy the cut-off values, the result is regarded as acceptable. Table III summarizes the results of these tests for the research model.

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TABLE II
DEFINITION OF VARIABLES

Business Strategy	Differentiation/ Diversification	W108_23	Diversification of products / goods / services
		W108_25	Products/services differentiation
		W108_27	Sufficiently raising new customers' acquisition rate
		W108_31	Improve and manage brand image
		W108_29	Retention rate of major customers
	Leadership/ Reliability	W108_07	Leadership of the management team
		W108_01	The overall capacity of the HR
		W108_05	Building a trust based community
		W108_03	Securing excellent HR
	Cost efficiency/ Development	W108_13	Ensure competitive advantage through cost reduction
		W108_15	Pursuit of economies of scale
		W108_09	The development ability of new products / services
		W108_11	Efficiency and simplification of business procedures
	Quality/ Customer	W108_19	Improvement of the defect rate and the production yield
		W108_17	Quality of the product / service
		W108_21	Rapid response to customers' needs
IT Strategy		W110_01	Ease of use of the company's IS
		W110_02	Receive needed information
		W110_03	Use of IT enable production dynamism of the process of the new business knowledge and business improvement
		W110_04	Use of IT enhance knowledge and the business performance scheme which are rapidly spread within the company
		W110_05	Management obtains higher knowledge level on IS
		W110_06	Management team supports the lavishly IS
		W110_07	Use of IT enhance the creation of knowledge of employees, evaluation and compensation
		W110_08	Higher ability to take advantage of IT
		W110_09	I easily understand the acquired information
		W110_10	I will participate actively in the knowledge circle
Divisions		W109_01	R&D and technical experts
		W109_05	Sales and Service
		W109_07	Management
		W109_09	Production
	HR	W106_01	Contribute to the management strategy planning
		W106_02	Major impact on the decision-making of the CEO
		W106_03	Leading role in improving the execution of the personnel system
		W106_04	Provides education and advice to personnel-related issues to the manager
		W106_05	Gain the trust of the company's employees
		W106_06	Led the company change and innovation
		W106_07	Retain the expertise of the areas of responsibility
		W106_08	Frequently notified of the contents of the personnel system

TABLE III
CORRELATION MATRIX ON DIFFERENT DIVISIONS

		W109_01	W109_05	W109_07	W109_09	W106_01	W106_02	W106_03	W106_04	W106_05	W106_06	W106_07	W106_08
R&D and technical experts	W109_01	1	.709**	.685**	.377**	-.166**	-.155**	-.179**	-.179**	-.182**	-.181**	-.261**	-.251**
Sales and Service	W109_05	.709**	1	.755**	.161**	-.224**	-.175**	-.187**	-.193**	-.226**	-.182**	-.234**	-.229**
Management	W109_07	.685**	.755**	1	.099	-.323**	-.246**	-.298**	-.293**	-.348**	-.305**	-.338**	-.353**
Production	W109_09	.377**	.161**	.099	1	.118*	.219**	.031	-.043	-.108*	.085	.123*	.053
HR	W106_01	-.166**	-.224**	-.323**	.118*	1	.693**	.510**	.465**	.513**	.610**	.459**	.397**
	W106_02	-.155**	-.175**	-.246**	.219**	.693**	1	.505**	.439**	.412**	.535**	.421**	.320**
	W106_03	-.179**	-.187**	-.298**	.031	.510**	.505**	1	.604**	.443**	.546**	.573**	.525**
	W106_04	-.179**	-.193**	-.293**	-.043	.465**	.439**	.604**	1	.442**	.534**	.523**	.513**
	W106_05	-.182**	-.226**	-.348**	-.108*	.513**	.412**	.443**	.442**	1	.572**	.441**	.512**
	W106_06	-.181**	-.182**	-.305**	.085	.610**	.535**	.546**	.534**	.572**	1	.559**	.481**
	W106_07	-.261**	-.234**	-.338**	.123*	.459**	.421**	.573**	.523**	.441**	.559**	1	.545**
	W106_08	-.251**	-.229**	-.353**	.053	.397**	.320**	.525**	.513**	.512**	.481**	.545**	1

**. Correlation is significant at the 0.01 level (2-tailed).   *. Correlation is significant at the 0.05 level (2-tailed).

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TABLE IV
RELIABILITY TEST

FIT indices	Recommended level	A Structural Equation Model
CMIN/DF	5.0 (Wheaton et al. [27])~2.0 (Tabachnick and Fidell [28])	14.107
CFI	>0.90 (Bentler [24])	0.900
IFI	>0.90 (Bollen [25])	0.900
RMSEA	<0.10 (Browne and Cudeck [26])	0.068
AIC	Smaller values suggest a good fitting (Akaike, [29])	8943.245
p-value	>0.05	0.000

The followings are results of hypotheses.

Hypothesis 1. Business strategy will affect IT strategy.

H1a. There is a significant, but negative and weak relationship between leadership/reliability and IT Strategy.

H1b. There is a significant, but negative and almost no relationship between cost efficiency/development and IT Strategy.

Hypothesis 2. HR department will affect other departments.

H2a. There is a significant, moderate, and negative relationship HR department and management.

H2b. There is a significant, weak, and positive relationship HR department and sales and service.

H2c. There is a significant, weak, and positive relationship HR Department and R&D and technical experts.

H2d. There is a significant, positive, and weak relationship between HR department and production.

Hypothesis 3. HR department will affect IT strategy.

There is a significant, moderate and positive relationship between HR department and IT strategy.

Hypothesis 4. Business strategy will affect other departments.

H4a. There is a significant, positive, and weak relationship between cost efficiency/development and production.

H4b. There is a significant, positive, and weak relationship between differentiation/diversification and production.

H4c. There is a significant, positive, and moderate relationship between management and production.

The observed variables for IT strategy have the estimate of standardized regression weight of 0.565~0.861, while all observed variables are above 0.758 for business strategy.
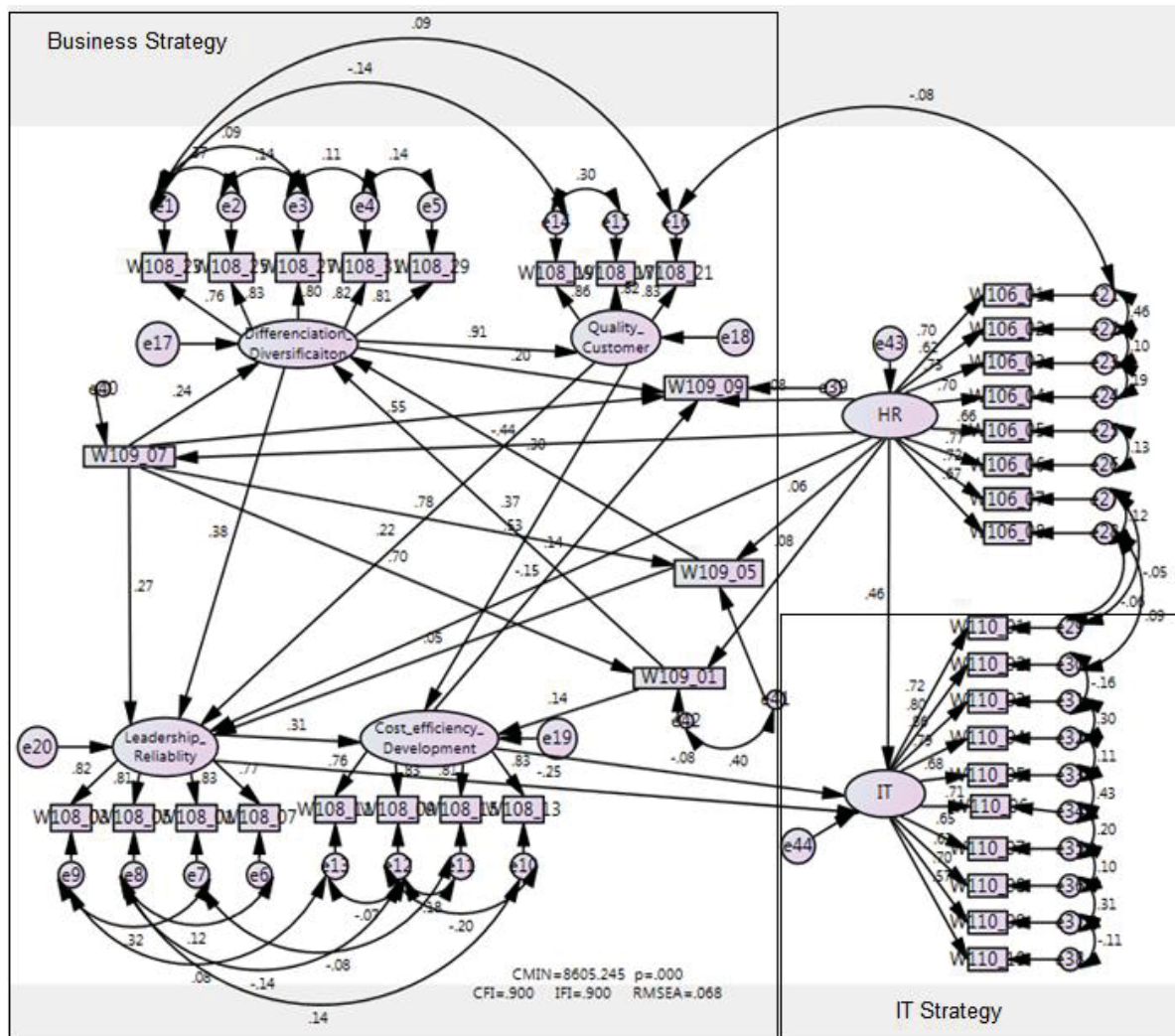

Fig. 2 A Structural Equation Model

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TABLE V
THE PATH COEFFICIENTS OF THE STRUCTURAL EQUATION MODEL

construct			Std. weight	Unstd. weight	S. E.	C.R. (t-value)	P value
Management (W109_07)	<---	HR	-0.444	-0.604	0.027	-21.997	***
Sales and Service (W109_05)	<---	HR	0.057	0.084	0.022	3.83	***
R&D and technical experts (W109_01)	<---	HR	0.08	0.128	0.032	4.045	***
R&D and technical experts (W109_01)	<---	Management (W109_07)	0.701	0.824	0.022	37.457	***
Sales and Service (W109_05)	<---	Management (W109_07)	0.782	0.845	0.015	56.189	***
Differentiation/Diversification	<---	R&D and technical experts (W109_01)	0.368	0.269	0.016	16.636	***
Differentiation/Diversification	<---	Sales and Service (W109_05)	0.3	0.239	0.018	13.385	***
Differentiation/Diversification	<---	Management (W109_07)	0.244	0.209	0.018	11.595	***
Quality/Customer	<---	Differentiation/Diversification	0.912	1.064	0.028	38.604	***
Leadership/Reliability	<---	Differentiation/Diversification	0.381	0.386	0.052	7.481	***
Leadership/Reliability	<---	HR	-0.149	-0.176	0.016	-10.717	***
Leadership/Reliability	<---	Sales and Service (W109_05)	0.052	0.042	0.016	2.653	0.008
Leadership/Reliability	<---	Quality/Customer	0.225	0.195	0.039	5.022	***
Leadership/Reliability	<---	Management (W109_07)	0.275	0.239	0.018	13.556	***
Cost efficiency/Development	<---	Leadership/Reliability	0.309	0.333	0.03	11.132	***
Cost efficiency/Development	<---	R&D and technical experts (W109_01)	0.14	0.112	0.015	7.442	***
Cost efficiency/Development	<---	Quality/Customer	0.531	0.496	0.027	18.317	***
IT Strategy	<---	HR	0.455	0.433	0.022	19.493	***
IT Strategy	<---	Leadership/Reliability	-0.246	-0.198	0.034	-5.768	***
IT Strategy	<---	Cost efficiency/Development	-0.079	-0.059	0.029	-2.033	0.042
W108_23	<---	Differentiation/Diversification	0.76	1			
W108_25	<---	Differentiation/Diversification	0.834	1.123	0.019	58.512	***
W108_27	<---	Differentiation/Diversification	0.799	1.039	0.023	46.084	***
W108_31	<---	Differentiation/Diversification	0.82	1.154	0.026	44.979	***
W108_29	<---	Differentiation/Diversification	0.811	1.074	0.024	44.582	***
W108_07	<---	Leadership/Reliability	0.771	1			
W108_01	<---	Leadership/Reliability	0.828	0.966	0.021	46.435	***
W108_05	<---	Leadership/Reliability	0.81	1.018	0.021	49.016	***
W108_03	<---	Leadership/Reliability	0.824	1.03	0.022	46.133	***
W108_13	<---	Cost efficiency/Development	0.83	1			
W108_15	<---	Cost efficiency/Development	0.807	1.024	0.021	49.026	***
W108_09	<---	Cost efficiency/Development	0.833	1.02	0.022	46.059	***
W108_11	<---	Cost efficiency/Development	0.758	0.804	0.018	45.132	***
W108_19	<---	Quality/Customer	0.862	1			
W108_17	<---	Quality/Customer	0.822	0.95	0.017	56.186	***
W108_21	<---	Quality/Customer	0.828	0.894	0.018	48.621	***
W106_01	<---	HR	0.703	1			
W106_02	<---	HR	0.618	0.896	0.022	40.85	***
W106_03	<---	HR	0.731	0.995	0.028	35.3	***
W106_04	<---	HR	0.697	0.972	0.029	33.744	***
W106_05	<---	HR	0.66	0.734	0.023	31.863	***
W106_06	<---	HR	0.773	1.052	0.028	37.123	***
W106_07	<---	HR	0.723	0.984	0.028	34.926	***
W106_08	<---	HR	0.674	0.925	0.028	32.701	***
W110_01	<---	IT Strategy	0.724	1			
W110_02	<---	IT Strategy	0.798	1.186	0.029	41.083	***
W110_03	<---	IT Strategy	0.861	1.293	0.029	43.99	***
W110_04	<---	IT Strategy	0.792	1.221	0.03	40.73	***
W110_05	<---	IT Strategy	0.676	1.033	0.03	34.992	***
W110_06	<---	IT Strategy	0.715	1.101	0.03	37.077	***
W110_07	<---	IT Strategy	0.651	1.13	0.034	33.718	***
W110_08	<---	IT Strategy	0.61	0.778	0.025	31.461	***
W110_09	<---	IT Strategy	0.705	0.899	0.025	36.497	***
W110_10	<---	IT Strategy	0.565	0.919	0.032	29.088	***
Production (W109_09)	<---	HR	0.077	0.109	0.025	4.374	***
Production (W109_09)	<---	Cost efficiency/Development	0.144	0.16	0.041	3.915	***
Production (W109_09)	<---	Differentiation/Diversification	0.196	0.237	0.047	5.011	***
Production (W109_09)	<---	Management (W109_07)	0.552	0.574	0.024	23.609	***

VI. CONCLUSION

Using the framework of modified SAM, namely SSAM, this paper empirically investigates whether IT strategies, the business strategies, and divisions are aligned to meet overall business goals for Korean SMEs. Findings in the previous research using the present Japanese SMEs data show that Japanese HR departments did not only have great power over other line departments, but also they seem to possess great power over making decision on business strategy as well as IT strategy. As for Korean HR departments, the result of this study suggests that they also have a major influence over IT strategy,

while IT strategy is not related to other departments at all. Their managements seem to possess a great power over sales/service, and R&D/technical experts; they have a moderate influence on HR and production. Each factor of business strategy hardly affects IT strategy.

Although there are some cultural and structural similarities, such as the dominance of powerful conglomerate companies, the Korean management style and that of Japanese are not the same. Managers of both countries emphasize group harmony and cohesion; however, Korean organizations are known as quite hierarchical, with family members occupying key positions. The leadership style can best be described as top-down, or autocratic/paternalistic. The empirical results of this study support the effect of Korean management on this respect [30]. Even though their management styles are different, the result finds that HR departments of Korean companies are having a great influence over IT industry as Japanese companies.

The limitation of this study is the use of 2005 dataset. Korean companies' IT-Business alignment may have a different picture using more recent data set, and the international comparative analyses with other countries continue to be needed on this subject to see if each country has different organization issues on IT-business alignment.

REFERENCES

[1] Miyamoto, M. (2015). Consideration of IT-Business Alignment based on Organizational Structure. *The 4th International Symposium on Business and Social Sciences, Proceedings*, 275-284.
[2] Silvius, A.J.G. (2008). The Impact of National Cultures on Business & IT Alignment, *Communications of the IIMA*, Vol 8, No.2, pp 11-22.
[3] Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage.
[4] Miyamoto, M. (2014). IT-Business Alignments among Different Divisions of Japanese SMEs on Structured Based Strategic Alignment Model. *International Journal of Business and Information*, Vol 9, No.2, 217-244
[5] Whitley, R. (1991). The Social Construction of Business Systems in East Asia. *Organization Studies, 12(1)*, 1-28.
[6] Cho, Y., McLean, G. N. (2008). IT companies HR practices in South Korea. *Asia-Pacific Collaborative Education Journal*, 4(1), 49-64.
[7] Brockett, J. (2009). Line Managers Question HR's Credibility, *People Management*, 15, 2, 11.
[8] Jacoby, S.M. (2005). *The Embedded Corporation: Corporate Governance and Employment Relations in Japan and the United States.* Princeton, NJ: Princeton University Press.
[9] Kagano, T., Nonaka, I., Sakakibara, K. and Okumura, A. (1983). Nichi-bei kigyou no keiei hikaku: Senryakuteki kankyo, tekio no riron, Comparison of management in Japanese and US corporation: Theory of adaptation to the strategic environment (in Japanese) Tokyo: Nihon Keizai Shinbunsha.
[10] Hirano, M. (2011). 2009 nen no Nihon no jinji-bu (Japanese Human resources departments in 2009) (in Japanese), JILPT Research Report No.606, 2011.
[11] Yamashita, M. (2008). *Jinjibu Human resources departments In Nihonteki koyo sisutemu* (Japanese employment system (in Japanese)), ed. Nitta, M. and Hisamoto, N., 235-268. Tokyo: Nakanishiya Shuan.
[12] Hirano, M. (2013). Human Resources Departments of Japanese Corporations: Have Their Roles Changed? Japan Labor Review, 10 (1), Winter.
[13] Yashiro, A. (2002). *Kanrishokusou no jinteki shigen kanri: Rodo shijoronteki approach*, (Human Resources Management of Managerial Employees: Labor Market Theory Approach (in Japanese)). Tokyo: Yuhikaku.
[14] Kim, D., and Bae, C. (2004), Employment Relations and HRM in South Korea, Aldershot: Ashgate.
[15] Main, T. J., and Short, J. E. (1989). Managing the Merger: Building Partnership Through IT Planning at the New Baxter. *MIS Quarterly*, 13(4), 468-484.
[16] Henderson, J. C. and Venkatraman, N. (1989). Strategic Alignment: A Framework for Strategic Information Technology Management, MIT Sloan School of Management, The Management in the 1990's Research Program, Working Paper 89.
[17] Sabherwal, R. and Chan, Y.E. (2001). Alignment between Business and IS Strategies: A study of prospectors, analyzers, and defenders, *Information Systems Research* 12(1): 11–33.
[18] Oh, W. and Pinsonneault, A. (2007). On the Assessment of the Strategic Value of Information Technologies: Conceptual and Analytical Approaches, *MIS Quarterly*, 31, 239-265.
[19] Yayla, A.A. and Hu, Q. (2012). The Impact of IT-Business Strategic Alignment on Firm Performance in a Developing Country Setting: Exploring Moderating Roles of Environmental Uncertainty and Strategic Orientation, *European Journal of Information Systems* **21**(4): 373–387.
[20] Gerow, J. E., Grover, V., Thatcher, J. B., and Roth, P. L. (*2014*). Looking Toward the Future of IT-Business Strategic Alignment through the Past: A Meta-Analysis, *MIS Quarterly*, (38: 4)1059-1085.
[21] King, M., Cragg, P. and Hussin, H. (2000). IT Alignment and Organizational Performance in Small Firms. ECIS 2000 Proceedings. Paper 190.
[22] Cragg, P., King, M. and Hussin, H. (2002). IT Alignment and Firm Performance in Small Manufacturing Firms, *Strategic Information Systems* **11**(2): 109–132.
[23] Byrne, B.M. (2010). *Structural Equation Modeling Using AMOS. Basic Concepts, Applications, and Programming,* 2nd Ed, New York: Routledge.
[24] Bentler, P.M. (1990). Comparative Fit Indexes in Structural Models, *Psychological Bulletin*, 238–246.
[25] Bollen, K.A. (1989). A New Incremental Fit Index for General Structural Equation Models, *Sociological Methods and Research*, 17, 303–316.
[26] Browne, M.W. and Cudeck, R. (1992). Alternative Ways of Assessing Model Fit, *Sociological Methods and Research*, 21, 230–258.
[27] Wheaton, B., Muthen, B., Alwin, D., F., and Summers, G. (1977). Assessing Reliability and Stability in Panel Models, *Sociological Methodology*, 8 (1), 84-136.
[28] Tabachnick, B.G. and Fidell, L.S. (2007). *Using Multivariate Statistics* (5th ed.). New York: Allyn and Bacon.
[29] Akaike, H. (1974). A New Look at the Statistical Model Identification, *IEE Transactions on Automatic Control*, 19 (6), 716-23.
[30] Putti, J. M., Koontz, H., and Weihrich, H. (1998). *Essentials of Management: An Asian Perspective.* Singapore: McGraw-Hill.