STRATEGIC ALIGNMENT MATURITY AND ITS EFFECT ON ORGANIZATIONAL PERFORMANCE OF JAPANESE SMALL AND MEDIUM ENTERPRISES

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ABSTRACT

Purpose: Using a conceptual framework of Sledgianowski and Luftman (2001), this paper empirically investigates how Japanese SMEs view their Strategy Alignment Maturity, Short-term Linkage, and Organizational Performance. The author examines a theoretical framework for assessing strategic alignment maturity by using a survey data of Japanese small and medium companies. The relationship between strategic alignment maturity and the mutual understanding of business and IT objectives between business and IT executives is analyzed.

Methodology: The methodology of this study is quantitative. Three hundred fifty-four (354) Japanese firm-level data collected have been analyzed using structural equation modeling.

Main Findings: The results show that factors associated with IT-Business Alignment Maturity of Japanese SMEs are statistically significantly positively related to organizational performance. However, those are statistically significantly negatively related to Short-term Linkage. Although the linkage of information system plans with organizational objectives (business plans) are positively related, this study implies that the linkage of information systems and each factor of IT–Business Alignment Maturity is rather weak as previous empirical literature suggested.

Applications: This study can be applied to the firm-level analyses where IT-Business Alignment Maturity and Short-term Linkage are in issue.

Novelty/Originality: The author examines the relationship between strategic alignment maturity and organizational performance by using a survey data of Japanese small and medium companies.

Keywords: SMEs; IT-Business Alignment Maturity Model; Short-term Linkage; Organizational Performance.

INTRODUCTION

The Strategic Alignment Maturity model has been developed to provide a theoretical basis for assessing strategic alignment maturity (Luftman, 2000, 2003). The purposes of this research are threefold; first, the author examines a theoretical framework for assessing strategic alignment maturity by using a survey data of Japanese small and medium companies. Second, the relationship between strategic alignment maturity and the mutual understanding of business and IT objectives between business and IT executives is analyzed. Lastly, the author examines the relationship between strategic alignment maturity and organizational performance, as suggested by Sledgianowski and Luftman (2001).

LITERATURE REVIEW

Numerous literature suggests the importance of alignment between information technology and business. Strategic alignment of the model (SAM) (Henderson and Venkatraman, 1993) proposes a framework for aligning IT with business strategy, for conceptualizing and directing strategic role/management of IT, and for leveraging IT on a continuous basis to achieve a sustainable competitive advantage. However, some has mentioned that achieving business-IT alignment is challenging (Bush, et al., 2009; Byrd et al., 2006; Luftman, 2005; Sabherwal& Chan, 2001) and other focus on business-IT misalignment (Gutierez&Lycett, 2011; El-Telbanya&Elragalb, 2014).

Luftman developed a maturity assessment model, called "Strategy Alignment Maturity Model" (SAMM) based on the 12 elements of Business/IT-Alignment, which can be recognized in the model of Henderson and Venkatraman (Luftman, 2000; 2003). The SAMM is based on best practices for IT-business strategic alignment derived from literature reviews, practitioner input, and evaluation of management practices and strategic choices employed by over 50 Global 2000 organizations. An empirical study of Japanese SMEs based on SAMM found that all six criteria of SAMM, *i.e.*,(1) Skill, (2) Value, (3) Governance, (4) Communication, (5) Partnership, (6) Scope, are closely related to IT-Business Alignment Maturity (Miyamoto 2014). Based on SAM, Sledgianowski and Luftman (2001) further develop a conceptual framework for Maturity, Linkage, and Performance as shown in Fig. 1.

The model consists of six alignment areas, (1)Skill, (2) Value, (3) Governance, (4) Communication, (5) Partnership, (6) Scope, based on Luftman's SAMM framework, each of which has the potential to promote strategic alignment between the IT and business areas (Sledgianowski and Luftman, 2001).

The linkage of information systems (IS) plans with organizational objectives (business plans) has been among the top problems reported by IS managers and business executives, based on a review of the empirical literature (Galliers, 1987; Lederer and Mendelow,1986; Reich and Benbasat, 1996). Reich and Benbasat (1994) developed a model for the investigation of linkage between business and information technology objectives and found that practices promoting

communications between IT and business executives and mutual IT and business planning were related to higher levels of short-term linkage. The establishment of a linkage between business and information technology objectives has consistently been reported as one of the key concerns of information systems manages (Reich and Benbasat, 1996). Sledgianowski and Luftman (2001) suggest the relationship between SAM and short-term linkage need to be examined.
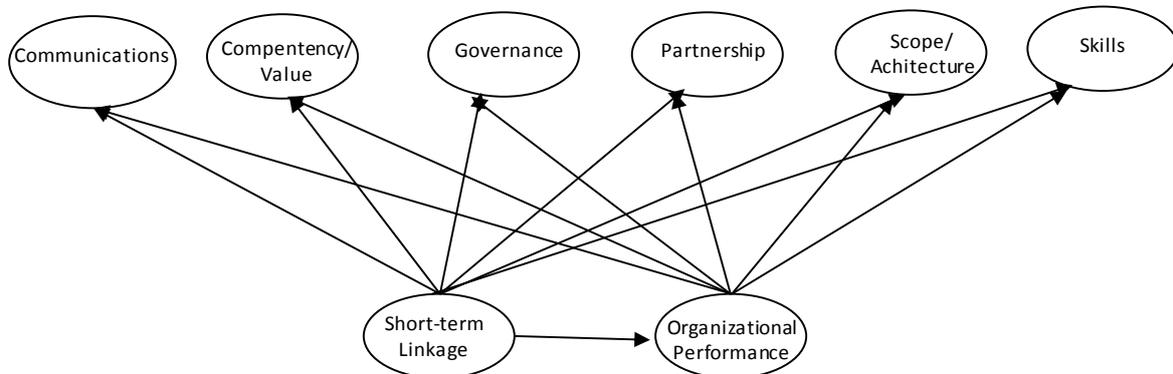
Fig. 1: Conceptual Framework (Sledgianowski and Luftman, 2001)

Gaining competitive advantage is critical for organizations, and several studies have analyzed how IT affects competitive advantage (Porter and Millar, 1985; Brynjolfsson et al., 2000; McAfee, 2001; Blinder, 2001; Powell and Dent-Micallef, 1997; Bharadwaj, 2000; Miyamoto, 2014). Organizational performance has been measured as a competitive advantage and strategic value. Kohli and Devaraj (2003) and Melville, et al. (2004) have evaluated the performance impacts of IT. In terms of IT business value, although most of the prior researchers have looked for firms' financial performance as the direct effect on IT (Lea, 2005), Tallon, et al. (2000,2007) introduce an approach to measuring IT business value complements by using executives' perceptions as proxy measures for realized IT payoffs, and this study follows that approach.

RESEARCH MODEL AND HYPOTHESES

In this paper, the author adopts the conceptual framework of Sledgianowski and Luftman (2001) as a framework for analyzing how Japanese SMEs view their Strategy Alignment Maturity, Short-term Linkage, and Organizational Performance.

The author had formed thirteen hypotheses based on this framework as follows. There is a significant, positive relationship among criteria in IT-Business Alignment Maturity, Short-term Linkage, and Organizational Performance.

H1: There is a significant, positive relationship between Short-term Linkage and communication.
H2: There is a significant, positive relationship between Short-term Linkage and competency/value.
H3: There is a significant, positive relationship between Short-term Linkage and governance.
H4: There is a significant, positive relationship between Short-term Linkage and partnership.
H5: There is a significant, positive relationship between Short-term Linkage and scope/architecture.
H6: There is a significant, positive relationship between Short-term Linkage and skills.
H7: There is a significant, positive relationship between organizational Performance and communication.
H8: There is a significant, positive relationship between organizational Performance and competency/value.
H9: There is a significant, positive relationship between organizational Performance and governance.
H10: There is a significant, positive relationship between organizational Performance and partnership.
H11: There is a significant, positive relationship between organizational Performance and scope/architecture.
H12: There is a significant, positive relationship between organizational Performance and skills.
H13: There is a significant, positive relationship between Short-term Linkage and Organizational Performance.

DATA

Data were collected in the northern part of Japan, in mid-September in 2012 to late October in 2012. A sample of the survey was randomly selected from 2011edition of Tokyo Shoko Research (TSR). 20 companies had to be withdrawn from the sample since they had no longer existed. The survey was sent to 1,016 companies of all sizes from various industries and amassed 354 valid responses (a response rate is 35%). The questionnaire was sent by mail to the information system division, as well as the corporate planning division of the firms. 5 point scale asks most of the questionnaires. Table 1 shows the distribution of different industries, and Table 2 shows a cross-tabulation table of the number of employees and annual revenue in billion yen in the sample. Table 2 suggests that most of the companies included in this study are small to medium-sized.

Table 1: The Distribution of Industries

Industries	Frequency	Percent
Agrecultural, forestry and fising/mining	5	1.4
Pulp/paper	1	0.3
Rubber / ceramic industry	2	0.6
Steel · Nonferrous metal · Metal	20	5.8
Machinery and electrical equipment	31	9.0
Transportation equipment	4	1.2
Precision mechanical equipment	10	2.9
Other manufacturing industry	36	10.4
Trading company · other wholesale business	21	6.1
Retail · Food industry	26	7.5
Real estate business	1	0.3
Construction	48	13.9
Food	12	3.5
Textile	8	2.3
Warehouse · Transportation	15	4.3
Telecommunications	15	4.3
Medical	2	0.6
Education	1	0.3
Other service industry	31	9.0
Others	12	3.5
Total	301	87.2
Missing	44	12.8
Total (including missing values)	345	100.0

Table 2: Number of Employees and Annual Revenues of Enterprises Studied

		Annual Revenue (in billion yen)				
		< 0.5	0.5 < 5	5 < 10	10 < 30	Total
Number of employees	less than 20	31	3	0	0	34
	20 < 50	88	55	0	0	143
	50 < 100	13	44	0	0	57
	100 < 300	3	42	6	2	53
	300 < 500	0	7	3	5	15
Total		135	151	9	7	302

A list of variables is shown in Table 3.

Table 4 contains the Pearson correlation coefficient between all pairs of thirteen variables with the two-tailed significance of these coefficients. Most of the variables correlate fairly well, except those of supplier power, and statistically significant, and none of the correlation coefficients are particularly large; therefore, multicollinearity is not a problem for these data.

THE STRUCTURAL EQUATION MODEL ANALYSIS

Testing the efficacy of the structural equation model was conducted by AMOS 24, and the major results of the analysis are shown in figure 2. The path diagram highlights the structural relationships. In this diagram, the measured variables are enclosed in boxes, latent variables are circled, and arrows connecting two variables represent relations, and open arrows represent errors. The maximum likelihood function is the most commonly employed discrepancy function in structural equation modeling (SEM) (Bollen, 1989). The bootstrap is nonparametric methods for assessing the errors in a statistical estimation problem. They provide several advantages over the traditional parametric approach (Efron, 1982). The author performed SEM with bootstrapping along with the initial SEM model.

When SEM is used to verify a theoretical model, the greater goodness of fit is required for SEM analysis (Byrne, 2010); the better the fit, the closer the model matrix and the sample matrix. By means of various goodness-of-fit indexes, including the comparative fit index (CFI) (Bentler,1990), the incremental fit index (IFI) (Bentler,1990), and the root mean squared error of approximation (RMSEA) (Browne &Cudeck, 1993) the estimated matrix can be evaluated against the

Table 3: A List of Variables

Latent Variables	Variables	Description
Skill	skill1	a) Encourage and offer a chance to take advantage of in-house IT employees to create new ways to use IT
	skill2	b) Educate and train to increase the capacity utilization of IT
	skill3	c) Set a goal of IT skills of employees and recommend employees to take the IT related exam
	skill4	d) Hiring personnel with the knowledge and skills required for the IT management and operation
	skill5	e) Creating managerial posts for IT professionals
	skill6	f) Expanding the career paths for IT professionals
Governance	gove1	a) Supervision and management of IT budget
	gove2	b) Supervision and management of IT investment evaluation
	gove3	c) Thorough sharing duties and authority on IT
	gove4	d) Establishment of the IT-related committee
	gove5	e) Clarification of the criteria in an allocation and prioritization of IT utilized resources
	gove6	f) Standardization of IT adoption process
	gove7	g) IT security risk management and supervision
Competency/Value	value1	a) Understanding the business value is expected for the use of IT between business sectors
	value2	b) Participation in the implementation process of IT employees
	value3	c) Participation in the management planning process of IT personnel
	value4	d) Each department and senior management to share each other's goals and risk
	value5	e) Business divisions and IT personnel trust each other
	value6	f) Regarding IT projects, consult professionals (such as the IT coordinator) or external organizations, such as public institutions and private companies.
Communications	comm1	a) Managers communicate with IT personals to understand the circumstances of their use of IT
	comm2	b) IT personnel substantively understand the management strategy
	comm3	c) The business unit personnel understand IT environment and the company's IT strategy
	comm4	d) Exchanging ideas between departments by leveraging information sharing and corporate intranet groupware
	comm5	e) Holding regular meetings on IT projects
Partnership	part1	a) The business sector understand the business value expected by the use of IT
	part2	b) Participation of employees in the implementation process of IT
	part3	c) Participation of IT staff in the management planning process
	part4	d) Senior management and every department share risks and goals of each other
	part5	e) Trust of IT personnel and business sector
	part6	f) As for IT projects, consult to professionals (public institutions and private companies) and external organizations (i.e., IT coordinator, etc.).
Scope	scope1	a) General administrative duties (e.g., planning, finance, accounting, regulatory measures, and quality control)
	scope2	b) Personnel and labor management (e.g., human resources management and benefits, recruitment and training of personnel, salaries payments, etc.)
	scope3	c) Technological development (e.g., R & D, product design, knowledge management, and production equipment design)
	scope4	d) Computerize procurement (e.g., demand planning, payment and billing, procurement, etc.)
	scope5	e) Procurement (e.g., demand planning, payment and billing, procurement, etc.)
	scope6	f) Purchasing and logistics (e.g., scheduling, shipment and delivery planning, warehouse management, inventory management, etc.)
	scope7	g) Manufacturing operations (e.g., assembly, maintenance, equipment, equipment maintenance, inspection, printing, etc.)
	scope8	h) Logistics shipping (e.g., order processing, shipping and transportation planning of the final product, and storage of the final product)
	scope9	i) Marketing and sales (e.g., advertising, sales, promotion, etc.)
	scope10	j) Information technology
	scope11	k) Servicing (e.g., maintenance and repair of the final product, management and customer support)
Short-term Linkage	top1	a) Involvement of IT personnel to process business strategy.
	top2	b) Involvement of senior management to IT strategy formulation process
	top3	c) Involvement of senior management for business transformation projects involving IT
	top4	d) Aggressiveness of management for communication with IT personnel
Ornagizational Performance	top5	a) Senior management's IT strategy is known to every employee.
	top6	b) Management suggests and supports utilization of IT in business
	top7	c) Senior management supports and encourages the use of IT in-house.

observed sample covariance matrix to determine whether the hypothesized model is an acceptable representation of the data.

In general, incremental fit indexes (i.e., CFI, IFI) above 0.90 signify good model fit. RMSEA values lower than 0.08 signify acceptable model fit, with values lower than 0.05 indicative of good model fit (Browne &Cudeck, 1993). Since all of the indexes satisfy the cut-off values, these results are regarded as acceptable. Based on these indexes, the result was regarded as acceptable. The hypothesized model appears to be a good fit to the data. The CFI is 0.921; IFI is 0.922, and the RMSEA is 0.061. The results with bootstrapping are a little better; the CFI is 0.923; IFI is 0.924, and the RMSEA is 0.059. AIC for the model with bootstrapping is smaller, *i.e.*, it is better as well. The author did not conduct post-hoc modifications because of the good fit of the data to the model. Table 3 summarizes the results of these tests for SEM model.

Table 4: Correlations

	top1	top2	top3	top4	top5	top6	top7	comm1	comm2	comm3	comm4	comm5	value1	value2	value3	value4	value5	value6	gove1	gove2	gove3	gove4	gove5
top1	1	.743**	.689**	.693**	.638**	.628**	.636**	.641**	.650**	.607**	.563**	.549**	.559**	.564**	.503**	.549**	.535**	.462**	.465**	.494**	.492**	.422**	.564**
top2	.743**	1	.836**	.796**	.734**	.710**	.698**	.719**	.672**	.661**	.551**	.523**	.577**	.596**	.520**	.559**	.567**	.559**	.557**	.574**	.510**	.409**	.552**
top3	.689**	.836**	1	.815**	.695**	.716**	.722**	.705**	.688**	.671**	.599**	.527**	.558**	.589**	.528**	.535**	.525**	.511**	.526**	.524**	.504**	.445**	.546**
top4	.693**	.796**	.815**	1	.778**	.711**	.737**	.736**	.668**	.676**	.533**	.569**	.540**	.546**	.518**	.523**	.560**	.547**	.542**	.544**	.545**	.454**	.556**
top5	.638**	.734**	.695**	.778**	1	.774**	.740**	.687**	.619**	.681**	.611**	.523**	.575**	.604**	.520**	.517**	.516**	.558**	.555**	.552**	.547**	.454**	.582**
top6	.628**	.710**	.716**	.711**	.774**	1	.790**	.681**	.628**	.647**	.598**	.517**	.526**	.526**	.492**	.544**	.519**	.537**	.523**	.528**	.565**	.438**	.536**
top7	.636**	.698**	.722**	.737**	.740**	.790**	1	.715**	.647**	.687**	.616**	.573**	.557**	.592**	.493**	.550**	.526**	.531**	.574**	.566**	.572**	.462**	.537**
comm1	.641**	.719**	.705**	.736**	.687**	.681**	.715**	1	.747**	.779**	.687**	.585**	.578**	.567**	.528**	.573**	.543**	.569**	.521**	.566**	.544**	.476**	.568**
comm2	.650**	.672**	.688**	.668**	.619**	.628**	.647**	.747**	1	.779**	.612**	.550**	.556**	.563**	.468**	.539**	.505**	.499**	.500**	.514**	.516**	.440**	.503**
comm3	.607**	.661**	.671**	.676**	.681**	.647**	.687**	.779**	.779**	1	.707**	.572**	.568**	.567**	.502**	.541**	.536**	.570**	.521**	.561**	.564**	.462**	.567**
comm4	.563**	.551**	.599**	.601**	.611**	.598**	.616**	.687**	.612**	.707**	1	.675**	.594**	.590**	.530**	.555**	.562**	.544**	.529**	.536**	.597**	.569**	.601**
comm5	.549**	.523**	.527**	.533**	.523**	.517**	.573**	.585**	.550**	.572**	.675**	1	.669**	.604**	.609**	.622**	.606**	.533**	.486**	.551**	.576**	.674**	.625**
value1	.559**	.577**	.558**	.569**	.575**	.526**	.557**	.578**	.556**	.568**	.594**	.669**	1	.824**	.758**	.818**	.766**	.730**	.669**	.721**	.644**	.636**	.698**
value2	.564**	.596**	.589**	.606**	.604**	.555**	.592**	.567**	.563**	.567**	.590**	.604**	.824**	1	.758**	.802**	.725**	.710**	.621**	.659**	.616**	.596**	.705**
value3	.503**	.520**	.528**	.540**	.520**	.492**	.493**	.528**	.468**	.502**	.530**	.609**	.758**	.758**	1	.801**	.713**	.646**	.586**	.642**	.580**	.584**	.673**
value4	.549**	.559**	.535**	.546**	.517**	.544**	.550**	.573**	.539**	.541**	.555**	.622**	.818**	.802**	.801**	1	.793**	.733**	.614**	.712**	.637**	.607**	.657**
value5	.535**	.567**	.525**	.518**	.516**	.519**	.526**	.543**	.536**	.562**	.606**	.766**	.766**	.725**	.713**	.793**	1	.741**	.711**	.616**	.582**	.650**	
value6	.462**	.559**	.511**	.523**	.558**	.537**	.531**	.569**	.499**	.570**	.544**	.533**	.730**	.710**	.646**	.733**	.741**	1	.621**	.705**	.606**	.518**	.630**
gove1	.465**	.557**	.526**	.542**	.555**	.523**	.574**	.521**	.500**	.521**	.529**	.486**	.669**	.621**	.586**	.614**	.616**	.621**	1	.833**	.724**	.535**	.630**
gove2	.494**	.574**	.524**	.560**	.552**	.528**	.566**	.566**	.514**	.561**	.536**	.551**	.721**	.659**	.642**	.712**	.711**	.705**	.833**	1	.767**	.588**	.681**
gove3	.492**	.510**	.504**	.545**	.547**	.565**	.572**	.544**	.516**	.564**	.597**	.576**	.644**	.616**	.580**	.637**	.616**	.606**	.724**	.767**	1	.678**	.679**
gove4	.422**	.409**	.445**	.454**	.454**	.438**	.462**	.476**	.440**	.462**	.569**	.674**	.636**	.596**	.584**	.607**	.582**	.518**	.535**	.588**	.678**	1	.751**
gove5	.564**	.552**	.546**	.556**	.582**	.536**	.537**	.568**	.503**	.567**	.601**	.625**	.698**	.705**	.673**	.657**	.650**	.630**	.630**	.681**	.679**	.751**	1
gove6	.525**	.535**	.481**	.516**	.543**	.515**	.521**	.508**	.487**	.525**	.540**	.574**	.703**	.685**	.650**	.687**	.649**	.665**	.661**	.710**	.697**	.684**	.813**
gove7	.466**	.476**	.490**	.500**	.526**	.481**	.534**	.538**	.516**	.553**	.558**	.570**	.570**	.538**	.507**	.537**	.493**	.539**	.610**	.596**	.622**	.472**	.584**
part1	.534**	.580**	.570**	.581**	.594**	.554**	.562**	.604**	.544**	.626**	.586**	.545**	.656**	.632**	.638**	.648**	.630**	.612**	.626**	.682**	.654**	.566**	.673**
part2	.499**	.501**	.525**	.524**	.574**	.524**	.547**	.578**	.512**	.585**	.534**	.508**	.612**	.606**	.525**	.570**	.568**	.626**	.559**	.628**	.621**	.518**	.619**
part3	.597**	.597**	.586**	.569**	.563**	.574**	.591**	.618**	.634**	.613**	.581**	.554**	.630**	.623**	.605**	.634**	.585**	.578**	.603**	.640**	.655**	.547**	.626**
part4	.439**	.507**	.525**	.548**	.549**	.474**	.488**	.611**	.522**	.614**	.580**	.386**	.484**	.482**	.506**	.462**	.465**	.506**	.522**	.531**	.556**	.379**	.528**
part5	.563**	.599**	.614**	.612**	.540**	.516**	.535**	.624**	.608**	.653**	.565**	.512**	.565**	.573**	.536**	.589**	.543**	.557**	.556**	.625**	.644**	.517**	.590**
part6	.418**	.459**	.451**	.474**	.420**	.444**	.490**	.502**	.473**	.485**	.439**	.466**	.535**	.512**	.500**	.532**	.476**	.564**	.479**	.565**	.540**	.476**	.559**
skill1	.473**	.507**	.532**	.527**	.548**	.553**	.637**	.566**	.508**	.541**	.526**	.484**	.535**	.566**	.514**	.572**	.542**	.538**	.586**	.577**	.605**	.481**	.546**
skill2	.453**	.532**	.557**	.526**	.522**	.533**	.625**	.564**	.502**	.587**	.473**	.538**	.559**	.558**	.541**	.566**	.561**	.586**	.629**	.611**	.561**	.483**	.572**
skill3	.438**	.422**	.378**	.424**	.396**	.384**	.479**	.470**	.352**	.473**	.457**	.507**	.562**	.542**	.527**	.555**	.549**	.517**	.498**	.531**	.561**	.528**	.525**
skill4	.457**	.448**	.474**	.459**	.464**	.472**	.541**	.498**	.464**	.535**	.540**	.523**	.572**	.556**	.529**	.583**	.549**	.601**	.552**	.589**	.619**	.523**	.547**
skill5	.466**	.452**	.449**	.406**	.415**	.432**	.470**	.447**	.381**	.451**	.484**	.579**	.552**	.528**	.513**	.561**	.562**	.454**	.452**	.522**	.565**	.640**	.597**
skill6	.544**	.508**	.523**	.531**	.508**	.527**	.547**	.513**	.470**	.489**	.527**	.616**	.642**	.610**	.638**	.638**	.624**	.530**	.530**	.606**	.584**	.646**	.641**
scope1	.351**	.373**	.366**	.335**	.287**	.325**	.354**	.367**	.377**	.437**	.335**	.357**	.357**	.375**	.340**	.375**	.387**	.388**	.465**	.479**	.494**	.346**	.428**
scope2	.337**	.357**	.379**	.353**	.290**	.343**	.381**	.343**	.370**	.415**	.396**	.366**	.383**	.383**	.336**	.355**	.411**	.372**	.447**	.461**	.446**	.391**	.426**
scope3	.372**	.439**	.405**	.400**	.366**	.379**	.399**	.388**	.337**	.401**	.454**	.429**	.433**	.452**	.359**	.428**	.456**	.375**	.476**	.459**	.423**	.438**	.461**
scope4	.347**	.391**	.397**	.378**	.343**	.343**	.392**	.380**	.290**	.422**	.463**	.374**	.350**	.393**	.359**	.371**	.337**	.353**	.442**	.438**	.438**	.338**	.455**
scope5	.348**	.393**	.435**	.396**	.347**	.374**	.428**	.408**	.350**	.462**	.486**	.397**	.398**	.393**	.362**	.376**	.368**	.366**	.378**	.455**	.422**	.316**	.439**
scope6	.359**	.424**	.428**	.447**	.378**	.394**	.448**	.445**	.348**	.414**	.476**	.426**	.425**	.413**	.462**	.424**	.430**	.364**	.432**	.462**	.438**	.399**	.419**
scope7	.364**	.387**	.417**	.411**	.333**	.402**	.408**	.437**	.334**	.453**	.430**	.410**	.419**	.400**	.430**	.437**	.387**	.380**	.392**	.470**	.453**	.350**	.419**
scope8	.454**	.452**	.433**	.442**	.404**	.427**	.458**	.446**	.432**	.479**	.479**	.443**	.445**	.456**	.432**	.456**	.398**	.454**	.397**	.419**	.419**	.429**	.475**
scope9	.412**	.394**	.371**	.401**	.397**	.379**	.384**	.451**	.390**	.468**	.487**	.391**	.433**	.419**	.446**	.467**	.378**	.487**	.359**	.434**	.422**	.382**	.459**

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

Table 4: Correlations (continued)

	gove6	gove7	part1	part2	part3	part4	part5	part6	skill1	skill2	skill3	skill4	skill5	skill6	scope1	scope2	scope3	scope4	scope5	scope6	scope7	scope8	scope9
top1	.525**	.466**	.534**	.499**	.597**	.439**	.563**	.418**	.473**	.453**	.438**	.457**	.466**	.544**	.351**	.337**	.372**	.347**	.348**	.359**	.364**	.454**	.412**
top2	.535**	.476**	.580**	.501**	.597**	.507**	.599**	.459**	.507**	.532**	.422**	.448**	.452**	.508**	.373**	.357**	.439**	.391**	.393**	.424**	.387**	.452**	.394**
top3	.481**	.490**	.570**	.525**	.586**	.525**	.614**	.451**	.532**	.557**	.378**	.474**	.449**	.523**	.366**	.379**	.405**	.397**	.435**	.428**	.417**	.433**	.371**
top4	.516**	.500**	.581**	.524**	.569**	.548**	.612**	.474**	.527**	.526**	.424**	.459**	.406**	.531**	.335**	.353**	.400**	.378**	.396**	.447**	.411**	.442**	.401**
top5	.543**	.526**	.594**	.574**	.563**	.549**	.540**	.420**	.548**	.522**	.396**	.464**	.415**	.508**	.287**	.290**	.366**	.343**	.347**	.378**	.333**	.404**	.397**
top6	.515**	.481**	.554**	.524**	.574**	.474**	.516**	.444**	.553**	.533**	.384**	.472**	.432**	.527**	.325**	.343**	.379**	.343**	.374**	.394**	.402**	.427**	.379**
top7	.521**	.534**	.562**	.547**	.591**	.488**	.535**	.490**	.637**	.625**	.479**	.541**	.470**	.547**	.354**	.381**	.399**	.392**	.428**	.448**	.408**	.458**	.384**
comm1	.508**	.538**	.604**	.578**	.618**	.611**	.624**	.502**	.566**	.564**	.470**	.498**	.447**	.513**	.367**	.343**	.388**	.380**	.408**	.445**	.437**	.446**	.451**
comm2	.487**	.516**	.544**	.512**	.634**	.522**	.608**	.473**	.508**	.502**	.352**	.464**	.381**	.470**	.377**	.370**	.401**	.290**	.350**	.348**	.334**	.432**	.390**
comm3	.525**	.553**	.626**	.585**	.613**	.614**	.653**	.485**	.541**	.587**	.473**	.535**	.451**	.489**	.437**	.415**	.401**	.422**	.462**	.414**	.453**	.479**	.468**
comm4	.540**	.558**	.586**	.534**	.581**	.580**	.565**	.439**	.526**	.573**	.457**	.540**	.484**	.527**	.445**	.396**	.454**	.463**	.486**	.476**	.430**	.479**	.487**
comm5	.574**	.487**	.545**	.508**	.554**	.386**	.512**	.466**	.484**	.538**	.507**	.523**	.579**	.616**	.335**	.366**	.427**	.374**	.397**	.426**	.410**	.443**	.391**
value1	.703**	.570**	.656**	.612**	.630**	.484**	.565**	.535**	.535**	.559**	.562**	.572**	.552**	.642**	.357**	.383**	.429**	.350**	.398**	.425**	.419**	.445**	.433**
value2	.685**	.538**	.632**	.606**	.623**	.482**	.573**	.512**	.566**	.563**	.542**	.556**	.528**	.610**	.375**	.383**	.433**	.393**	.393**	.413**	.400**	.456**	.419**
value3	.650**	.507**	.638**	.525**	.605**	.506**	.536**	.500**	.535**	.559**	.562**	.529**	.513**	.638**	.340**	.336**	.452**	.359**	.362**	.462**	.430**	.432**	.446**
value4	.687**	.537**	.648**	.570**	.634**	.462**	.589**	.532**	.572**	.541**	.555**	.583**	.561**	.638**	.375**	.355**	.428**	.371**	.376**	.424**	.437**	.456**	.467**
value5	.649**	.493**	.630**	.568**	.568**	.465**	.543**	.476**	.542**	.566**	.549**	.562**	.549**	.624**	.387**	.411**	.456**	.337**	.368**	.430**	.398**	.398**	.378**
value6	.665**	.539**	.612**	.626**	.578**	.506**	.557**	.564**	.538**	.561**	.517**	.601**	.454**	.530**	.388**	.372**	.375**	.353**	.366**	.364**	.380**	.454**	.487**
gove1	.661**	.610**	.626**	.559**	.603**	.522**	.556**	.479**	.586**	.607**	.498**	.552**	.452**	.530**	.465**	.447**	.476**	.442**	.378**	.432**	.392**	.397**	.359**
gove2	.710**	.596**	.682**	.628**	.640**	.531**	.625**	.565**	.577**	.629**	.531**	.589**	.522**	.606**	.479**	.461**	.459**	.438**	.455**	.462**	.470**	.419**	.434**
gove3	.697**	.622**	.654**	.621**	.655**	.556**	.644**	.540**	.605**	.611**	.561**	.619**	.565**	.584**	.494**	.446**	.423**	.438**	.422**	.438**	.453**	.419**	.422**
gove4	.684**	.472**	.566**	.518**	.547**	.379**	.517**	.476**	.481**	.483**	.528**	.523**	.640**	.646**	.346**	.391**	.410**	.338**	.316**	.399**	.350**	.429**	.382**
gove5	.813**	.584**	.673**	.619**	.626**	.528**	.590**	.546**	.572**	.525**	.547**	.547**	.597**	.641**	.428**	.426**	.461**	.455**	.439**	.419**	.419**	.475**	.459**
gove6	1	.650**	.656**	.669**	.652**	.532**	.590**	.581**	.568**	.598**	.539**	.617**	.615**	.652**	.478**	.458**	.458**	.424**	.442**	.449**	.446**	.454**	.481**
gove7	.650**	1	.590**	.530**	.549**	.601**	.575**	.553**	.507**	.579**	.453**	.544**	.462**	.510**	.523**	.459**	.413**	.453**	.427**	.412**	.394**	.446**	.482**
part1	.656**	.590**	1	.724**	.678**	.632**	.672**	.621**	.601**	.616**	.541**	.536**	.536**	.584**	.450**	.406**	.454**	.406**	.434**	.435**	.507**	.507**	.459**
part2	.669**	.530**	.724**	1	.689**	.557**	.610**	.593**	.604**	.585**	.489**	.543**	.509**	.585**	.403**	.352**	.347**	.356**	.434**	.428**	.419**	.408**	.410**
part3	.652**	.549**	.678**	.689**	1	.605**	.706**	.596**	.612**	.587**	.513**	.624**	.572**	.632**	.427**	.431**	.421**	.402**	.413**	.450**	.441**	.461**	.458**
part4	.532**	.601**	.632**	.557**	.605**	1	.737**	.547**	.510**	.528**	.429**	.517**	.378**	.427**	.413**	.452**	.503**	.469**	.452**	.468**	.476**	.476**	.512**
part5	.590**	.575**	.672**	.610**	.706**	.737**	1	.648**	.571**	.591**	.487**	.576**	.478**	.572**	.482**	.489**	.417**	.476**	.480**	.455**	.453**	.473**	.462**
part6	.581**	.553**	.621**	.593**	.596**	.547**	.648**	1	.555**	.562**	.498**	.594**	.490**	.558**	.423**	.388**	.388**	.375**	.367**	.392**	.403**	.469**	.485**
skill1	.568**	.507**	.601**	.604**	.612**	.510**	.571**	.555**	1	.788**	.671**	.586**	.586**	.618**	.381**	.411**	.463**	.422**	.401**	.433**	.372**	.408**	.407**
skill2	.598**	.579**	.616**	.585**	.587**	.528**	.591**	.562**	.788**	1	.708**	.675**	.603**	.636**	.463**	.481**	.507**	.504**	.468**	.485**	.465**	.415**	.438**
skill3	.539**	.453**	.541**	.489**	.513**	.429**	.487**	.498**	.671**	.708**	1	.684**	.705**	.665**	.369**	.393**	.367**	.347**	.405**	.393**	.407**	.414**	.407**
skill4	.617**	.544**	.559**	.543**	.624**	.517**	.576**	.594**	.586**	.675**	.684**	1	.689**	.668**	.444**	.436**	.405**	.446**	.484**	.415**	.407**	.407**	.412**
skill5	.615**	.462**	.536**	.509**	.572**	.378**	.478**	.490**	.586**	.603**	.705**	.689**	1	.808**	.371**	.348**	.415**	.333**	.353**	.378**	.361**	.386**	.380**
skill6	.652**	.510**	.584**	.585**	.632**	.427**	.572**	.618**	.618**	.636**	.665**	.668**	.808**	1	.391**	.414**	.415**	.359**	.382**	.430**	.386**	.364**	.416**
scope1	.478**	.523**	.450**	.403**	.427**	.476**	.482**	.423**	.381**	.463**	.369**	.444**	.371**	.391**	1	.796**	.548**	.637**	.561**	.452**	.522**	.459**	.511**
scope2	.458**	.459**	.406**	.352**	.431**	.413**	.489**	.388**	.411**	.481**	.393**	.436**	.348**	.414**	.796**	1	.537**	.624**	.542**	.468**	.467**	.460**	.454**
scope3	.458**	.413**	.454**	.347**	.421**	.452**	.417**	.388**	.463**	.507**	.445**	.405**	.415**	.415**	.548**	.537**	1	.607**	.503**	.663**	.547**	.493**	.491**
scope4	.424**	.453**	.406**	.356**	.402**	.503**	.476**	.375**	.422**	.504**	.367**	.446**	.333**	.359**	.637**	.624**	.607**	1	.749**	.627**	.652**	.424**	.491**
scope5	.442**	.427**	.434**	.434**	.413**	.469**	.480**	.367**	.401**	.468**	.347**	.484**	.353**	.382**	.561**	.542**	.503**	.749**	1	.619**	.699**	.480**	.467**
scope6	.449**	.412**	.446**	.428**	.450**	.455**	.392**	.433**	.485**	.408**	.378**	.430**	.386**	.364**	.452**	.468**	.663**	.627**	.619**	1	.682**	.395**	.497**
scope7	.446**	.394**	.435**	.419**	.441**	.468**	.453**	.403**	.372**	.465**	.393**	.415**	.361**	.386**	.522**	.467**	.547**	.652**	.699**	.682**	1	.457**	.497**
scope8	.454**	.446**	.507**	.408**	.461**	.476**	.473**	.469**	.408**	.415**	.407**	.407**	.386**	.364**	.459**	.460**	.493**	.424**	.480**	.395**	.457**	1	.764**
scope9	.481**	.482**	.459**	.410**	.458**	.512**	.462**	.485**	.407**	.438**	.414**	.412**	.380**	.416**	.511**	.454**	.458**	.491**	.467**	.439**	.497**	.764**	1

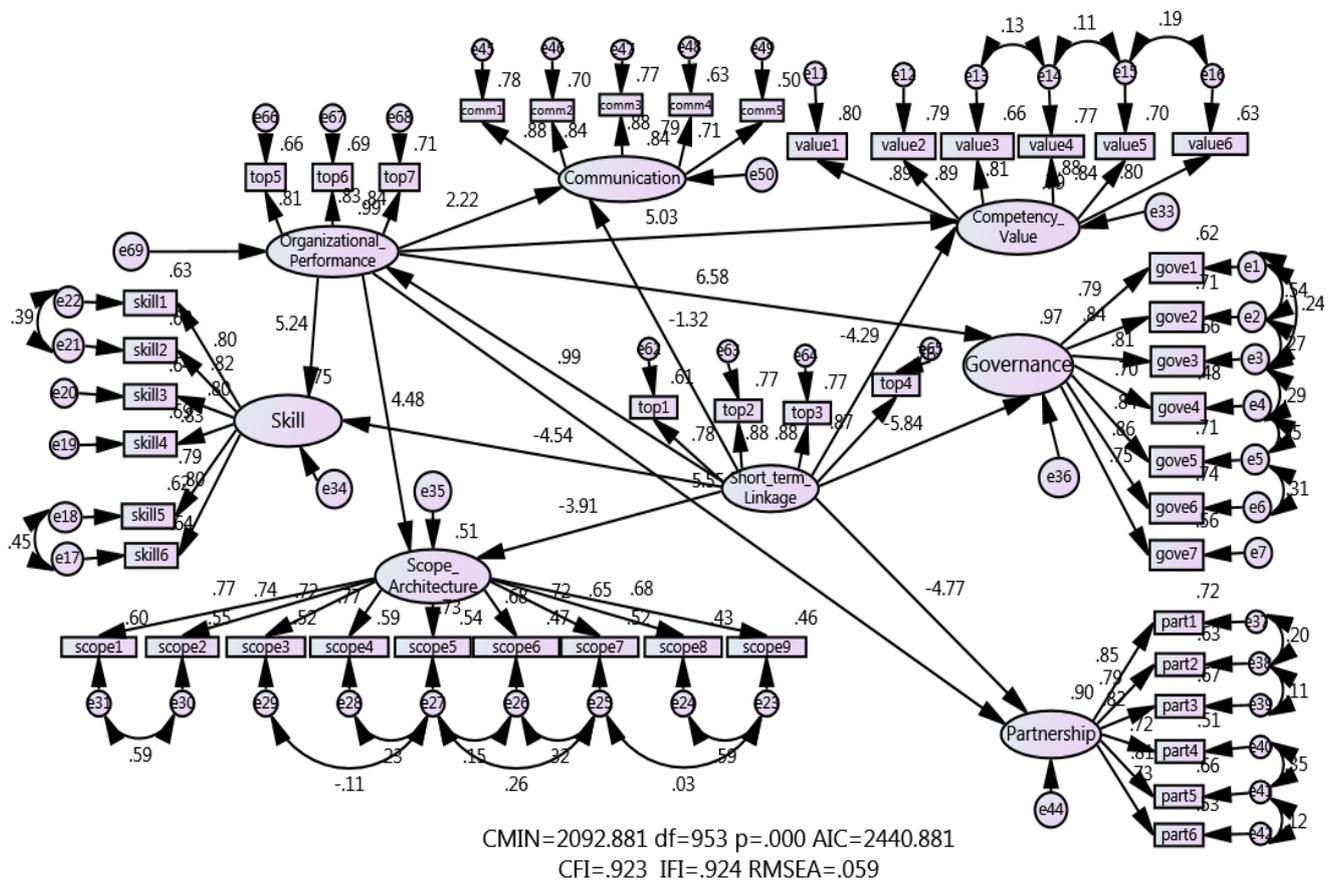**. Correlation is significant at the 0.01 level (2-tailed).

Fig. 2: Strategy Alignment Maturity, Short-term Linkage, and Organizational Performance Model
(SEM Model)

RESULTS

The followings are results of hypotheses.

H1: There is a significant, negative relationship between Short-term Linkage and communication.

H2: There is a significant, negative relationship between Short-term Linkage and competency/value.

H3: There is a significant, negative relationship between Short-term Linkage and governance.

H4: There is a significant, negative relationship between Short-term Linkage and partnership.

H5: There is a significant, negative relationship between Short-term Linkage and scope/architecture.

H6: There is a significant, negative relationship between Short-term Linkage and skills.

H7: There is a significant, positive relationship between organizational Performance and communication.

H8: There is a significant, positive relationship between organizational Performance and competency/value.

H9: There is a significant, positive relationship between organizational Performance and governance.

H10: There is a significant, positive relationship between organizational Performance and partnership.

H11: There is a significant, positive relationship between organizational Performance and scope/architecture.

H12: There is a significant, positive relationship between organizational Performance and skills.

H13: There is a significant, positive relationship between Short-term Linkage and Organizational Performance.

The results show that each criterion associated with IT-Business Alignment Maturity of Japanese SMEs, located in Akita prefecture, is statistically significantly positively related to organizational performance. However, those are statistically significantly negatively related to Short-term Linkage. As previous empirical literature suggested, this study implies that the linkage of information systems and each criterion of IT–Business Alignment Maturity is rather weak. However, the linkage of information system plans with organizational objectives (business plans) are positively related. Promoting communications between IT and business executives and mutual IT and business planning are needed in all six components of SAMM, *i.e.*,(1) Skill, (2) Value, (3) Governance, (4) Communication, (5) Partnership, (6) Scope,in order to achieve higher levels of short-term linkage for Japanese SMEs in this study.

CONCLUSION

Based on the research framework suggested by Sledgianowski and Luftman (2001), the author examines the relationship between strategic alignment maturities, organizational performance, and short-term linkage.

In this study, the author found all six components, such as (1) Skill, (2) Value, (3) Governance, (4) Communication, (5)Partnership, (6)Scope, are closely related to IT-Business Alignment Maturity, and short-term linkage is highly and positively related to organizational performance.

Although the establishment of a linkage between business and information technology objectives are said to be an important factor as one of the key concerns of information systems managers, relationship between short-term linkage and other factors, *i.e*., Skill, Value, Governance, Partnership, and Scope are-negatively statistically significant. In order to achieve alignment between IT and business, communication between those components is required as the process of alignment, which means that all information should pass all these linkages without any bias.

LIMITATION AND STUDY FORWARD

The limitation of this study is the use of 2012 dataset. Because of a rapid change in IT sector, IT-Business alignment may have a different picture using more recent data sets. And this study only covers the companies located in the northern part of Japan. Possible future studymay be conducted nationwide, and will involve validating this model with more on the linkage part in order to enhance the sustainability of the model.

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Table 5: Reliability Test

FIT indices	Recommended level	SEM model	SEM model with bootstrapping
CMIN/DF	5.0 (Wheaton et al, 1977)~2.0 (Tabachnick and Fidell, 2007).	2.273	2.196
CFI	>0.90 (Bentler, 1990)	0.921	0.923
IFI	>0.90 (Bollen, 1989)	0.922	0.924
RMSEA	<0.08(Browne and Cudeck,1993)	0.061	0.059
AIC	Smaller values suggest a good fitting (Akaike, 1974)	2514.087	2440.881
p-value	>0.05	0.000	0.000

Table 6: The Path Coefficients of the Research Model

Construct			Std. weight	Unstd. weight	S.E.	C.R. (t-value)	P value	Std. weight	Unstd. weight	S.E.	C.R. (t-value)	P value
				SEM Model					SEM Model (Bootstrapping)			
Organizational Performance	<---	Short term Linkage	0.995	1.036	0.062	16.623	***	0.995	1.036	0.062	16.623	***
Partnership	<---	Short term Linkage	-4.772	-496.37	160.87	-3.085	0.002	-4.771	-496.29	160.84	-3.086	0.002
Scope Architecture	<---	Short term Linkage	-3.917	-3.382	1.15	-2.941	0.003	-3.915	-3.371	1.147	-2.94	0.003
Skill	<---	Short term Linkage	-4.544	-4.078	1.334	-3.057	0.002	-4.544	-4.078	1.334	-3.057	0.002
Communication	<---	Short term Linkage	-1.324	-1.372	0.647	-2.12	0.034	-1.323	-1.372	0.647	-2.12	0.034
Competency Value	<---	Short term Linkage	-4.287	-458.11	150.32	-3.048	0.002	-4.287	-458.08	150.3	-3.048	0.002
Governance	<---	Short term Linkage	-5.839	-5.976	1.891	-3.161	0.002	-5.839	-5.976	1.891	-3.161	0.002
Communication	<---	Organizational Performance	2.222	2.211	0.621	3.559	***	2.221	2.211	0.621	3.559	***
Skill	<---	Organizational Performance	5.243	4.517	1.275	3.543	***	5.242	4.517	1.275	3.543	***
Scope Architecture	<---	Organizational Performance	4.478	3.712	1.102	3.369	***	4.475	3.7	1.099	3.368	***
Partnership	<---	Organizational Performance	5.553	554.52	153.62	3.61	***	5.552	554.44	153.59	3.61	***
Governance	<---	Organizational Performance	6.576	6.462	1.806	3.579	***	6.576	6.462	1.806	3.579	***
Competency Value	<---	Organizational Performance	5.028	515.78	143.5	3.594	***	5.028	515.76	143.49	3.594	***
top5	<---	Organizational Performance	0.81	1				0.81	1			
top6	<---	Organizational Performance	0.83	0.949	0.052	18.327	***	0.83	0.949	0.052	18.327	***
top7	<---	Organizational Performance	0.843	1.015	0.054	18.772	***	0.843	1.015	0.054	18.772	***
gove1	<---	Governance	0.789	1				0.789	1			
gove2	<---	Governance	0.841	1.061	0.041	25.761	***	0.841	1.061	0.041	25.762	***
gove3	<---	Governance	0.811	1.005	0.052	19.296	***	0.811	1.005	0.052	19.296	***
gove4	<---	Governance	0.696	0.838	0.061	13.781	***	0.696	0.838	0.061	13.782	***
gove5	<---	Governance	0.842	0.982	0.056	17.53	***	0.842	0.982	0.056	17.531	***
gove6	<---	Governance	0.861	103.68	5.734	18.083	***	0.861	103.68	5.733	18.084	***
gove7	<---	Governance	0.747	102.35	6.794	15.064	***	0.747	102.34	6.794	15.064	***
value1	<---	Competency Value	0.893	1				0.893	1			
value2	<---	Competency Value	0.886	0.01	0	24.39	***	0.886	0.01	0	24.39	***
value3	<---	Competency Value	0.811	0.009	0	20.165	***	0.811	0.009	0	20.165	***
value4	<---	Competency Value	0.876	0.01	0	23.611	***	0.876	0.01	0	23.61	***
value5	<---	Competency Value	0.835	0.01	0	21.321	***	0.835	0.01	0	21.322	***
value6	<---	Competency Value	0.795	0.01	0.001	19.499	***	0.795	0.01	0.001	19.498	***
skill6	<---	Skill	0.802	1				0.802	1			
skill5	<---	Skill	0.79	1.01	0.046	21.978	***	0.79	1.01	0.046	21.978	***
skill4	<---	Skill	0.832	1.206	0.069	17.381	***	0.832	1.206	0.069	17.381	***
skill3	<---	Skill	0.801	110.33	6.674	16.53	***	0.801	110.32	6.674	16.53	***
skill2	<---	Skill	0.823	1.146	0.067	17.076	***	0.823	1.146	0.067	17.076	***
skill1	<---	Skill	0.795	1.072	0.066	16.291	***	0.795	1.072	0.066	16.291	***
comm1	<---	Communication	0.881	1				0.881	1			
comm2	<---	Communication	0.839	0.965	0.046	21.065	***	0.839	0.965	0.046	21.065	***
comm3	<---	Communication	0.877	0.971	0.042	23.015	***	0.877	0.971	0.042	23.015	***
comm4	<---	Communication	0.793	1.007	0.053	18.996	***	0.793	1.007	0.053	18.996	***
comm5	<---	Communication	0.706	0.82	0.052	15.708	***	0.706	0.82	0.052	15.708	***
part1	<---	Partnership	0.848	1				0.848	1			
part2	<---	Partnership	0.791	0.921	0.047	19.678	***	0.791	0.921	0.047	19.678	***
part3	<---	Partnership	0.817	0.943	0.051	18.622	***	0.817	0.943	0.051	18.622	***
part4	<---	Partnership	0.716	0.873	0.057	15.247	***	0.716	0.873	0.057	15.247	***
part5	<---	Partnership	0.813	0.94	0.051	18.481	***	0.813	0.94	0.051	18.482	***
part6	<---	Partnership	0.73	0.9	0.057	15.682	***	0.73	0.9	0.057	15.682	***
top1	<---	Short term Linkage	0.782	1				0.782	1			
top2	<---	Short term Linkage	0.88	1.121	0.06	18.646	***	0.88	1.121	0.06	18.646	***
top3	<---	Short term Linkage	0.878	1.081	0.058	18.574	***	0.878	1.081	0.058	18.574	***
top4	<---	Short term Linkage	0.871	1.04	0.057	18.373	***	0.871	1.04	0.057	18.373	***
scope9	<---	Scope Architecture	0.682	1				0.68	1			
scope8	<---	Scope Architecture	0.654	0.989	0.058	17.056	***	0.654	0.992	0.058	16.984	***
scope7	<---	Scope Architecture	0.723	1.172	0.099	11.883	***	0.721	1.171	0.098	11.962	***
scope6	<---	Scope Architecture	0.684	1.102	0.098	11.295	***	0.685	1.105	0.098	11.262	***
scope5	<---	Scope Architecture	0.734	1.133	0.096	11.778	***	0.735	1.136	0.097	11.732	***
scope4	<---	Scope Architecture	0.766	1.132	0.09	12.524	***	0.765	1.135	0.091	12.459	***
scope3	<---	Scope Architecture	0.719	1.176	0.099	11.857	***	0.72	1.181	0.1	11.823	***
scope2	<---	Scope Architecture	0.74	1.047	0.086	12.156	***	0.74	1.05	0.087	12.112	***
scope1	<---	Scope Architecture	0.772	1.059	0.084	12.63	***	0.772	1.062	0.084	12.57	***