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# A Study on the Model Development for Intellectual Capital Valuation

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## Abstract

As the society of knowledge becomes, the most competitive resource for corporations is knowledge. Corporations have to evaluate and improve latent values of 'Intellectual Capital' (IC), which is directly related with the futurity of corporations. Although it has been researched and proposed to evaluate IC values that have been ignored relatively to tangible asset, the indexes of evaluating IC have never been examined and adopted by many corporations. By this reasoning, there have been no systematic models to evaluate IC value and each corporation should re-develop IC valuation model. Economic wastes have been created under this situation. Therefore this study intends to develop a synthetic and systematic model for IC valuation. Consequently the model of this paper is consisted of 3 dimensions, 10 factors, 22 evaluation criteria, and 82 indexes, which was necessary for IC valuation. This model will be practically applied to IC valuation of corporations.

## I. Introduction

As a society of knowledge has recently come, corporations become to focus on knowledge management (KM), strictly speaking, 'knowledge-based Management'. Key research fields of KM are approximately divided into four as follows. (1) the research on concept of knowledge management and alignment KM with competitive advantage (Nonaka, 1991; Nonaka & Takeuchi, 1995; Prahalad & Hamel, 1990; Teece, 1998), (2) the research on methodology of KM (Wiig, 1997; Davenport, 1998), (3) the research on knowledge management systems (KMS) (Vian & Johansen, 1983; Kwok & Khalifa, 1998; Zander & Kogut, 1995), finally (4) the research on IC. The fourth field on IC is originally included into financing and accounting area. However, most traditional accounting model based on financial statements focuses on financial performance. In result, differences between market value and book value have not been measured. In order to overcome this defect, some advanced countries

have actively studied with Edvinsson and Malone's Skandia Navigator as the central figure after 1980.

A few researchers studying IC have presented various indexes to value it, but a lot of indexes still are not tested and not verified (Roos & Roos, 1997; Roos, 1998). Therefore our study attempts to integrate various indexes for IC valuation that have been presented in the previous studies, to prepare framework to classify and verify them, and finally to develop organized model. This is an necessary work to reduce enormous time and expenses for developing IC valuation model of each corporation and hereafter can be available as a benchmark tool of many corporations. In sum, our purpose is to overcome some limitations of previous studies (not organized model and not verified indexes) and to develop a model for IC valuation.

## II. Intellectual Capital

Until 1980, most attention of competitive advantage was paid on understanding the competitive environment (Porter, 1980; 1985). However this interest is changed to 'resource-based' perspective. In this perspective, the most important resource to sustain competitive advantage is internal resource. This internal resource have been variously named like 'absorptive capacity' (Cohen & Levinthal, 1990), 'core competency' (Prahalad & Hamel, 1992), 'strategic asset' (Amit & Schoemaker, 1993), 'Core Capability' (Zander & Kogut, 1995), 'intangible asset' (Hall, 1992), 'organizational memory' (Walsh & Ungson, 1991). Though terms are varied, all of these mean knowledge (Roos & Roos, 1997). In this sense, IC of an organization is seen as 'the sum of knowledge having latent intangible values, which will create competitive advantage' (Roos & Roos, 1997; Knight, 1999; Teece, 1998; Lev, 2000).

The problem of developing 'IC valuation model' for estimating intangible asset is the remarkable contrast

between expectation and actuality. Skandia reported that 70% of samples on investigation into KM had not related activities for IC valuation with financial performances reporting (Hiebler, 1996). This is because traditional accounting model has focused on past-oriented results rather than future-oriented capabilities. However, as importance of IC has been increased after 1980s, a few studies about IC valuation have been provided.

Edvinsson(1998), the chief architect behind Skandia's initiatives developed a dynamic and holistic IC reporting model called the Navigator. According to Skandia's model, the hidden factors of human and structural capital when added together comprise IC. Edvinsson recommends 112 measurement indexes in the Skandia Navigator and expanded the meaning of IC. Although Navigator reflects the value of innovation, the role of customers and the relationships with customers, there are some limitations as follows. First, each index is given equal weight in the equation process. Second, indexes about qualitative indexes are not included like data quality except physical estimation (Bontis, 1998, 2000). And then Brooking (1997) defines IC as the combined amalgam of these four components: market assets, human-centered assets, intellectual property assets and infrastructure assets. In total, Brooking's model is comprised of 178 indexes. While this approach has been lauded for offering a toolbox for organizations to assign values to IC, her questions are so conceptual that additional measurement process for quantitative analysis is needed. Sveiby (1999) regarded IC as external structure, internal structure, and individual competence. He also saw individual competence as key factor. Bontis (1998) split IC into human capital, customer capital, structural capital, and provided indexes to estimate them. He also presented the relationship each component with organizational performance. However these indexes are too comprehensive to measure concretely. In sum, IC can be classified human capital, structural capital, and customer capital. Though a lot of indexes have been presented in the previous studies, each index is just arrayed based on three capital components. Systematic and organized model has not been offered.

Compared with these studies, the following studies provided criteria to subdivide each capital component. Saint-Onge (1996) suggested that IC is the most concerned factor when strategy is planned in the stirring environment and that structural capital consists of strategy, system, culture, and structural components. Kaplan & Norton (1992, 1998) presented that human resources is the sum of employee satisfaction, employee productivity, employee sustainability, and employee capability. And Knight (1999) defined external capital as customer capital, supplier capital, alliance capital, community capital, regulatory capital, and competitor capital. Especially the boundary of customer is expanded to other external partners in this study. Stewart (1994, 1997) emphasized the importance of intellectual property and explained it as the starting point to develop IC model. And he pointed out main problem of managing intellectual property. Companies didn't know what intellectual property they

had and have no responsibility department. As companies couldn't take advantage of them, investment in intellectual property have not accomplished adequately. Band (1994) presented elements for explaining organizational culture as market-oriented level, strategic position, inter-organizational communication system, attitude to share information, and sharing level of management philosophy. All of above studies offered sub-components of human capital, customer capital, and structural capital. However, compared with Edvinsson and Brooking's studies, they have not presented specific indexes for valuation.

In summary, previous studies are classified two approaches as follows. (1) First, only specific valuation indexes in each capital component are presented without classifying sub-components. (2) Second, only specific sub-component criteria in each capital component are presented without indexes. These two approaches have all some limitations from the view of systematic and organized model for IC valuation. While indexes are presented in the first approach, there are no analytical criteria for classifying each capital component. And these indexes just have been presented according to researchers' literal interpretation without verification. In the second approach, specific indexes have not been offered. But availability is limited because these indexes can be used practically.

### III. Model for IC Valuation

Our paper attempts to decide 'dimensions' to be criteria of model and to elicit 'factors' to subdivide dimensions through literature review because systematic model has not been and only indexes have been provided in the previous studies. Indexes for IC valuation then are classified according to elicited factors and factors are continuously classified to evaluation criteria according to similarities of indexes (<Appendix 1>).

#### 3.1 Dimension

Dimensions of IC are classified into human capital, structural capital, and customer capital based on previous research. This paper intends to classify into individual capital concerning individual employees, organizational capital concerning organization processes and asset, and finally expanded customer capital to relational capital including customers and other participants. This classification is based on the boundary of a company.

#### 3.2 Factor

First, **individual capital** is the most basic capital. This consists of 'knowing' (visible knowledge such as scholarship, invisible tacit knowledge), 'emotion of employees' and 'will of employees'. Based on above-mentioned standards, individual capital includes employee capability, employee satisfaction, employee sustainability, employee production mentioned by Kaplan & Norton (1992, 1998). '*Employee capability*' can be conceptualized by idea, creativities, and explicit

qualification. Sveiby (1999) referred this is a key point for organizational growth. 'Employee satisfaction' is emotional condition of employees and a lot of researchers have emphasized that if organizational system supporting employees and mental expectation of employees are not balanced properly, they may desert their job or overall organization performance may deteriorate (Lester & Kickul, 2001). The meaning of 'Employee Sustainability' is close to the concept of willingness, motivation. In Evans & Lindsay's research in 1999, 46% of Human Resource Focus 1000 presented willingness and motivation of employees as one of the most three important issues (Eskildsen & Nussler, 2000; Eskildsen & Dahgaard, 2000). However, indexes of 'Employee productivities' like sales per employees or individual trading profit are performance after knowledge activities, not individual value as IC. It is not appropriate for valuation indexes for accumulated knowledge of employees. Therefore our paper will evaluate individual capital as employee capability/satisfaction/sustainability.

Second, **organizational capital** consists of culture, IS, organization structure (process) excluding employees in the company and is added intellectual property proposed by Saint-Onge (1996). As 'culture' is organization philosophy or the way of doing tasks, it is the basis of organizational capital. Elements such as philosophy or employee values must be formed properly for managing tacit knowledge successfully and shared for enhancing values of IC (Leonard & Sylvia, 1998; Roos & Roos, 1997). Next 'Information system' is very important factor in the information-oriented society. Numerous studies in MIS have found significant positive impacts of IS on firm performance (Barua & Kriebel, 1995). 'Process' is the same concept as organization structure by Saint-

Onge(1996). It is IC on organization processes where operates practical works. Only when knowledge is connected to actual management process, it contributes to competitive advantage. Knowledge itself has not significant meaning. Finally as 'intellectual property' is the most explicit IC because of legal protection, it can be perceived as starting point for IC valuation (Stewart, 1994, 1997; Brooking, 1997). However, valuation indexes for culture and process have hardly founded in previous studies. Even Edvinsson's study has just estimated IS infrastructure for structure valuation (Edvinsson, 1996, 1997, 1998). Furthermore as it has focused on physical sides (for examples, number of PC per 1 employee), IS quality or usage, efficiency of IS have been missed (Bontis, 1998, 2000).

Third, **relational capital** derived from various relationships consists of customers, suppliers and community. Previous researchers have perceived customer as the most important components in relational capital. Nonaka(1991, 1995) pointed out customer is shared knowledge between a company and customers. Most previous studies have restricted external relationship to the relationship with customer. However, as roles of the other participants are more and more important and expanded, our paper attempts to expand the relationship to other participants.

### 3.3 Evaluation criteria

Indexes for IC valuation presented in previous studies are classified according to above-mentioned 'dimensions'. And then these indexes are classified into 'evaluation criteria' again according to their similarities.

<Table 1> Components of intellectual capital

Dimension	Factor	Definition
Individual Capital	Employee capability	Creative capability or idea of employee which is put to goal accomplishment of organization
	Employee satisfaction	Human relationship or emotion about work of employee in the organization
	Employee sustainability	Will to sustain stable relationship or enthusiasm for work of employee
Organizational Capital	Culture	Founded management philosophy for goal accomplishment of the firm, shared value/creativities between employees
	Process	Efficiency in actual management process in the organization
	Information system	Knowledge level of employees about quality and quantity of information system
	Intellectual property	Capital related with mental output under legal protection
Relational Capital	Customer	Guaranteed customer satisfaction, customer loyalty
	Supplier	Acquired knowledge and suppliers' satisfaction in the transaction
	Society	Public confidence or trust of the firm in the local community

<Table 2> Dimension & Evaluation Criteria

Dimension & Evaluation Criteria	
<b>Employee capability capital</b> Capability development program Individual capability of employee	<b>Process capital</b> Availability of purchasing Efficiency of order processing of customers Management efficiency

<p><b>Employee sustainability capital</b> Average length of services Attitude for work of employee</p> <p><b>Employee satisfaction capital</b> Satisfaction with organizational environment Human relationship satisfaction</p> <p><b>Culture capital</b> Value sharing level Creativities</p> <p><b>Information system capital</b> System quality Integration level of systems Knowledge level about IS of employees</p>	<p><b>Intellectual property capital</b> Management level of intellectual property</p> <p><b>Customer capital</b> Customer satisfaction Stability of relationship with customers Brand management level Brand value</p> <p><b>Supplier capital</b> Negotiation power against suppliers Supplier satisfaction</p> <p><b>Society capital</b> Corporation image</p>
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#### IV. Methodology

Data are collected from middle managements working in 50 corporations in South Korea. It took 9 weeks to finish collecting the surveys. In total, 203 valid questionnaires were returned out of 270 handouts (recording 75% of return ratio). The 95 measurement items were made out based on operational definitions. These definitions were taken and integrated from indexes of Edvinsson(1998), Brooking(1997), Sveiby(1999), Roos'(1997, 1998), Bontis(1998, 2000).

#### V. Test Results

##### 5.1 Assessment of Reliability and Validity

The reliabilities for each scale are shown in <Table 4>. The measure scales used in the study show high levels of reliability - Cronbach's alpha is above 0.60(Nunnally, 1978). However, as reliability of employee sustainability was below 0.60, 3 items of 9 were deleted. Convergent validity is assessed by factor analysis of the scales. The factor loadings are shown in <Table 4>. Through Varimax rotation, the total 92 items (individual capital 22 items, organization capital 47 items, relational capital 23 items) are loaded onto 22 evaluation criteria. As factors above Eigen value 1.0 were loaded, two items in employee capability, three items in employee sustainability, three items in culture, three items in process, three items in process, and two items in community were finally deleted.

And we assess the discriminant validity by testing whether all items load more highly on their associated construct than on any other constructs. The square root of the average variance extracted for each construct was compared to the correlations between each construct and other constructs. All the values of the square root of the average variance (i.e., the diagonals) were greater than the correlations between constructs (i.e., the off-diagonals) in <Table 5>, indicating that all the constructs in the model exhibited the discriminant validity.

<Table 3> Survey Response Rates

Types of Companies in Sample	Number	%
IT & Network Services	55	27.09
Telecommunication, Computer, Semiconductor, Digital appliances	37	18.23
Finance/Insurance	29	14.29
Consulting	18	8.87
Aerospace industry	14	6.90
Information processing	13	6.40
Film and video industry	8	3.94
Human resource services	7	3.45
Engineering	7	3.45
Mekatronics	6	2.96
Others	9	4.43
Total	203	100%

<Table 4> Reliability and convergent validity Tests

Evaluation criteria	items	Chronbach's alpha	Factor loadings
<b>Employee capability capital</b> Capability development program Individual capability of employee	8	.7210	0.729; 0.677; 0.782 0.668; 0.788; 0.781
<b>Employee sustainability capital</b> Average length of services Attitude for work of employee	6	.6600	0.771; 0.904; 0.898 0.717; 0.597; 0.827
<b>Employee satisfaction capital</b> Satisfaction with organizational environment Human relationship satisfaction	8	.8042	0.715; 0.815; 0.804; 0.718; 0.596 0.821; 0.743; 0.834

<b>Culture capital</b> Value sharing level Creativities	14	.8804	0.685; 0.689; 0.744; 0.635 0.594; 0.593; 0.629; 0.783; 0.767; 0.792; 0.733
<b>Information system capital</b> System quality Integration level of systems Knowledge level about IS of employees	17	.8654	0.693;0.650;0.751;0.765;0.808;0.790;0.794;0.733;0.664;0.767 0.645; 0.778 0.663; 0.800
<b>Process capital</b> Availability of purchasing Efficiency of order processing of customers Management efficiency	10	.8761	0.492; 0.575 0.683; 0.751; 0.769; 0.564 0.704; 0.675; 0.558
<b>Intellectual property capital</b> Management level of intellectual property	6	.9063	0.811; 0.799, 0.825; 0.795; 0.689; 0.748
<b>Customer capital</b> Customer satisfaction Stability of relationship with customers Brand management level Brand value	16	.8748	0.447; 0.655; 0.536; 0.739; 0.779; 0.743 0.781; 0.717 0.887; 0.656; 0.878 0.477; 0.505; 0.492; 0.637; 0.847
<b>Supplier capital</b> Negotiation power against suppliers Supplier satisfaction	5	.8293	0.871; 0.848 0.596; 0.728; 0.667
<b>Society capital</b> Corporation image	2	.6998	0.716

<Table 5> Discriminant Validity

	Evaluation criteria									
	EC-C	ESu-C	ESa-C	Cul-C	IS-C	P-C	IP-C	Cus-C	Su-C	So-C
EC-C	.978									
ESu-C	-.004	.970								
ESa-C	.401	.332	.981							
Cul-C	.446	.340	.812	.988						
IS-C	.442	.047	.329	.443	.965					
P-C	.142	.176	.381	.451	.450	.984				
IP-C	.270	.098	.254	.442	.413	.393	.908			
Cus-C	.319	.107	.392	.452	.393	.480	.424	.978		
Su-C	.144	.309	.396	.428	.311	.472	.172	.462	.984	
So-C	.337	.188	.378	.545	.377	.263	.368	.440	.358	.944

\*EC-C: employee capability capital, ESu-C: employee sustainability capital, ESa-C: employee satisfaction capital, Cul-C: culture capital, IS-C: information system capital, P-C: process capital, IP-C: intellectual property capital, Cus-C: customer capital, Su-C: supplier capital, So-C: society capital

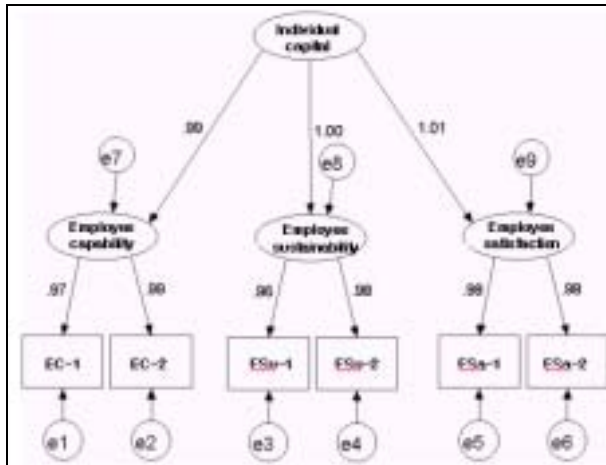
\*Note) Diagonal elements are the square roots of the average variance extracted and off-diagonal elements are correlations between constructs.

## 5.2 Fit Measures for Proposed our Research Model

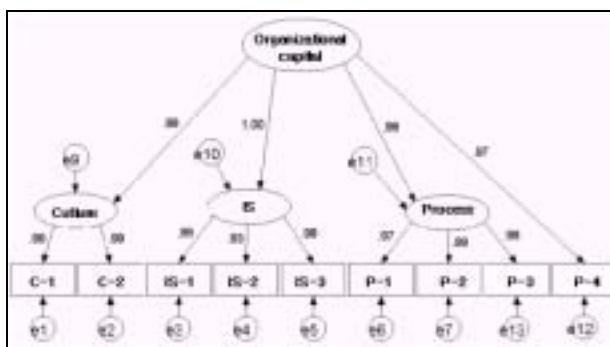
SEM (structural equation model) was conducted using AMOS 4.0. The object of this model is to show that the null hypotheses - the assumed research model with all its paths - is insignificant, meaning that the complete set of paths as specified in the model that is being analyzed is plausible, given the sample data. In other words, the object of this covariance-based SEM is to show that operationalization of the theory being examined is corroborated and not disconfirmed by the data (Genfen et al., 2000). And statistically speaking, this research model is the second-order latent variable formed by the first-order latent factors (for examples, in the 'individual capital' case, employee capability, sustainability,

satisfaction are the first-order latent factors). <Figure 1,2,3> depicts the research model of this study.

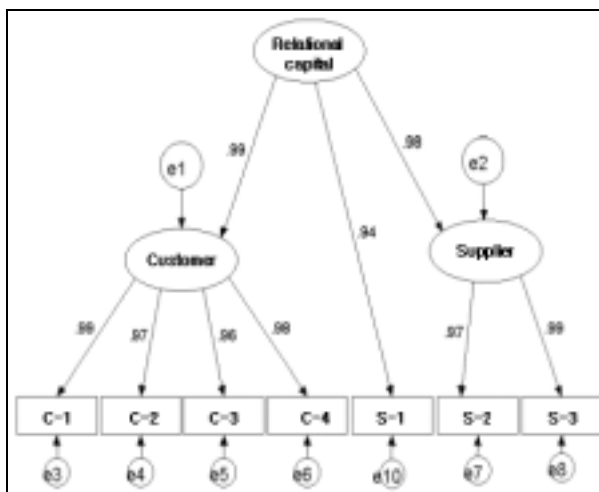
Fit measures for our research model propose in <Table 6>. A chi-square analysis indicates that the model fits the data. However, the chi-square test has been recognized as an inappropriate test for large sample sizes (Marsh, 1994). Showing the <Table 6>, the values of GFI, AGFI, RMR, and NFI are examined for the judgment of the fitness of the model. Therefore, the values of this model are higher than the acceptable level.



<Figure 1> Structural Equation Model of Individual Capital



<Figure 2> Structural Equation Model of Organizational Capital



<Figure 3> Structural Equation Model of Relational Capital

<Table 5> Goodness-of-Fit Indices of Models

	IC	OC	RC
$\chi^2$ statistics	157.341	437.999	410.771
p-value	0.000	0.000	0.000
GFI (>0.9)	0.965	0.941	0.919
AGFI (>0.8)	0.877	0.889	0.810
NFI (>0.9)	0.992	0.986	0.981
RMSR (<0.05)	0.005	0.006	0.010

## V. Discussion & Conclusion

In our analysis, we classified dimensions, factors and evaluation criteria of IC for valuation. We found that the model for IC valuation was classified into three dimensions - individual capital, organizational capital and relational capital. Compared with other previous studies, our paper tested unverified indexes of valuation and organized them to systematic model.

Furthermore due to the high demand for KM managers in today's organizations, the results of this study have several implications for practice. First, previous presented indexes arbitrarily by practitioners and researchers were integrated and tested theoretically. Therefore KM managers and CFO can use this model as a tool for IC valuation. Second, other previous studies have only arrayed indexes or presented some factors for classifying. So there has been no systematic model. Our organized model can be used as a foundation to develop and improve the value of IC in strategic respects. For examples, in the auto industry, each company compares its level of IC with others using indexes presented in our model. Analyzing the results of measuring, the company becomes to identify what is underdeveloped and to analyze causes and results in the respect of long-term strategic planning. However, it may be more effective to develop weights of indexes through interviews with domain experts for more precise comparison because of some differences between weights of indexes. In the manufacturing industry where separation of employees leads to great loss, the index of 'separation rate of employees' must be more importantly regarded and can be imposed greater weight. Thus this model should be examined and used on the strategic perspectives.

Like other social studies, we had some limitations. Financial calculating method should be accompanied for a single balance sheet. For this, concrete calculating method should be developed to announce actual \$-values. As our scales of indexes are not unified, new calculating method is needed for conversion to currency value. Though comparisons between companies may be possible through indexes of this model, future research need to develop that method to identify the changes of IC value chronologically or to compare with companies more objectively.

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**<Appendix 1>**  
**Operational and Conceptual Definition of Model for IC Valuation**

D: Dimension, F: Factors, EC: Evaluation Criteria

D	F	EC	Conceptual definition	Operational definition
HUMAN CAPITAL	ECC	Capability development program	Education and training program supported by the firm to improve employees' capabilities	<ul style="list-style-type: none"> <li>• Training time / 1 employee, training expenses /1 employee</li> <li>• Educational expenses / sales</li> <li>• Average aptitude test frequency</li> <li>• Execution rate of planned training program</li> </ul>
		Individual capability of employee	Knowledge and capability level of individual employee	<ul style="list-style-type: none"> <li>• Number of employees having certifications</li> <li>• Knowledge level of own work</li> <li>• Average educational period</li> <li>• Expert rate / whole employees</li> </ul>
	ESC	Average length of services	A length of services of working employees	<ul style="list-style-type: none"> <li>• Average length of services in the same position</li> <li>• Average length of services in the firm</li> </ul>
		Average separation rate	Changing rate of employee to separate or enter a company	<ul style="list-style-type: none"> <li>• Average separation &amp; entering rate/ 1year, Average separation rate of experts / 1year</li> </ul>
		Attitude for work of employee	Employees' enthusiasm level for work	<ul style="list-style-type: none"> <li>• Commitment level to own work</li> <li>• Rate of absenteeism, lateness, leaving early</li> </ul>
	ESAC	Satisfaction with organizational environment	Employees' satisfaction with organizational system or environment etc.	<ul style="list-style-type: none"> <li>• General satisfaction with the firm</li> <li>• Satisfaction with Evaluation &amp; compensation, work environment</li> <li>• Relative wage level compared other companies</li> </ul>
		Human relationship satisfaction	Employees' satisfaction with human relationship (with colleagues, superiors etc.)	<ul style="list-style-type: none"> <li>• Relationship type with colleagues (officially-friendly), contact frequency</li> <li>• Satisfaction with relationship with superiors</li> </ul>
	ORGANIZATIONAL CAPABILITY	CULC	organizational openness	Openness level in organizational system or structure
Market-oriented propensity			Level to effort to understand and to satisfy customers' needs in the market	<ul style="list-style-type: none"> <li>• Level to understand target market and customer needs</li> <li>• Customer-oriented effort level</li> </ul>
Value sharing level			Level to share organizational goal and vision	<ul style="list-style-type: none"> <li>• Recognition level of employees about organizational goal and vision</li> <li>• Cooperation level between members within teams</li> </ul>
Creativities			Level of support for new product and service development of employees	<ul style="list-style-type: none"> <li>• Expenses for R&amp;D / sales</li> <li>• Number of new products which are in developing</li> <li>• Ratio of putting out new products / 1year</li> <li>• Ratio of R&amp;D researchers</li> <li>• Level of support for idea development</li> <li>• Ratio of idea execution</li> </ul>
IS		System quantity	Volume of information system within organization	<ul style="list-style-type: none"> <li>• Number of computers / 1 employee</li> <li>• Investment in IS / sales</li> </ul>

I T A L	C	System quality	Satisfaction with goal achievement of IS	<ul style="list-style-type: none"> <li>Importance/Relevance/Accuracy/Timeliness/Comparability/Uniqueness/Usefulness/Informativeness</li> <li>Ease of use</li> <li>Usefulness of system features and functions</li> </ul>	
		System integration level	Level of integration of each system around organizations	<ul style="list-style-type: none"> <li>System sophistication integration of systems</li> <li>ERP, EDI</li> </ul>	
		Knowledge level about IS of employee	Level of understanding of employees about IS	<ul style="list-style-type: none"> <li>Level of understanding of CEO about IS</li> <li>Level of understanding of employees about IS</li> </ul>	
	P C	Availability of purchasing	Efficiency of activities to buy and store inputs which are needed for operation activities	<ul style="list-style-type: none"> <li>Level of operation of subdivided tasks in the order processes</li> <li>Average response time in order processing</li> </ul>	
		Availability of production	Efficiency in production activities to produce final products	<ul style="list-style-type: none"> <li>Level of automation in production processes (TQM, PERT, CPM etc.)</li> <li>Responsibilities for products quality</li> </ul>	
		Efficiency of order processing of customers	Efficiency in distribution activities to buyers and customers	<ul style="list-style-type: none"> <li>Timeliness of delivery</li> <li>Average number of channel for delivering products to customers</li> <li>Level of A/S</li> </ul>	
		Management efficiency	Efficiency in planning, executing, and evaluating management activities	<ul style="list-style-type: none"> <li>Whether long-term strategy is formed for a firm's goal or not</li> <li>Level of strategy achievement</li> <li>Whether Systematic performance/compensation system is or not</li> </ul>	
	I P C	IP holding rate	Present conditions of intellectual properties under legal protections	<ul style="list-style-type: none"> <li>Number of possessed IP</li> <li>Average number of year of IP</li> </ul>	
		IP values	Present values of intellectual properties	<ul style="list-style-type: none"> <li>Market values of IP</li> <li>Level of usage of IP</li> </ul>	
		Investment on IP	Investment on IP for its maximum usage	<ul style="list-style-type: none"> <li>Position of responsibility division for IP (or not)</li> <li>Strategy formation for IP (or not)</li> </ul>	
	R E L A T I O N A L  C A P I T A L	C U C	Customer satisfaction	Customer satisfaction with services and products	<ul style="list-style-type: none"> <li>Customer loyalty</li> <li>Ratio of repetitive buying</li> <li>Customers' trust for employees</li> </ul>
			Stability in customer relationship	Level of stability in relationship with present customers	<ul style="list-style-type: none"> <li>Market share</li> <li>Average term in relationship with customers</li> <li>Ratio of steady customers (above 5 years in relationship)</li> <li>New customers / loss customers</li> </ul>
			Level of customer management	Level of support to preserve values of products, services, brand	<ul style="list-style-type: none"> <li>Management system to support brands (or not)</li> <li>Number of whole responsibility with brand management</li> <li>Efficiency in brand management activities</li> </ul>
Brand values			Brand position in market, which acquires customer loyalty and in result makes a profit	<ul style="list-style-type: none"> <li>Customer loyalty for brands</li> <li>Market values of brands</li> <li>Possession ratio of valuable brands</li> <li>Brand characteristics (localized-international)</li> <li>Number of brand competitor</li> </ul>	
S U C		Negotiation power against suppliers	Power of a company in transaction and negotiation with suppliers	<ul style="list-style-type: none"> <li>Superior position in price negotiation with suppliers</li> <li>Power to lead superior position in transaction conditions</li> </ul>	
		Supplier satisfaction	Supplier satisfaction with transaction	<ul style="list-style-type: none"> <li>General satisfaction of Suppliers</li> <li>Efficiency in distribution ways</li> <li>Possibility in preserving relationship</li> </ul>	
S O C		Corporation image	Corporation image in community	<ul style="list-style-type: none"> <li>Donation for public utilities / sales</li> <li>Positive public opinions in the press</li> </ul>	