

Are Intellectual Assets Management Important for University Performance Achievement??

Pujiono
Universitas Negeri Surabaya

Rohmawati Kusumaningtias
Universitas Negeri Surabaya

Rediyanto Putra
Universitas Negeri Surabaya

Nur Quratun Aini Binti Haron
Universiti Teknologi MARA

Amrizah Kamaluddin
Universiti Teknologi MARA

Hazlina Hasan
Universiti Teknologi MARA

Shukriah Sa'ad
Universiti Teknologi MARA

Noradivah Hamzah
Universiti Kebangsaan Malaysia

The purpose of this study is to explore how universities extract the value of knowledge assets to be able to survive and be competitive. This study wants to find the governance of knowledge assets embedded in Indonesian state universities' human capital, structural capital, and relational and innovation capital. In addition, the questionnaire survey results will show the relationship between knowledge assets and university performance. This research will provide an understanding of the measurement of knowledge assets and the performance of higher education institutions. The results of this study indicate that knowledge assets, as measured by human capital, relational capital, and structural capital, positively influence the performance of universities in Indonesia. Therefore, it is proper for universities in Indonesia to be able to manage knowledge assets optimally.

Keywords: human capital, relational capital, structural capital, university performance

INTRODUCTION

Higher education is an educational institution that provides formal education after general secondary education. In Indonesia, higher education can be in academies, polytechnics, high schools, institutes, and universities. According to Law No. 12 of 2012, higher education is the level of education after secondary education, which includes diploma programs, undergraduate programs, master programs, doctoral programs, and professional programs, as well as specialist programs organized by universities based on Indonesian culture. This understanding shows that college is the highest level of education for someone who wants to take education in his life.

The function of a university which is a place for a person to get the highest education in his life, must be able to provide a good learning process for everyone. Therefore, universities must provide lifelong learning opportunities (Canibano & Sanchez, 2009). In addition, they are also expected to help organizations to increase their innovation capacity and solve social problems (Canibano & Sanchez, 2009). Based on these objectives, every university must be able to create an excellent academic ecosystem by implementing the tri dharma of higher education which consists of education, research, and service. A university is said to perform well when it can carry out the tri-dharma activities of higher education.

The existence of universities in Indonesia has been around for decades but based on data from the Central Statistics Agency that the Gross Enrollment Rate (APK) for 2018-2020, it turns out that universities in Indonesia have only reached 30.19%-30.85%, far behind compared to other countries. -neighboring Southeast Asian countries, such as Malaysia, have reached almost 50% and 78%, respectively. This condition shows two critical sides. On the one hand, as an opportunity for higher education managers to increase their capacity, but on the other hand, it also shows a threat due to the inability of universities to convince people who need higher education.

Another challenge for the performance of higher education institutions in Indonesia is to produce graduates who can work, which still shows a quite worrying condition, the unemployment rate for college graduates is increasing from year to year. Data from the Indonesian Central Statistics Agency for 2020 shows that the open unemployment rate of higher education graduates in Indonesia reached 7.51%, an increase of 1.8% compared to 2019. This is also a hard blow for universities in Indonesia to improve their performance to improve their performance. It can produce graduates who are superior and can reduce the unemployment rate.

The next challenge faced by universities in Indonesia is related to the performance of scientific publications at the international level. Based on data from scimagojr.com shows that Scopus-indexed international publications from universities and research institutions in Indonesia until 2019 were ranked 47th with a total of 158,733 documents. This number is still far from Malaysia and Singapore, ranked 33 and 34, with a total of 325,476 and 317,592 documents, respectively. This shows that universities in Indonesia must further improve their performance in the field of research to produce quality publications to be published in Scopus-indexed international journals.

The three real pieces of evidence of the performance of universities still need to be improved again. Improving the performance of higher education institutions needs to be supported by a good knowledge of asset management from each university in Indonesia. Conceptually, knowledge asset governance is the activity of an organization to manage knowledge as an asset by distributing the right knowledge to the right people and quickly so that it can create interactions, share knowledge and apply it in daily activities. Therefore, good governance of knowledge assets can create a competitive advantage for every university in Indonesia. This is because, in higher education, knowledge is not only an element that forms a sustainable competitive advantage. Knowledge is also a value created by universities to be conveyed to consumers.

Internationally, universities are currently facing several improvements in their functions and roles, including (1) the emergence of demands and aspirations from various stakeholders, (2) declining public funding allocations and increasing competition for education offered by companies, (3) a new focus on knowledge output and the application of new research methods; (4) the increasing level of internationalization of education and research as well as pressure for harmonization of various national university systems (Ramirez et al., 2011; and Kamaluddin et al., 2016). Research or analytical indicators

on the role of universities that contribute to public knowledge or the transfer of collaborative discoveries with the business/industrial world still need to be explored. The need for longitudinal indicators of university-DU/DI interaction nationally reduces the effectiveness of policy formulation and evaluation (Mowery & Sampat, 2010). In addition, the globalization factor creates more demand for efficient and skilled human resources ((Shariffuddin, Razali, Shaadi, & Ibrahim, 2017); (Grapragasem, Krishnan, & Mansor, 2014). Thus, it is necessary to conceptualize the governance of knowledge assets in universities. High as the main resource.

Researchers in various countries have previously carried out research related to the management of knowledge assets in universities. Research from Arias et al. (2018), Golafshani & Malayeri (2018), Hashim et al. (2015) Shehzad et al. (2014) is a study that conducts knowledge asset management of universities outside Indonesia. The results of these studies explain that four models will be used as references, namely, innovation competence, intellectual property, capacity, and linkages with culture. Therefore, a coherent review of the concept and measurement of knowledge assets needs to be carried out from the university's point of view. Later, the proposed model can be used as a monitoring tool to regulate public funds, which have been given and spent by universities for research development activities. The Ministry can benchmark the achievement of intellectual capital activity from the standard model produced. In addition, the research results are expected to assist higher education leaders in developing knowledge asset management strategies to improve performance efficiency.

Research from Anggraini et al. (2018) and Mulyanto (2008) are studies that conduct knowledge asset management in universities in Indonesia. The results of research on knowledge asset management in universities conducted in Indonesia show that intellectual capital and its elements: human capital, structural capital, and relational capital, have proven to affect the performance of state universities in Indonesia. In addition, successful universities are those that can consistently generate new knowledge and disseminate and implement new technologies or products (knowledge). Knowledge sharing is the main key to the implementation of knowledge management.

Based on the explanation of the previous paragraph, this study is interested in identifying knowledge asset governance in universities in Indonesia. This study refers to research conducted by Anggraini et al. (2018) and Shehzad et al. (2014) but has a difference, namely that this study will identify related knowledge asset governance at universities in Indonesia by including three types of universities, namely Higher Education with Work Units (Satker), Public Service Agencies (BLU), and State-Owned Legal Entities (BHMN).

LITERATURE REVIEW

According to Bontis (1999) and Kong (2007), human capital, structural capital, and relational capital are components of the IC framework for non-profit organizations. University intellectual capital is represented by three basic and closely interrelated components, e.g. human capital, structural capital, and relational capital. Elements of university intellectual capital have been classified in various ways, although it is certainly the tripartite classification that is most widely accepted in the specialized literature (Benzhani, 2010; Córcoles et al., 2011; Leitner, 2005; Cañibano & Sánchez, 2009).

Human resources (human capital) is defined as human resources related to the knowledge, competence, skills, abilities, and innovation of employees and various elements of intellectual agility and attitude resources, tacit knowledge, and talent of people (Khalique, Shaari, Isa, & Agel, 2011). Coriolis et al. (2011) show that the main goal of universities is to generate and disseminate knowledge, with the university's most significant investments being academic research and human resources. Research (Lu, 2012; Amin, Ismail, Rasid, & Selamatni, 2014) found that human resources such as recruitment, training, performance appraisal, career planning, employee participation, job definition, and compensation have a significant relationship with university performance.

The second element of IC is structural capital, which is meaningful to organizational systems and structures. Structural capital is a valuable strategic asset of an organization consisting of hardware, software, databases, organizational structure, patents, trademarks, information systems, copyrights, company image,

system policies and procedures, routines and others used. Employees support their business activities and processes (Khalique et al., 2011; Wang et al., 2014). Structural capital cannot exist without human capital. These assets must work in conjunction with structural capital. Individuals' mere creation of knowledge is only useful with a structure to determine how that knowledge leads to better products. Considerations that characterize the operational direction of public universities, university funds and school operational expenditures in teaching, research, education, training, guidance and assistance. These factors serve to strengthen the internal organization and energize research and teaching (Lu, 2012). The arguments above suggest that structural capital plays a critical role in ensuring that educational institutions have the academic advantages to offer future leaders.

The final element of IC is relational capital, which represents the organization's relationship with external stakeholders and their perceptions about the organization, as well as the exchange of knowledge between the organization and external stakeholders (Cegarra-Navarro & Sánchez-Polo, 2010; Lopes-Costa & Munoz-Canavate, 2015; Wang et al., 2014). Similarly, relational capital is defined as an invisible asset based on developing, maintaining and maintaining high-quality relationships with any organization, individual or group that affects business performance. In this new economic model, it is clear that universities are starting to look for ways to benefit from the knowledge they have as educational institutions (Lu, 2012). Except for income-earning students, university management has mostly adopted efforts to increase their knowledge into additional income through the provision of services to external schools, such as training and learning. The quality of relational capital translates into earnings for an organization (Thursby & Kemp, 2002). If a university has strong relationships with many customers, the university will likely continue to be profitable. Based on the discussion above, this study proposes the following hypothesis:

H_{1a}: Knowledge Asset/Intellectual Capital proxied through Human capital will improve the performance of universities in Indonesia

H_{1b}: Knowledge Asset/Intellectual Capital proxied through Structural capital will improve the performance of universities in Indonesia

H_{1c}: Knowledge Asset/Intellectual Capital proxied through Relational capital will improve the performance of universities in Indonesia

METHOD

This research is research that combines quantitative methods and qualitative methods. This study uses primary data types derived from interviews and questionnaires. The first primary data obtained from the in-depth interview process will be carried out at selected state universities in Indonesia to explore the elements of knowledge assets that exist in these universities. The parties who will be used as informants in this research are those who are involved in the management level of state universities. The second primary data is obtained from the process of distributing questionnaires that have been prepared previously. The process of distributing the questionnaires was carried out by the university management team. The respondent is considered the most suitable because he has sufficient knowledge and confidence in answering questions related to the measurement and governance of knowledge assets in universities.

This study will analyze the data on the research hypotheses that have been described in the previous section. Research hypotheses will be tested using a regression approach. In this study, there are several types of variables, namely university performance which is determined as the dependent variable. Furthermore, the Knowledge Assets variable, which is determined as the independent variable, consists of Human Capital, Structure Capital, and Relational Capital. Data analysis was carried out in this study using SPSS. The confirmatory equation model for analysis in this study is as follows:

$$X_i = \lambda_{i1}f_1 + \lambda_{i2}f_2 + \dots + \lambda_{ij}f_j + e_i$$

Information:

- X_i = variable; $i=1,2,\dots, n$
- λ = common factor to- j ; $j=1,2, \dots, m$; $m < n$
- f = loading faktor
- e = unique factor or error

Meanwhile, the Smart PLS 3.2.4 statistical program will be used to analyze the full structural model test as follows:

$$Y = \beta_1HC + \beta_2SC + \beta_3RC + +\varepsilon$$

Information:

- Y = University Performance
- β_1 = Coefficient
- SC = Structure Capital
- RC = Relational Capital
- ε = Error

RESULT

This questionnaire has been distributed to 7 faculties from 32 State Universities in Indonesia. So, the number of questionnaires distributed was 216. Based on the 216 questionnaires distributed, the number of returned questionnaires was 151 (70%), but only 119 questionnaires (55.09%) were filled out completely and could be used for analysis in research. This. The description of the respondents in the study is presented in table 1 following.

**TABLE 1
DEMOGRAPHICS OF RESEARCH RESPONDENTS**

Information	Number
<u>Gender:</u>	
Man	57,1%
Woman	42,9%
<u>Age:</u>	
30-40 year	15,13%
40-50 year	75,63%
More than 50 year	9,24%
<u>Education Level:</u>	
Magister	28,6%
Doctor	71,4%
<u>Current Position:</u>	
Dean	71,4%
Vice Dean	28,6%
<u>Working Experience:</u>	
5-10 year	13,45%
11-15 year	37,82%
16-20 year	39,5%
More than 20 year	9,23%
<u>University Age</u>	
< 30 year	9,38%

Information	Number
>30 – 40 year	9,38%
> 40 – 50 year	6,24%
More than 50 year	75%

Source: data processed

The first data analysis performed was a descriptive statistical test to describe the research data that had been successfully collected in this study. Table 2 presents the results of descriptive statistical tests carried out in this study.

TABLE 2
STATISTIC DESCRIPTIVE

Variabel	Indikator	Min	Max	Mean	Std. Dev
Human Capital (HC)	HC1	3	5	3,63	0,64
	HC2	3	5	3,6	0,6
	HC3	2	5	3,3	0,9
	HC4	2	4	3,3	0,6
Structural Capital	SC1	2	5	3,5	0,8
	SC2	3	4	3,8	0,4
	SC3	3	5	3,8	0,6
	SC4	3	5	3,9	0,5
	SC5	2	4	3,4	0,6
	SC6	3	5	3,86	0,54
	SC7	3	5	3,93	0,48
	SC8	2	4	3,24	0,7
	SC9	3	5	3,78	0,58
	SC10	3	5	4,08	0,62
	SC11	2	5	3,4	0,75
	SC12	2	4	3,15	0,67
Relational Capital	RC1	3	5	3,78	0,7
	RC2	2	5	3,55	0,76
	RC3	2	5	3,71	0,73
	RC4	2	5	3,61	0,85
	RC5	2	5	3,93	0,73
University Performance	KPT1	3	4	3,62	0,49
	KPT2	1	4	2,99	0,88
	KPT3	2	4	2,85	0,67
	KPT4	3	5	3,78	0,7
	KPT5	2	5	3,46	0,86
	KPT6	2	5	3,83	0,88
	KPT7	1	5	3,45	1,01
	KPT8	2	5	3,7	0,82
	KPT9	2	5	3,7	0,82
	KPT10	1	5	3,77	1,05
	KPT11	2	5	3,85	0,77
	KPT12	2	5	3,39	0,84
	KPT13	2	5	3,62	0,92
	KPT14	2	5	4	0,88

Variabel	Indikator	Min	Max	Mean	Std. Dev
	KPT15	1	5	3,39	1,15
	KPT16	2	5	3,55	0,84
	KPT17	2	5	3,77	0,89
	KPT18	2	5	3,31	0,99
	KPT19	2	5	3,86	0,87
	KPT20	1	5	2,77	1,05
	KPT21	3	5	4	0,79
	KPT22	3	5	4	0,79
	KPT23	3	5	3,93	0,73
	KPT24	3	5	3,69	0,61
	KPT25	3	5	3,92	0,61
	KPT26	1	5	3	1,06

Source: data processed

The data analysis that was then carried out in this study was the evaluation of the outer model based on the values, namely the validity and reliability tests. The following are the results of testing the outer model based on the validity test, namely convergent validity.

Convergent Validity

Convergent validity is looking at the correlation between the scores of each indicator and the construct scores (loading factor). The convergent validity test is based on the loading factor value, which must be greater than 0.7 and a p-value < 0.05 to be valid. However, if the loading factor value is less than 0.4, then the indicator should be removed from the model. The following table 3 presents the results of the convergent validity test produced in this study.

TABLE 3
CONVERGENT VALIDITY OUTPUT

	HC	SC	RC	KPT	SE	p-value
HC1	0.673	0.006	-0.189	0.376	Reflect	0.060
HC2	0.634	0.933	0.209	-0.280	Reflect	0.060
HC3	0.870	-0.455	0.118	0.173	Reflect	0.060
HC4	0.835	-0.239	-0.129	-0.270	Reflect	0.060
SC1	0.923	0.747	0.867	-0.108	Reflect	0.060
SC2	-0.737	0.486	-1.067	0.067	Reflect	0.060
SC3	0.252	0.882	0.010	-0.147	Reflect	0.060
SC4	0.251	0.652	0.746	-0.230	Reflect	0.060
SC6	-0.344	0.942	-0.068	0.026	Reflect	0.060
SC8	-0.282	0.586	-1.259	0.606	Reflect	0.060
SC9	-0.572	0.885	-0.018	-0.002	Reflect	0.060
SC10	0.300	0.618	1.260	-0.260	Reflect	0.060
SC11	0.116	0.798	-0.733	0.137	Reflect	0.060
RC1	0.617	0.462	0.333	-0.151	Reflect	0.060
RC2	0.009	0.715	0.648	0.162	Reflect	0.060
RC3	-0.176	0.178	0.908	-0.009	Reflect	0.060
RC4	-0.474	-0.025	0.792	0.010	Reflect	0.060
RC5	0.359	-0.840	0.903	-0.060	Reflect	0.060
KPT1	-0.126	1.448	-1.362	0.531	Reflect	0.060

	HC	SC	RC	KPT	SE	p-value
KPT2	-0.704	1.221	-0.939	0.527	Reflect	0.060
KPT6	-0.256	-0.711	0.745	0.775	Reflect	0.060
KPT8	0.769	-1.070	0.414	0.760	Reflect	0.060
KPT15	0.728	-0.615	0.129	0.866	Reflect	0.060
KPT18	-0.323	0.275	-0.065	0.917	Reflect	0.060
KPT25	-0.359	0.293	0.349	0.786	Reflect	0.060

Source: data processed

Reliability Test

The second evaluation of the outer model is carried out by conducting a construct reliability test, which is measured by two criteria, composite reliability and Cronbach alpha. A construct is reliable if it has a composite reliability value and Cronbach alpha > 0.70. The following table 4 is the result of the output latent variable coefficients from the data analysis that has been carried out.

**TABLE 4
OUTPUT LATENT VARIABLE COEFFICIENTS**

	HC	SC	RC	KPT
R Squared				0,028
Composite Reliability	0,843	0,916	0,854	0,897
Cronbach Alpha	0,749	0,893	0,782	0,862
AVE	0,577	0,559	0,559	0,564
Full Collin. VIF	3,113	6,445	3,740	1,233
Q Squared				0,215

Source: data processed

Based on table 4 above shows that all variables in this study have composite reliability and Cronbach alpha values that are more than 0.7. Thus, these results indicate that all constructs in this study are reliable.

Data analysis carried out after evaluating the outer model is evaluating the structural model (inner model). The evaluation of this inner model includes a test of 3 values, namely average path coefficient (APC), average R-squared (ARS) and average variance factor (AVIF). The following table 5 presents the results of evaluating the structural model carried out in this study.

**TABLE 5
RESULT OF INNER MODEL EVALUATION**

	Criteria	Index	p-value	Information
APC	P < 0,01	0,179	< 0,01	Meet criteria
ARS	P < 0,01	0,213	< 0,01	Meet criteria
AVIF	AVIF < 5	2,583	-	Meet criteria

Source: data processed

Based on table 5 shows that the evaluation of the inner model that has been carried out in this study has fulfilled all the existing criteria.

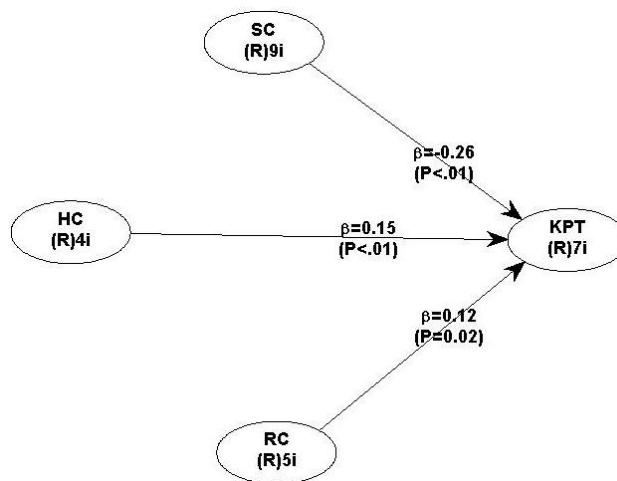
The last data analysis is testing the research hypothesis as seen from the path coefficients and the level of significance to determine whether the hypothesis is accepted or rejected. The significance value used in the study was 5%. The following table 9.9 presents the results of hypothesis testing that has been carried out in this study based on the effect size obtained.

TABLE 6
HYPOTHESIS TESTING

	Path Coefficients	p-values	Effect size of path
HC→KPT	0,15	0,006	0,053
RC→KPT	0,12	0,022	0,051
SC→KPT	0,26	<0,01	0,115

Source: data processed

FIGURE 1
DIRECT EFFECTS OF VARIABLES



Human capital in this study proved to influence the performance of universities based on the coefficient value of 0.15 and p-value of <0.01. The results of this study indicate that for every 0.15 increase in higher education human capital, it will cause an increase of 1 value in higher education performance. The results of this study support the results of research (Lu, 2012; Amin, Ismail, Rasid, & Lamani, 2014), which found that human resources such as recruitment, training, performance appraisal, career planning, employee participation, job definition, and compensation have a strong relationship. Significant with university performance.

Relational capital in this study proved to influence the performance of universities based on the coefficient value of 0.12 and p-value of 0.02. The results of this study indicate that for every 0.12 increase in the relational capital of higher education, it will cause an increase of 1 value in higher education performance. Relational capital represents the organization's relationship with external stakeholders and the perceptions they have about the organization, as well as the exchange of knowledge between the organization and external stakeholders (Cegarra-Navarro & Sánchez-Polo, 2010; Lopes-Costa & Munoz-Canavate, 2015; Wang et al. ., 2014). Similarly, relational capital is defined as an invisible asset based on developing, maintaining and maintaining high-quality relationships with any organization, individual or group that affects business performance. In this new economic model, it is clear that universities are starting to look for ways to benefit from the knowledge they have as educational institutions (Lu, 2012). Except for income-earning students, university management has mostly adopted efforts to increase their knowledge into additional income through the provision of services to external schools, such as training and learning. It is the quality of relational capital that translates into earnings for an organization (Thursby & Kemp, 2002). The results of this study have proven that the existence of good relational capital from universities is able to improve the performance of universities.

Structural capital in this study proved to have an influence on the performance of universities based on the coefficient value of 0.26 and p-value of <0.01 . The results of this study indicate that for every 0.26 increase in the relational capital of higher education, it will cause an increase of 1 value of higher education performance. Structural capital is a valuable strategic asset of the organization, which consists of hardware, software, databases, organizational structure, patents, trademarks, information systems, copyrights, company image, system policies and procedures, routines and others used. Employees support their business activities and processes (Khalique et al., 2011; Wang et al., 2014). The results of this study support the explanation of Lu (2012), which states that capital structure factors function to strengthen internal organizations and energize research and teaching (Lu, 2012).

CONCLUSION

The results of this study indicate that knowledge assets, as measured by human capital, structural capital, and relational capital, are proven to have an effect on higher education performance. Thus, each university is expected to be able to maximize the management of knowledge assets in order to create good higher education performance in accordance with the Main Higher Education Performance Indicators that the Ministry of Education and Culture has set.

The results of this study can be accepted by considering the limitations of existing research. The limitations of this research are expected to be a reference source for further research to produce better research. Therefore, in this study, suggestions will be given for further research to be able to produce better research in the future. The first limitation is that research related to higher education knowledge assets still needs to be done, so the reference sources for questionnaires are limited. Thus, further research is expected to build a more mature questionnaire so there are not many invalid question items. The second limitation is that the number of questionnaires returned in this study was only around 55%, not up to 100%. This is because the questionnaires were distributed online, allowing respondents to forget to respond. Therefore, further research is expected to be able to send research questionnaires directly to the intended respondents so that the questionnaire return rate is higher.

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