Intellectual capital and sustainable growth
In small and medium enterprises in Indonesia

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Abstract: This research aims to determine impact of intellectual capital on sustainable growth in small and medium enterprises (SME) in Indonesia, particularly in Central Java. In Indonesia, despite SMEs' have significant contribution to the national economy, they have not been given adequate attention as the various researchers have been biased towards larger and listed enterprises in Indonesia. Research about SME in Indonesia, especially about its relationship with its human resources, is still few comparing with any other topic.Theobjectives of the study is to to see how intellectual capital, that is reflected through innovativeness, skills, competency, and knowledge influence the SME's sustainability itself. The research method used in this study was a descriptive study conducted to determine and describe the characteristics of several variables in a given situation. Data was collected by means of questionnaires administered to 100 SME in Central Java, which is known as the area with huge number of small and medium enterprises. Collected data was presented and analyzed using tables and bar charts as extracted from Statistical Packages for Social Sciences (SPSS).Before doing the next analyzing, we use validity and reliability test in order to avoid error that typically occurred in the analysis that is used primary data. Lastly, multiple regression analysis is used to analyze the impact of each indicator of intellectual capital on organizational sustainability of SME. This study is significant not only for the owners/managers of SMEs but also for the policy makers.

Keywords: Human Resources Management, Small and Medium Enterprise, Intellectual Capital, Sustainability, Central Java

Introduction

Small and medium enterprises due to their smaller size and resources face numerouschallenges to sustain themselves. In the face of mounting pressures from the competitors,SMEs need to position themselves in such a way so as to cater for the changing customerneeds and expectations of their customers. To achieve this, developing the internal knowledgeand knowing capabilities becomes imperative.

The present study is an attempt to investigatethe role of intellectual capital towards sustainability.Many literature has explored about the SMEs, but it is still few reseacrh that combine the human resource in the SMEs with the sustainability of SMEs, while we know that the sustainability plays an important role in economy, we supposed to do our best to achieve this sustainability of SMEs. This research aims to close that gap by providing the relationship between the intellectual capital and sustainability in SMEs in Central Java. Central Java is chosen as the objects because according to Ministry of Finance and Centre of Statistic Agency of the Republic of Indonesia, more than half of the economy of Central Java is supported by SMEs.

Literature Background
Intellectual Capital

In this age of information and globalization, information is considered as a main input for allorganizations whether big or small. This information is intangible in form and the real valuelies in the skills and knowledge of people (Topal, Conkar& Mustafa, 2008), which is theintellectual capital of the organizations. This intellectual capital with all its components isabstract in nature that provides competitive advantage to organizations against their rivals inthe market place. It is a phenomenon like information that can only be observed (Topal, et al.,2008) and are mostly related to the skills, knowledge, innovativeness of employees etc.(Bontis, 2001).

According to Nahapiet and Ghoshal (1998) intellectual capital is the knowledge and knowingcapability of a social collectivity. The social group exhibits two major forms of knowledgesocial explicit and social tacit which are collective in nature. According to McGrath andSparks (2006) knowledge that forms intellectual capital can be viewed as two processes thatis combination and exchange. Thus, intellectual capital is the combination of new andprevious knowledge that were being held but not connected. Exchange is often the keyfacilitator of this combination and this can occur through networks alone (McGrath andSparks, 2006).

The management of the intellectual capital is about recognizing that they offer new opportunity for the organization to create value for them (Stewart, 1997). The success of a business strategy is closely linked to the level of IC connected. It is important that management of IC is designed to provide a framework for maximizing the leverage of intangible assets (Chatzkel, 2000). Organizations employ people for a certain period (Stewart, 1997). It is through the process of renewal, and transformation of knowledge assets, that the organization defines its future and the ability to create value through its intellectual assets.

Three recognized types of intellectual capital are human capital, structural capital and relatioal capital. Through this research, we take the human capital as the dimension of intellectual capital, rather the two other intellectual capital. Human capital consists of all attributes related to human of the organization, i.e, his exposure, experience, and skills, his innovative and creative capabilities. It contains all intangible information and knowledge in the human mind of the organization (Bontis et al, 2002; Stewart, 1997). It is critical base of organization's innovative and strategic sustainability (Bontis, 2002; Bontis et al., 2002). A superior human capital is connected with organization's superior output and improved compensation or earning. Therefore human resource managers must strive to recruit and groom the best possible team in order to achieve competitive advantage for their organization (Bontis et al., 2002). The effectivenessof knowledge strategy implementation relies on the facilitation of innovation and value creation by organizational employees. This can be achieved only through a process innovation (Santosus and Surmacz, 2002).

Sustainability

The concept of sustainability has been associated with Wes Jackson's work on agriculture(Jackson, 1980) which was later on taken up by Brundtland Commission Report. The reportdefined sustainability in terms of development of the human ecology as 'development thatmeets the needs of the present generation without compromising the ability of future generations to meet their own needs' (WECD, 1987). In terms of business organizations, sustainability refers to as the meeting the needs of an organization's direct and indirect stakeholders such as shareholders, employees, clients, communities etc, without compromising its ability to meet the needs of future stakeholders as well. To attain this organizations have to maintain and grow their economic, social and environmental capitalbase while actively contributing to sustainability in the political domain (Dyllick & Hockerts, 2002).

From business perspective, sustainability connotes three dimensions: economic, social and environmental (Sheth, et al. 2011). Sustainability is an approach, organizations around the world are increasingly adopting to conduct businesses, but the research highlights that majority of the organizations though appreciativeof the sustainability practices are slow to adopt them (Leaniz & Bosque, 2013). Out of three sustainability dimensions, literature has repeatedly focused on the environmental dimension because of the impact of rapid consumption on the environmental degradation andeco-system resource constraints (Choi & Ng, 2011). The interrelationships between society, the environment and economic or industrial development are integral to theconcept of sustainability (Hutchins & Sutherland, 2008).

Small, Micro Enterprises in Indonesia

Indonesian Micro Small and Medium Enterprises (MSMEs) have particular characteristics that distinguish them from general business and thus require treatments that are different from those aimed for general businesses. In general, Indonesian MSMEs consist of various categories: micro enterprise, small enterprise, and medium enterprise. Each has different characteristics. The category that has the highest number of participant is micro enterprise (Syuhada, 2013).

SMEs play a significant role in creating employment in Indonesia, which in turn fosters Indonesia's economic development. In the past, because of its role in creating job opportunities, SMEs played a major role in sustaining the household income and, at the same time, steadily decreasing the poverty rate during the financial crisis (Mourougane, 2012). The main reason for this phenomenon is because in Indonesia SMEs are less dependent on any formal source of capital (e.g. bank loan), which makes them more resistant to sudden financial

shocks compared to a large firm (Berry et al, 2001). In general, SMEs play important role by its contribution to sales, output, value added, export, and number of employment.

Some characteristics of the SMEs in Indonesia that is also well known as the reason why SMEs in Indonesia are always developed, can be divided into four different findings, such as:1). The flexibility of SMEs to specialize either to become a subcontractor to a larger firm, if they already have already got their own economies of scale, or to develop their own niche market when they do no yet have economies of scale. This flexibility allows the SMEs to survive and grow even in a difficult conditions (e.g. financial crisis). 2) The growth stage of SMEs varies depending on their level of maturity, where in the early stages of development they are usually start as household industries, and then become manufacturers in later stages.3). The increasing level of customers' incomes can enable new market development, since customers' demand are going to shift to a more sophisticated products. This condition will encourage the growth of SMEs and also increase the competition among SMEs that can lead to more innovation and improvements.4). The growth of SMEs in urban areas is faster compared to rural areas.This happens because urban areas have a higher population density that leads to a higher demand than the demand in the rural areas. Besides that SMEs in urban areas can get some benefits due to better business conditions within those areas.

Highlight of SME in Indonesia can be seen through the Figure 1 below:

Figure 1: SMEs in Indonesia

No.	Indicator	1997	2000	2001	2003	2004
1	Number of SMEs (unit)	39 765 110	36 813 578	39 784 036	43 460 242	44 777 387
2	Growth of SMEs (%)		-7,42	4,94	3,61	3,03
3	Total labor of SMEs (people)	65 601 591	64 313 573	72 704 416	81 942 353	80 446 600
4	Growth of labor of SMEs (%)		-1,96	8,24	5,31	-1,83
5	SMEs contribution to GDP (Rp)	363 200 ,440	552 945 ,40	760 089 ,450	876 123 ,40	924 483 ,60
6	Growth of SMEs contribution to GDP (%)		52,24	17,39	5,61	5,52
7	SMEs export value (Rp)	39 277 ,070	69 315 ,40	75 448 ,610	77 096 ,710	95 548 ,240
8	Growth of SMEs export value (%)		76,48	43,45	-11,68	23,93
No.	Indicator	2005	2008	2009	2011	2012
1	Number of SMEs (unit)	47 017 062	51 409 612	52 764 603	55 206 444	56 534 592
2	Growth of SMEs (%)	5,00	2,52	2,64	2,57	2,41
3	Total labor of SMEs (people)	83 586 616	94 024 278	96 211 332	101 722 458	107 657 509
4	Growth of labor of SMEs (%)	3,90	3,90	2,33	2,33	5,83
5	SMEs contribution to GDP (Rp)	979 712,50	1 165 753,20	1 212 599,30	1 369 326,00	1 504 928,20
6	Growth of SMEs contribution to GDP (%)	5,97	6,04	4,02	6,76	9,90
7	SMEs export value (Rp)	110 338,06	178 008,28	162 254,52	187 441,82	208 067,00
8	Growth of SMEs export value (%)	15,48	26,82	-8,85	6,56	11,00

Source: Ministries of Cooperatives, and Small and Medium Enterprises of the Republic of Indonesia, 2013

Basically, according to the Government of Indonesia, the micro industries are those which have net assets up to IDR 50,000,000 or have annual revenue from sales up to IDR 300,000,000, while the small industries are those who have net assets over IDR 50,000,000 (50 million rupiah) to IDR 500,000,000 (500 million rupiah) or have annual revenue from sales over IDR 300,000,000 (300 million) to IDR 2,500,000,000 (2.5 billion rupiah). And last, the medium industries are those which have net assets over IDR 500,000,000 (500 million) to IDR 10,000,000,000 (10 billion
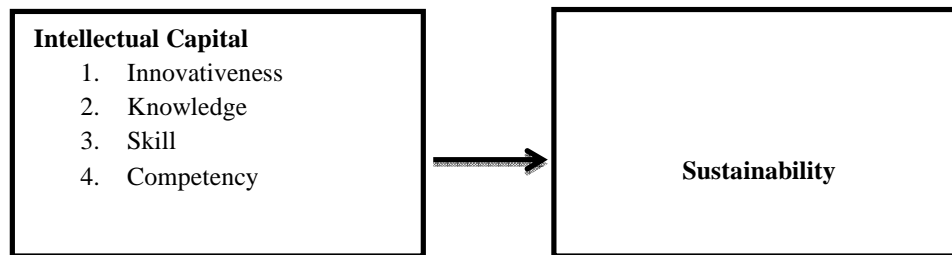
rupiah) or have annual revenue from sales more than IDR 2,500,000,000 (2.5 billion rupiah) to IDR 50,000,000,000 (50 billion rupiah).

Methodology

Study Framework and Hypothesis
The framework for the present study was developed based on the extensive literature
review and is shown in Figure 2.

Figure 2. Study Framework

The study framework includes independent and dependent variables. Independentvariable represents the intellectual capital. On the otherhand, the customer satisfaction represents dependent variable. The purpose of this study is to assess the relationship between intellectual capital, that will represented by four variables mentioned above to the sustainability of SME in Central Java, Indonesia.

In order to meet study's objectives, following hypothesis is proposed:
H1a: Innovativeness has positive and significant effect on sustainability of SME in Central Java.
H1b: Knowledge has positive and significant effect on sustainability of SME in Central Java.
H1c: Skill has positive and significant effect on sustainability of SME in Central Java.
H1d: Competency has positive and significant effect on sustainability of SME in Central Java.

Research Instrument

The instrument for collecting primary data in this study was on-site and self administered
questionnaire. The questionnaire consisted of three parts, designed tomeasure demographic information of the respondents, intellectual capital andthe third part is about sustainability. There are total of 23questions that were adaptedfrom some resources. All the dimension in four independent variables and variable dependent was assessed with 5-point Likert-type scale, ranging from "strongly disagree" (1) to "strongly agree" (5).

For respondents' demographic information, there are including age, gender, level of education, ownership status of SME, type of SME, business period, and source of capital. These characteristics were measured using nominal scale. There are 120 useful questionnaireswere obtained for the SME in Central Java (Semarang, Solo, and Yogyakarta)

The data were analyzed using multiple regression.Multiple regression is used to assess the relative influence of a number of independent (predicting) variables when they are used to predict a dependent variable. All the classical assumption are tested to know whether the model is good. The good model should have a normal residual distribution, have no autocorrelation, heteroschedasticity (when the standard deviations of a variable, monitored over a specific amount of time, are non-constant), and no multicollinearity (it is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a non-trivial degree of accuracy). But, because this research is only made in a one period, so the autocorrelation is not used as the analysis.

Descriptive statistics, exploratory factor analysis, reliability analysis, and multiple regression are used to interpret the data. Descriptive statistics was used to examine demographic profile of the respondents andto evaluate each independent variable and sustainability of SME..According to Hair et al. (2006), the appropriateness for conducting factor analysis was assessed with Kaiser-Meyer-Olkin's measure (KMO) and Bartlett's sphericity test. Further, the criteria for the number of factors extracted and variables retained werebased on eigenvalues, percentage of variance, significance of factor loadings andnumber of variables in the extracted factor. The Cronbach alpha coefficients were calculated to test the scale's reliability.Coefficients higher than 0.6 were considered acceptable, indicating

reasonable internalconsistency and reliability (Hair et al., 2006). The factor analysis and also reliability analysis are the first step that has to be done before doing the multiple regression.

Analysis and Result
Demographic Characteristic
Demographic profile of the sample is presented in Table 1 below.

Table 1: Demographic Profile of the Respondents (n=120)

Items	Frequency	Percentage
Gender		
Male	41	34%
Female	79	66%
Age		
< 20	2	2%
20 – 30	5	4%
31 – 40	39	32.5%
41 – 50	69	57.5%
51 – 60	5	4%
Education		
Senior High School	55	45.5%
Diploma	45	37.5%
Bachelor	20	17%
Type of SME		
Culinary	55	42.5%
Fashion	49	41%
Technology of Internet	4	3%
Education Matter	5	4%
Handycrafts	7	9.5%
Ownership Status of SME		
Owner	35	29%
Employee	85	71%
Business Period (year)		
< 20	11	10%
20 – 30	78	65%
31 – 40	25	21%
41 – 50	2	1%
51 – 60	4	3%
Source of Capital		
Personal Money	62	52%
Koperasi Funding	16	13%
Bank Loan	32	27%
Third Fund, except Bank	10	8%

Among the 120 respondents in the sample, 34% are male and 66% are female. Most of the respondents are around 41until 50 year old. About its age, they are about 57.5%, followed by those who are around 31 until 40 year old, for about 32.5%. There are 4% respondents with the age between 20 to 30 and also 51 to 60 years old. And the rest, for about 2% respondents are below 20 years old.

The education of the respondents that filled the questionnaire are various. It is divided in to Senior High School, for about 55% for all the respondents, Diploma, for about 37.5%, and Bachelor for about 17%. The type of SME that we used in to this research consisted of 42.5% for culinary, 41% fashion, 3% for technology of internet, 4% for education matter business, and 9.5% for handycraft enterprises. We interviewed 35 people as the owner and 85 people as the employee. For the period if the enterprises, about 10% have been operated for under 20 years, abot 65% have been operated for among 20 to 30 year, about 21% have been operated between 31 to 40 year, 1% have been operated for about 41 to 50 year, and 3% have been operated for about 51 to 60 year. About its capital, about 52% enterprises were started by using their owner's money, while there are 13% enterprises were started by using Koperasi funding, 27% were started by using Bank Loan, and the rest, about 8% enterprises were started by using third fund, except bank as their source.

Validity and Reliability Test

First, the appropriateness for conducting factor analysis was evaluated. The result shows all the factor loading (KMO value) have value above 0.05. It means that each factor is valid. Validity test is used when we want to know whether each question accurately measures what it purports to measure. After testing about the validity, we continue to test the reliability.

The reliability is tested using the Cronbach Alpha. The number of Cronbach Alpha should be above 0.6 to be said the question is reliable (Hair et al., 2006). Reliability test is used to measure the consistency of the respondents in answering the question. From all the result we see that each question is reliable, based on the Cronbach Alpha they have is all above 0.6. The non-valid indicator can't be used in the test. It should be taken out from the reliability test and furthermore. And the non-reliable indicator can't be continued in the analysis and should not be used in the data processing. The validity and also reliability test are two important test that should be done before we start doing the analysis. The result of validity and reliability test are presented in Table 2 below.

After the validity and reliability done, the regression analysis is done to know which factor has the largest impact to the sustainability of SME in Central Java. The multiple regression analysis revealed the following. The relationship between thecombination of independent variables in the model andthe dependent variable is strong. It is seen from the number of R Squared is 0.834 and the number of Adjusted R Square is 0.822. Because it is multiple regression analysis, we take the Adjusted R Square, not the R Squared. The number of 0.822 means that the independent variables explained approximately about 82.2% in overall sustainability of SME in Central Java, and the rest for about 17.8% factors that affect the sustainability of SME is explained by another factors that are not included in the model. This Adjusted R Squared shows that the model is goodness of fit, since the minimum value of Adjusted R Squared that the model should has to be called as good is 70%. In addition, the Prob. of F shows that the combination of independent variables significantly predicted dependent variables simultaneously, because the Prob. of F that the model has is 0.00.

To assess the relative importance of each independent variable in determining the valueof the dependent variable, the significant value of each dimension is provided. The data processing is using the 10% alpha. The factor is said to has a significant impact to the sustainability of SME in Central Java if they have the significant value less than 0.1. According to Table 4, it is seen that all the four independent variables significantly influenced the sustainability of SME in Central Java, statistically.

The skills variablehas the highest statistically significant. It is seen from the beta number. It has the highest number among all other variables (0.275). Therefore, this was the most importantindependent variable that needs to be taken care for increasing and maintening the sustainability of SME in Central Java. This was followed by the competency variable withthe beta number of 0,163, followed by knowledge with the beta number of 0.045. And the least important independent variable in this regression model was innovativeness (with the value of 0.025), means that this variable has the smallest impact on sustainability of SME in Central Java.

Discussion and Conclusion

Along with the rapid advancement of levels of economics growth,the number of SME in Indonesia is also increasing. It is well known that the SMEs play important role in the Indonesia's economy. Through this research, we estimate the replationship between intellectual capital (which is proxied through the dimension of human capital, namely skill, innovativeness, competency, and knowledge) to the sustainability of SMEs in Central Java, Indonesia.

Table 2: Factor and Reliability Analyses

(n=120)

Factors	Factor Loading	Cronbach Alpha
Innovativeness		
I am open to new experiences, especially about work matters.	0.672	0.825
I always haveidea about my job.	0.763	
I have flexible thinking and quick to respond any changes of customer's satisfaction.	0.752	
I always try to give the best for my business progress	0.805	
I'm always willing to produce the more variative products.	0.787	
Skills		
I am able to do my job.	0.592	0.769
I always try to minimize any mistakes in doing my job.	0.605	
I have good communication with my boss.	0.844	
I am able to capture the market demand that is changing rapidly.	0.575	
Knowledge		
I know about my business's environment.	0.660	0.681
I understand about the Standard Opeerational Procedure in my job.	0.723	
I know how to serve the customers.	0.735	
I am able to respond in a good manner to any of customer's questions.	0.758	
Competency		
I haveknowledge that is in accordance with the company standards	0.656	0.741
With the knowledge I have, I can complete the task.	0.741	
With the knowledge I have, I am able to solve the employment problem.	0.630	
I can finish the job.	0.710	
I respect my colleagues at my workplace.	0.698	
I am able to communicate well against fellow coworkers.	0.715	
Sustainability		
My business is able to survive in times of crisis.	0.617	0.757
My business is able to survive in the long term period.	0.680	
When crisis occurs, my business is able to improve again.	0.724	
There is an increased, both in terms of profit and the welfare of human resources at my business	0.740	

The result of multiple regression test can be seen through the table 3 below:

Table 3. Multiple Regression Result

Indicators	Results		
R2	0.834		
Adjusted R Squared	0.822		
Standard Error	0.1590		
F Ratio	75.181		
Significance	0.000		
Independent Variables	b	t	Sig.
Constant	1.181	5.601	.000
Innovativeness	0.025	2.083	0.099
Skills	0.275	9.166	.050
Knowledge	0.045	1.1538	.024
Competency	0.163	1.373	.044

Multiple regression analysis indicated that skill is the most important antecedent of overall sustainability of SMEs in Central Java. The results revealed strong, positive and significant relationship between all the indeendent variables to the sustainability of SMEs in Central Java, implying that highly human capital leads to higher overall sustainability in SMEs in Central Java. In addition, about 88.2% of variance in overall sustainability can be explained by these independent variables. Thus, the explanatory power of the tested model in the SMEs in Central Java is satisfactory. All hypotheses are also revealed, which all of the independent variables have positive and significant influence to the sustainability of SMEs in Central Java.

Skill, as the most important predictor in the sustainability of SMEs must be maintained. The employee should has much knowledge and also friendly when serving the customer. As the competency turns to be the second most important thing in sustainability, the owner should also be able to maintain the agility that the employee has in facing the customer's complaint or needs.It is believed when the intellectual capital of SMEs's human resources is increased, the sustainability of SMEs would be more developed.

From this result, we would like to also add that actually what we got from the interview is trust and loyalty also play as the important thing in the sustainability of SMEs in Central Java. That's why we suggest for the upcoming reseach to use those two variables and also the government policy to see the relationship with the sustainability of SMEs.

Reference

[1] Albert Berry, et. al, "Small and Medium Enterprise Dynamics in Indonesia," Bulletin of Indonesian Economic Studies 37, no. 3 (2001): 363-384.

[2] Annabelle Mourougane, "Promoting SME development in Indonesia," OECD Economics Department Working Papers 995 (2012): 5-32

[3] Bontis N, (2002). World congress of intellectual capital readings. Boston: Elsevier Butterworth Heinemann KMCI Press.

[4] Bontis, N. (2001). Assessing Knowledge Assets: A Review of The Models Used To MeasureIntellectual Capital. International Journal of Management Reviews, 3(1), 41-60.http://dx.doi.org/10.1111/1468-2370.00053

[5] Chatzkel, J, Marr, B. 2004. Intelectual Capital at the Crossroads: Managing,Measuring and Reporting of IC. Journal of intellectual capital, 5, 2, 224-9

[6] Choi, S., & Ng, A. (2011). Environmental and Economic Dimensions of Sustainability andPrice Effects on Consumer Responses. Journal of Business Ethics, 104(2), 269-282.http://dx.doi.org/10.1007/s10551-011-0908-8

[7] Dyllick, T., &Hockerts, K. (2002). Beyond the Business case for Corporate Sustainability.Business Strategy and the Environment, 11(2), 130-141. http://dx.doi.org/10.1002/bse.323

[8] Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006). *Multivariate Data Analysis*,6th Edition, Pearson Prentice Hall, Upper Saddle River, New Jersey.

[9] Hutchins, M. J., & Sutherland, J. W. (2008). An Exploration of Measures of SocialSustainability and Their Application to Supply Chain Decisions. Journal of CleanerProduction, 16(15), 1688-1698. http://dx.doi.org/10.1016/j.jclepro.2008.06.001

[10] Jackson, W. (1980). New Roots for Agriculture. Berkeley, California: North Point Press.

[11] Leaniz, P. M. G. d., & Bosque, I. R. d. (2013). Intellectual Capital and Relational Capital: TheRole of Sustainability in Developing Corporate Reputation. Intangible Capital, 9(1),262-280.

[12] McGrath, R., & Sparks, W. (2006). Knowledge, Social Capital and Organizational Learning.International Journal of the Management, 5(9), 125-129.

[13] Nahapiet, J., &Ghoshal, S. (1998). Social Capital, Intellectual Capital, and theOrganizational Advantage. The Academy of Management Review, 23(2), 242-266.

[14] Santosus, M., Surmacz, J., (2002) ABCs of knowledge management. Available from: http://www.cio.com.

[15] Sheth, J. N., Sethia, N. K., &Srinivas, S. (2011). Mindful Consumption: A Customer-CentricApproach to Sustainability. Journal of the Academy of Marketing Science, 39(1), 21-39.http://dx.doi.org/10.1007/s11747-010-0216-3

[16] Stewart T, (1997). Intellectual capital: The new wealth of organizations. New York: Doubleday/Currency.

[17] Syuhada, Ahmad Anshorimuslim. 2013. "Online Marketplace for Indonesian Micro Small and Medium Enterprises based on Social Media". 4th International Conference on Electrical Engineering and Informatics, ICEEI 2013

[18] Topal, Y., Conkar, M. K., & Mustafa, U. C. (2008, 28-29 March). The Constitution andMeasurement of Intellectual Capital: An Application in Banking Sector in Afyonkarahisar.Paper presented at the First International Conference on Management and Economics, EpokaUniversity, Turkey.

[19] WECD. (1987). Our Common Future. New York: United Nations World Commission onEnvironment and Development.