Journal of
Risk and Uncertainty Issues
P. ISSN : 2986-397X
E-ISSN : 2986-4453
VOLUME 2 NO 1, 2023
PP: 19 -27

ANALYSIS OF INTELLECTUAL CAPITAL TO INCREASE BUSINESS PERFORMANCE (SURVEY ON PT. TELEKOMUNIKASI INDONESIA, TBK WITEL SULSEL)

Marry Fusfita, Dian Parawansa, and Andi Aswan

[1]Hasanuddin University, Makassar, Indonesia.E-mail: marryfusfita8@gmail.com
[2]Hasanuddin University, Makassar, Indonesia. E-mail: dian_asparawansa@yahoo.co.id
[3.] Hasanuddin University, Makassar, Indonesia. E-mail: andiaswanp@yahoo.com

Abstract

This study aims to investigate the influence of dominant factors of intellectual capital: human capital, customer capital and structural capital to business performance as a test of the theory and models of Bontis et. al. (non monetary), with the surveyed private firms On PT. Telekomunikasi Indonesia, Tbk Witel Sulsel. The importance of intellectual capital is now considering that the company has begun to consider intellectual capital to distinguish intangible, intangible company's assets where assets are not only gained by spending some money but can also be used and make a profit. The respondents in this study were as 120 employees. The analysis technique used to test the hypothesis is factor analysis. The results showed that the three independent variables,

Keywords: *Intellectual capital, human capital, structural capital, customer capital, business performance*

A. INTRODUCTION

Globalization, technological innovation, and intense business competition in this century have forced companies to change the way they do business. In order to survive, companies must quickly change the strategy of the business they are based onlabor-based businessgoing toknowledge based business, so that the main characteristic of the company now has become a knowledge-based company.

Intellectual capital has become a very valuable asset in the modern business world. The implementation of intellectual capital is something that is still new, not only in Indonesia but also in the global business environment, for example in Australia, America and Scandinavian countries. In general, the business community still has not found the right answer regarding what added value a company has. This added value itself can come from a company's production capacity to customer loyalty to the company. This added value is generated by intellectual capital which can be obtained from the company's development culture as well as the company's ability to motivate its employees so that the company's productivity can be maintained or even increased (Sawarjuwono and Prihatin Kadir, 2003: 42).

The International Federation of Accountants(IFAC, 1998).human capitalwithin the organization has the full potential to build a market orientation for its customers. If the

competence of employees in an organization is getting better, they will understand the needs of consumers and developcustomer capitalto retain consumer loyalty. Besides that, Human Capital is also a source of innovation and renewal for the company.

Customer capitalis a resource associated with the company's external relations with consumers,supplierorpartnersinResearch and Development(R&D) (Starovic & Marr, 2004:35), includesbrands,consumers, consumer loyalty company name,backlog orders, distribution networks, business collaborations, licensing agreements and supporting contracts (IFAC, 1998).

structural capitalis knowledge that will remain in the company (Starovic & Marr, 2004: 24), which consists of two elements, namely first,intellectual propertyconsisting of patents,copyright, design right, trade secret, trademark, service mark,and second,infrastructure assets, which includes management philosophy, corporate culture, management processes, information systems, network systems, and financial relationships.structural capitalemerge from organizational processes and values that reflect the company's internal and external focus and development and renewal for the future.

The existence of a positive relationship between intellectual capital and performance in the telecommunications industry has influenced financial performance to be better, especially in terms of profitability. This illustrates the telecommunications industry in Indonesia, companies are no longer focused on short-term interests but also long-term interests where companies have optimally managed and developed their intellectual property to win the competition or generate competitive advantage for the company. Intellectual capital has become an interesting theme to be developed in order to create added value for the company. Based on the foregoing and supported by theory and equipped with existing data and facts,

B. METHODS

Research design

The type of research used is descriptive associative in order to know the relationship between research variables obtained based on descriptive data.According to Umar (2003: 30) associative research is "research that aims to analyze the relationship between one variable and another variable or how a variable determines other variables". In other words, associative descriptive design is useful for measuring the relationships between research variables or useful for analyzing how one variable affects another.

Population and Sample

The population used in this study are as follows:

Table 1. Population of PT Telkom Witel Sulsel Employees

No	Unit Bisnis	Jumlah Pegawai		Total
		Laki-Laki	Wanita	
1	Divisi Infratel	20	9	29
2	Divisi Access	25	7	32
3	Divisi Customer Service II (Timur)	20	15	35
4	Divisi Business Service	5	10	15
5	Divisi Enterprice Service	4	7	11
6	Direktorat Consumer	5	7	12
Jumlah karyawan PT.Telkom Witel Sulsel				120

Sumber : Unit HR PT.Telkom Witel Sulsel

As for this study using a survey/census technique, which means that the entire population studied is used as a respondent.

Data analysis techniques

TechniqueThe analysis used uses the factor analysis method which is a general multivariate statistical method that aims to analyze the maximum variance and reproduce the correlation of a series of observed variables.

The stages of analysis carried out in factor analysis are as follows:

1. Determine the number of cases studied, namely as many as m, and also determine the number of n variables to be observed.
2. Create initial data matrix with matrix size (mxn)
3. Standardize the initial data matrix into standard form or normal form (normalized data), using equations

$$X_n = \frac{X_{ij} - X_r}{\sigma}$$

dimana,

Xn = Nilai data normal

Xij = Nilai data

Xr = Nilai rata-rata

σ = Standar deviasi

4. Calculating the correlation matrix between variables.
5. Calculating the value of the factor characteristics (eigenvalues) and characteristic vectors (eigenvectors) of the correlation matrix.
6. Count or setGoodness of fitIn such a way, factors and communalities are obtained.
7. Factor rotation to get the final factor
8. Interpretation of final factor results

Description of Research Variables

This study has 3 independent variables, which consist of:

1. Human Capital (X1)
2. Structural Capital (X2)
3. Customer Capital (X3)

C. ANALYSIS RESULTS

1.1 Intellectual Capital Factor Analysis in Improving Business Performance

Factor analysis is intended to find new groupings of variables based on indicators that are formed called factors with fewer indicators compared to the original number of indicators which are considered to have no correlation with each other. To find out the dominant factors and variables forming factors that determine business performance, a factor analysis approach is used.

1.2 Principal Component Analysis (Principal Component Analysis/PCA)

Principal Component Analysis is carried out to reduce the indicators used as a variable that can be predicted without error by other variables. This is done to obtain more accurate data in processing using factor analysis.

1.2.1 KMO and Barlett test

Table 2. KMO and Barlett's test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.593
Bartlett's Test of Sphericity	Approx. Chi-Square	4980.833
	df	435
	Sig.	.000

The conclusion about the feasibility of factor analysis is carried out, only statistically valid by using a testKaiser-Meyer-Olkin (KMO) measure of adequacyAndBarlett Test of Specificity. If the KMO value ranges from 0.5 to 1, then factor analysis is feasible. Conversely, if the valueKMObelow 0.5, then factor analysis (principal component analysis) is not feasible.Barlett's Test of Spermcityis a statistical test to test whether the independent variables involved are correlated. If valueBartlett's Test of Sphericitysignificantly below 0.05, indicating that the model formed is feasible to use.

From Table 2. KMO and Barlett's Test it can be seen clearly that the results of the factor analysis show that the valueKaiser-Meyer-Olkin Measure of Sampling Adequacyobtained at 0.593 and it can be explained that the results of this analysis are included in quite good results considering that this figure is already above the value of 0.5, so factor analysis is feasible. MarkBarlett's Test Of Spermityhas a value of 4980.833 with a significance value of 0.000, which explains that the forming factors of this variable are good and the sample is sufficient for further analysis, so factor analysis (principal component analysis) is feasible.

1.2.2 Measures of Sampling Adequacy (MSA)

In the MSA table (appendix) sectionAnti-image Correlation, especially at the marked correlation figuresa(diagonal direction from top left to bottom right). CoefficientMSA(Measure of Sampling Adequay) ranges from 0 to 1, with the following criteria:

b. MSA= 1, the variable can be predicted without error by other variables.

c. MSA> 0.5, the variable can still be predicted and can be further analyzed.

d.MSA< 0.5, the variable cannot be predicted and cannot be analyzed further, or excluded from other variables.

The results show that the invalid ones are HC4, HC5, HC7, HC9, SC1, SC6, and CC5, meaning that these invalid factors are not used in subsequent analysis, therefore the factor analysis calculation reduces variables by not involving indicators that are the invalid.

1.2.3 Communalities

Table 3. Communalities

Communalities

	Initial	Extraction
HC1	1.000	.754
HC2	1.000	.681
HC3	1.000	.501
HC8	1.000	.771
HC10	1.000	.709
SC2	1.000	.589
SC3	1.000	.782
SC4	1.000	.799
SC5	1.000	.640
SC7	1.000	.247
SC8	1.000	.712
SC9	1.000	.549
SC10	1.000	.728
CC1	1.000	.529
CC2	1.000	.557
CC3	1.000	.730
CC4	1.000	.814
CC6	1.000	.684
CC7	1.000	.763
CC8	1.000	.570
CC9	1.000	.710
CC10	1.000	.660

Extraction Method: Principal Component Analysis.

Communalitiesis the value that indicates the contribution of these variables to the factors formed,orshows how much variance can be explained by the extracted factors (formed factors).Communalitiesbasically is the amount of variance (in percentage) of an initial variable that can be explained by the factors that are formed. Markcommunalitiesthis is the same as the value of the coefficient of determination (in the regression model).

Based on the table it can be seen that all indicators have an extraction value greater than 0.500, except for SC7 which is equal to 0.247. This means that the extraction weight value obtained is the variance of each indicator of intellectual capital which can be explained by the factors formed which consistHuman Capital, Structural CapitalAndCustomer Capitalas a determinant of business performance.

1.2.4 Total Variances Explained

Table 4. Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.788	49.035	49.035	10.788	49.035	49.035	6.171	28.052	28.052
2	2.062	9.371	58.405	2.062	9.371	58.405	4.880	22.182	50.234
3	1.630	7.409	65.815	1.630	7.409	65.815	3.428	15.581	65.815
4	1.389	6.316	72.130						
5	1.236	5.617	77.747						
6	1.084	4.928	82.675						
7	.814	3.700	86.376						
8	.573	2.604	88.980						
9	.422	1.916	90.896						
10	.392	1.781	92.677						
11	.345	1.569	94.246						
12	.272	1.238	95.484						
13	.228	1.037	96.521						
14	.174	.792	97.313						
15	.149	.676	97.988						
16	.123	.559	98.547						
17	.089	.404	98.952						
18	.074	.337	99.289						
19	.057	.260	99.548						
20	.042	.190	99.738						
21	.031	.140	99.879						
22	.027	.121	100.000						

Extraction Method: Principal Component Analysis.

After extraction, it appears in the table above that the factors formed are based on the number of Intellectual Capital variables as many as 3 factors consisting of Human Capital, Structural Capital and Customer Capital, with each having eigenvalues of 10,788, 2,062, and 1,630 according to the definitioneigenvalues. Table 5.20 shows that there are 3 components (variables) included in the factor analysis with each variable having its variance, so the total variance is 65.815.

Based on the rotational results of Factor Analysis using the methodVarimaxshows that the variability forming factor-1 can explain 28.052%, the variability forming factor-2 can explain 22.182%, and the variability forming factor-3 can explain 15.581%. While the total of these three factors will be able to explain 65.815 of the variability of the three original variables.

1.2.5 Rotated Component Matrix

Do the processRotated Component Matrixis the final result of grouping and reducing the indicators used on the factors formed. The goal is to clarify the variables that fall into certain factors. After the process is donerotated component Matrix, the results are in the following table:

Table 5. Rotated Component Matrix

Rotated Component Matrix[a]

	Component		
	1	2	3
HC10	.820		
CC7	.797		
SC10	.753		
HC2	.723		
HC8	.691		
CC9	.675		
SC4	.663	.558	
SC2	.652		
CC8	.601		
CC6	.527		
CC1	.519		
SC3		.863	
SC8		.782	
SC9		.694	
CC10		.644	
HC3		.594	
SC5		.560	
CC4			.850
HC1			.757
CC3			.644
CC2			.567
SC7			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

This table shows the factor weight values based on the components formed which are > 0.5. Based on the value of the factor weight, it turns out that the SC7 indicator has a factor weight of <0.500.Component Matrixresult of rotation process (Rotated Component Matrix) shows a clearer and more significant distribution of variables. Seems likefactor loadingwhich was previously small in the Main Component Analysis is getting smaller, and the large loading factors are getting bigger (in the table the factor weight values smaller than 0.5 are not shown because they are considered not to have a contribution to the factor).

D. DISCUSSION

From the results of the data analysis above it was found that the new factor from Human Capital which is named Knowledge Management is the factor that has the most dominant influence among the other three factors. This is in line with the view (Brinker 2000:56) wherehuman capitalislifebloodin intellectual capital. Here is the sourceinnovationAndimprovements, but it is a difficult component to measure.human capitalis also a source of very useful knowledge, skills, and competencies in an organization or company.

human capitalreflects the company's collective ability to produce the best solution based on the knowledge possessed by the people in the company.human capitalwill increase if the company is able to use the knowledge possessed by its employees. (Brinker 2000) provides some basic measurable characteristics of this capital, viztraining programs, credentials, experience, competence, recruitment, mentoring, learning programs, individual potential and personality.

E. CONCLUSION

Based on the results of research and discussion, it can be concluded as follows:

1. FactorHuman capital, Structural Capital and Customer capitalinfluential in improving the business performance of PT. Telecommunications, Tbk Witel Sulsel .
2. The determining dominant factor in improving the business performance of PT. Telecommunications, Tbk Witel Sulsel namelyHuman Capitalwith indicators formed namelyHuman Capital10,Human Capital2, andHuman Capital8, or factorKnowledge Management.

REFERENCES

Arikunto, S. 1998. Prosedur Penelitian suatu pendekatan praktek. PT. Rineka Cipta, Jakarta Astuti, Partiwi Dwi. 2005. "Hubungan Intellectual Capital dan Business Performance." Jurnal

MAKSI. Vol 5, 34-58. Barney, J.B., 2001, Is the Resource-Based Theory a Useful Perspective for Strategic Management Research? Yes. Academy of Management Review; 26, (1), pp. 41–56 Bontis, Nick. 1997. Intellectual capital questionnaire. Hamilton, Canada: Institute for Intellectual Capital Research Inc. Bontis, N. 1998. "Intellectual Capital: an Exploratory Study that Develops Measures and Models." Management Decision. Vol. 36 No. 2, 63-76.

Bontis, N, Wiliam Chua Chong Keow dan Stanley Richardson. 2000. "Intellectual Capital and Business Performance in Malaysian Industries." Journal of Intellectual Capital. Vol 1, No. 1, 85-100.

Brinker, Barry 2000, "Intellectual Capital: Tomorrows Asset, Today's Challenge",http://www.cpavision.org/vision/wpaper05b.cfm, 55-71

Brooking, Annie 1996, IC: Cone Assets for Rhird Millenium Eterprose, London-England: Thomson Business Press.

Dillon, W.R dan Goldstein, Mathew, 1984. Multivariate Analysis Method an application, Probus, Chicago.

Divianto, 2010. Pengaruh Faktor-Faktor Intelectual Capital (Human Capital, Structural Capital Dan Customer Capital) Terhadap Business Performance, Jakarta

Dimitrios Maditino et al, 2009. Intellectual Capital and Business Performance: An Empirical study for the Greek Listed Companies.

Gary S. Becker 1964, 1993, 3rd ed. Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. Chicago, University of Chicago Press. ISBN 978- 0-226-04120-9

Hartini Azman, 2012. Corporate Governance Mechanisms And Intellectual Capital Disclosure In Malaysian Glcs.

Harrison, S., and P.H. Sullivan. 2000. "Profitting form intellectual capital; Learning from leading companies". Journal of Intellectual Capital. Vol. 1 No. 1. pp. 33-46.

Hudson, W. 1993. Intellectual capital : How to build it, enhance it, use it. New York: John Wiley.

Ikatan Akuntan Indonesia. 2007. Standar Akuntansi Keuangan. Jakarta: Salemba Empat.

Itami, H. 1987. Mobilizing invisible assets. Cambridge. MA. : Harvard University Press.

Kaplan R S and Norton D P 1996. "Using the balanced scorecard as a strategic management system", Harvard Business Review Jan – Feb pp75-85

Kuryanto dan Syafruddin, 2008 Pengaruh Modal Intelektual Terhadap Kinerja Perusahaan. Jakarta

Kurnia Indra Sejati, 2011. Pengaruh Intellectual Capital Terhadap Kinerja Keuangan Perusahaan (Studi Pada Industri Telekomunikasi yang Tercatat di Bursa Efek Indonesia Periode 2002-2011).

Melisa Erdilek Karabay, 2011. Assessing The Measurement Of Intangible Assets In Telecommunication Sector: Evidence From Turkey.

Ning, Yang tai et al, 2011. Knowledge Creation and Intellectual Capital on Securities Investment Services.
Peteraf, M.A. 1993, The Cornerstones of Competitive Advantage: A Resource-Based View. Strategic Management Journal; 14, (3), pp. 179–191.
Program Pascasarjana. 2011. Tesis dan Disertasi Edisi 4. Makassar. Pfeffer, J. And Salancik, G.R. 1978. "The External Control of Organizations: A Resource-Dependence Perspective", Harper and Row, New York, NY.
Pulic, A. 1998. "Measuring the performance of intellectual potential in knowledge economy". Paper presented at the 2nd McMaster Word Congress on Measuring Jurnal Ilmiah Orasi Bisnis – ISSN: 2085-1375 Edisi Ke-IV, Nopember 2010 and Managing Intellectual Capital by the Austrian Team for Intellectual Potential.
PT. Telekomunikasi Indonesia, Tbk. 2012. Melaju Melampaui batas Telekomunikasi, Laporan Tahunan 2012.
Roos, Johan., Goran Roos, Nocola C. Dragonetti, and Leif Edvinsson 1997, Intellectual Capital Navigating The New Business Landscape, London; MacMillan Press Ltd.
Rupert, Booth. 1998, "The Measurement of Intellectual Capital", Management Accounting. (Nov), Vol. 76, page 26-28
Sawarjuwono, Tjiptohadi dan Agustine Prihatin Kadir. 2003. "Intellectual Capital: Perlakuan, Pengukuran dan Pelaporan (Sebuah Library Research)." Jurnal Akuntansi dan Keuangan. Vol 5, No. 1, 31-51.
Starovic, D. and Marr, B. 2004. "Understanding Corporate Value: managing and Reporting Intellectual Capital". Chartered Institute of Management Accountants.
Stewart, T A. 1997. "Intellectual Capital: The New Wealth of Organizations." New York: Doubleday.
Stewart, Thomas A. 1998, Intellectual Capital "Modal Intelektual Kekayaan Baru Organisasi", Jakarta: PT Elekmedia Komputindo
Samuel Kai Wah Chu et al, 2011. An Empirical Study of the Impact of Intellectual Capital on Business Performance
Teorionline. 25 Januari 2010. Evaluasi Kinerja, (Online), (http://teorionline.wordpress.com/2010/01/25/evaluasi-kinerja/, diakses 14 September 2013)