


Chapter 13

New Trends in Intellectual Capital Disclosures of Higher Degree Institutions in Indonesia

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ABSTRACT

This study aims to investigate the existence regarding the new method in disclosing intellectual capital called as web-based intellectual capital disclosure to overcome the limitation of traditional intellectual capital disclosures and also examine the determinant factors that may influence web-based intellectual capital disclosure of Indonesian universities such as autonomy, competitiveness, age, and size. A partial least-squares analysis is conducted to have an observation of 83 Indonesian higher education institutions. The results show that there is extensive use of intellectual capital disclosure through websites done by Indonesian universities, especially in internal capital, while the disclosure of external capital and human capital is still limited. Furthermore, autonomy gives the biggest impact toward web-based intellectual capital disclosure because autonomy provides freedom for universities in managing their institution especially in improving their web-based intellectual capital disclosure in order to attract more public and government fund.

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INTRODUCTION

In maintaining their existence, organizations must take several things into consideration such as tangible factors and even the intangible factors owned by the organization. One of an important intangible asset factor is intellectual capital (IC) (Siboni et al., 2013). Nowadays, the intensity of competition is getting higher causes the role of IC to become more crucial in an organization. In this current condition, organization that can survive is the one that is able to be adaptive and innovative (Low et al., 2015).

Study of intellectual capital has become more crucial for an organization especially a not-for-profit organisation such as university. Universities is known as an organization with high degree of intangibility since their primary outputs are intangible services, hence making a strong requirement of intellectual capital disclosure (Secundo et al., 2016). Another scholar also stated that the fact about the main purpose of the university is producing and disseminating knowledge or which is the main assets of university, then an intellectual capital disclosure is an important thing to be done by higher education (Ramírez-Córcoles et al., 2016).

Although the intellectual capital disclosure for university is crucial, the study about this important matters is still limited (Dumay and Guthrie, 2017). Traditionally, several researchers use annual report of university as the primary source to obtain intellectual capital information and they claim that annual report is not created for intellectual capital disclosure and therefore the information is not reliable and limited (Dumay and Cai, 2015). Thus, a new method in disclosing intellectual capital need to be done to give accurate information about intellectual capital (Edvinsson, 2013).

Based on Rossi et.al. (2018), several researchers were trying to explore new way of intellectual capital disclosure through website. The existence of website provides greater transparency, reliability and accessibility in disclosing any information with minimum cost (Gallego-Alvarez et.al, 2011). Universities could focus to use website for disseminating information and publication or research for external users for annual, quarterly, theoretical periods and real time. The university official website may become a tool to improve intellectual capital disclosure (Gallego-Alvarez et.al., 2011).

The main focus of this paper is to investigate the existence of intellectual capital disclosure through website done by Indonesian universities and examine the influence of determinant factors towards web-based IC disclosure from the previous researches. This paper indicates four determinant factors: autonomy, competitiveness, age, and size

Therefore, this paper is the first study to reveal the new data source about intellectual capital information being disclosed through website done by Indonesian universities and providing evidence of determinants factors affecting the intellectual capital disclosure in Indonesian higher education institution. Furthermore, the amount of research on web-based intellectual capital disclosure of universities in Indonesia is still few and it also rarely examines the relationship between intellectual capital and determinants factor that influence the disclosure of intellectual capital information.

This study is conducted on Indonesian universities that have A accreditation from period 2018. An accreditation means the best accreditation issued by Indonesian National Education Accreditation Body for Indonesian campuses that that have exceeded national accreditation standards, thus proving the performance of institutions that are already excellent (Indonesian National Accreditation Body, 2017). Based on Webometrics, not all Indonesian universities own official website except higher education institutions with an accreditation, thus these universities are expected to be able to disclose information about intellectual capital comprehensively on their sites. The result of this research may overcome the limitation of traditional intellectual capital information disclosure method done by Indonesian universi-

ties and give new strategy to help Indonesian universities in promoting their performance towards the stakeholders through web-based intellectual capital disclosure.

BACKGROUND

Intellectual capital is considered as one of the most vital intangible assets for enhancing the value of an organization (Morariu, 2013; Marr et al., 2015; Cricelli et al., 2018). It was also being emphasized by Marr et al. (2015) that intangible resources and intellectual capital are the keys for firms to develop a competitive advantage; it also empowers the organization to run its operation. Correspondingly, Edvinsson and Malone (2013) portrayed intellectual capital as “intellectual materials that can be changed over into values”. Intellectual Capital is the total value of an organization that describes the intangible assets of a company that comes from three pillars, namely human capital, organizational (internal capital), and relational (external capital) (Cricelli et al., 2018).

The past observational examinations on ICD tends to be more focused on the companies (Low et al., 2015), with less of focusing on public or non-profit organisation, whereas university is one of the example from non-profit organization that utilize great extent intangibles resources such as knowledge (Bezhan, 2010; Low et al., 2015; Secundo et al., 2015). In higher education institution, IC refers to all intangible assets owned by the institution, including processes, capacity of innovation, patents, knowledge possessed by its members, talent, skills, recognition from the public, cooperative networks and others (Ramírez Córcoles et al., 2011, Cricelli et al., 2018). IC reporting is an approach that is used to measure intangible assets to describe the results of knowledge-based activities because the stakeholders of universities emphasize the need for IC information to make the right decisions, so that the transparency of universities in intellectual resources is needed (Rossi et al., 2018).

However, previously, numerous IC scientists have communicated a problem arise from exploring ICD solely through annual reports, asking for more research inspecting other potential IC dispersal channels (Abeysekera, 2006; Dumay and Cai, 2015; Dumay and Guthrie, 2017). It is because all of these files are arranged yearly and don't exclusively concentrate on IC. Hence, a few investigations tending to university revelations have featured that the site can be an increasingly valuable device to improve correspondence with the university's stakeholders (Ismail and Bakar 2011; Bisogno et al., 2014). Based on past research and following a proposal by several researchers (Edvinsson, 2013; Guthrie, 2014; Dumay and Guthrie, 2017), this study expects to examine online ICD through official website owned by universities and, going past conventional orders, to look for logical factors behind this disclosure. The examination does not concentrate on the management viewpoint, rather it supports the data's need for external stakeholders who request more prominent responsibility about the colleges' significant resources, for the most part including IC. In doing as such, this investigation investigates another approach to unveiling IC and potential determinants influencing this disclosure.

Autonomy and Web-based Intellectual Capital Disclosure

The existence of autonomy possessed by higher education institutions provides a broad range of freedom for universities to run their institutions in order to develop the intellectual capital which can be used to attract and manage government funds and public funds (Sánchez, 2009; Ramírez Córcoles et al., 2011). The purpose of such disclosure is to give positive signal toward the stakeholders that universities have

been managed well. Therefore, by giving information regarding the universities' performance toward stakeholders, it is in line with signaling theory (Cornelly et.al. 2011).

The disclosure of intellectual capital becomes a signal that can increase the knowledge of stakeholders with the main resources possessed by universities (Rossi et.al. 2018). In attracting public and government fund, universities should provide a highly reliable information. However, based on previous researches numerous IC scientists (Abeysekera, 2006; Dumay and Cai, 2015; Dumay, 2016) have stated that conducting traditional ICD through annual reports will cause the emergence of unreliable information, because annual report is not designed to concentrate exclusively on IC reporting. An unreliable source may create a misleading information for the stakeholders. Therefore, by using web-based disclosure, university can provide greater transparency, reliability and accessibility in disclosing intellectual capital information with minimum cost (Gallego-Alvarez et.al. 2011). Increased funds obtained by universities and the presence of autonomy have increased the flexibility of universities in managing and improving the institutions (Serrano-Cinca et al., 2009). Based on the background, the hypothesis one is higher education autonomy has a positive effect on web-based disclosure of intellectual capital information on the official university website.

Competitiveness and Web-based Intellectual Capital Disclosure

Intellectual capital can improve organizational performance and competitiveness because intellectual capital existence drives higher education institutions to focus on managing their resources so they can survive in a knowledge-based environment that is rapidly changing (Secundo et al., 2016). Knowledge, innovation, and Intellectual capital is very closely related to universities and it is used as a tool to build sustainable competitive advantages.

The claim supports research that higher education institutions rankings which determines the competitiveness of the universities are related to perceptions of intellectual capital (Chen and Chen, 2013). Based on some of the previous studies, higher education institutions will continue to develop their intellectual capital publications to maintain and raise the rank obtained by higher education institution beforehand (Siboni et al., 2013). Therefore, by doing intellectual capital publication, universities have applied signaling theory (Bergh et.al, 2014). Signaling theory has strong correlation with disclosure of intellectual capital which should be done by universities (Connelly et al., 2011 and Ramírez-Córcoles et al., 2016).

Furthermore, university in Indonesia does not only facing domestic competition but also internationally. In the new learning economy, higher education will try to fulfil international standards to enlist the fittest understudies and analysts by offering them the opportunity to find out about different societies and access advanced education in other nations, thus increasing competitiveness (Kim, 2009). This kind of competition drives universities to give more information about their performance, tending to worldwide understudies and scientists also (Ramírez-Córcoles et al., 2016). Therefore, the usability and accessibility from web-based ICD will support universities to disseminate intellectual capital information globally (Gallego-Alvarez et al., 2011). Based on the explanation above, the second hypothesis is the universities' competitiveness contributes a positive effect on web-based disclosure of intellectual capital information.

Age and Web-based Intellectual Capital Disclosure

According to Ismail and Bakar (2011), in their investigation on an example of Malaysian state higher education institutions, found older universities unveil more information about their institution perfor-

mance both in their yearly reports and on their sites than new colleges. By disclosing those information, universities have implemented signaling theory (Bergh et.al, 2014). The underlying reason is that older organizations have more experience in publishing information and organizations with more experience will know more about the need from stakeholders for organization information (Connelly et al., 2011).

In contrary, a few researchers underline how newly established higher education institutions are increasingly innovative and bound to receive new advancements to enhance their operations compared to older universities, which may tend to reject changes (Saxton and Guo, 2011). Despite of the positive relationship stated by Ismail and Bakar (2011) and the other researcher, in the contrary Gallego-Alvarez et al (2011) and Bisogno et al. (2014) stated that there had not found any correlation between university age and web-based intellectual capital disclosure. Based on the explanation above, the third hypothesis is there is a correlation between university age and the web-based disclosure of intellectual capital information.

Size and Web-based Intellectual Capital Disclosure

A few investigations on open part straightforwardness and exposure feature that bigger public organization will in general reveal more data through innovative and imaginative devices (sites) than smaller organizations, since they have more assets and are exposed to a more prominent interest for accountability by a bigger number of stakeholders in order to maintain their institution reputation (Serrano-Cinca et al., 2009; Rossi et al., 2018). Another supporting supposition originates from Gallego-Alvarez et al. (2011) that expressed organization size has been one of the factors most utilized so as to clarify the disclosure of data.

Along these lines, from the point of view of the signaling theory perspective, a site can be a stable and a proficient vehicle of correspondence to satisfy responsibility in terms of information dissemination to higher education institutions' stakeholders (Bisogno et al., 2014). In addition, bigger public entities and colleges specifically are more politically noticeable and are liable to more prominent outer impact from their stakeholder network (for example citizens, governments, understudies), so they are driven to uncover more data, particularly on the web, to diminish political expenses and get more noteworthy authenticity (Gallego-Alvarez et al., 2011; García-Sánchez et al., 2013; Rossi et al., 2018).

Furthermore, taking into record these contentions most past research has discovered that schools' and colleges' size impacts the measure of voluntary information uncovered on sites and site page navigability (Serrano-Cinca et al., 2009; Gallego-Alvarez et al., 2011; García-Sánchez et al., 2013; Rossi et al., 2018). Based on previous studies, University's size was only being measured from the number of student owned by the higher education institution (Rossi et al., 2018). However, the author also uses number of lecturer to enrich the explanation regarding universities size and its relationship with web-based intellectual capital disclosure. By adding number of lecturer which reflects the worker of universities it means that this paper also adds one more factors that are needed to measure the size of an organization (García-Sánchez et al., 2013). Therefore, the author split the hypothesis regarding the correlation between size and web-based intellectual capital disclosure to give evidence in regards of the existence of relationship between numbers of lecturer toward web-based intellectual capital disclosure. Based on the explanation above, the fourth hypotheses are:

H4a: There is a positive correlation between numbers of student with the web-based intellectual capital disclosure.

H4b: There is a positive correlation between numbers of lecturer with the web-based intellectual capital disclosure.

RESEARCH METHODOLOGY

To conduct the test of this research, Partial Least Squares (PLS) analysis through WarpPLS software is used to analyse the correlation between the variables. The data collection is categories as secondary data and the sample are Indonesian universities in the year of 2018. Moreover, the universities chosen as the sample must possess an accreditation and official website. The data were found from the universities' official website, QS World University Ranking, and Indonesian Directorate General of Higher Education website. Accordingly, the Table 1 contain the description regarding the total sample observed, which 83 universities are for 1 year, thus in total there are 400 observations.

Table 1. Summary of the sample observed

Sampling Criteria	No. of Observations
All Indonesian universities that have official websites during 2018 period	2149
Less with Indonesian universities with accreditation besides A	(2064)
Less with Indonesian universities that not stated the data about number of lecturer and students	(2)
Universities used as sample	83
Research period (2018)	1
Total sample	83

Web-based intellectual capital disclosure have 25 items of ICD from Tripartite Classification of Intellectual Capital Disclosure Items (Low et al., 2015). In addition, this study combines the ICD with 17 items of web accessibility item, adopted from Bisogno et.al. (2014). Scoring system is deployed, 1 if it is disclosed in universities' website and 0 if it is not disclosed. Furthermore, from table 2, can be concluded that the overall score from ICD and web accessibility items will be combined and calculated by using GICD index (Rossi et.al, 2018).

$$\text{GICD index} = \frac{\sum_{k=1}^n d_i}{n} \quad (1)$$

$\sum_{k=1}^n d_i$ is the score obtained by incorporated all the 42 items from ICD items and Web Disclosure Index items and n the maximum score obtainable while taking into account all the items. Autonomy given to the university is divided into 3 types, Legal Entity state universities, Public Service Agency state university, and private universities (Indonesian Law No. 12 of 2012 concerning higher education) which is measured by using dummy variable. Score 2 if it is stated as Legal Entity state universities, 1 for private universities, and 0 for Public Service Agency state university. Competitiveness is measured according to the name of Indonesian university that are stated in the QS World University Ranking 2018. Based on the data acquired from QS World Ranking Universities in 2018, there are only 9 Indonesian universities listed in the QS ranking database (Sheeja et.al. 2018). Therefore, the measurements of the variable are using dummy scale with a score of 1 if the name of the university is stated in QS World

University ranking and 0 if vice versa. Data on higher education institutions age obtained based on the data from the internet as well as official university sites and news released by the university’s sample sites. While, the data on higher education institutions number of students obtained from the website of Indonesian Directorate General of Higher Education for the year 2018. Indonesian Directorate General of Higher Education website is the official Indonesian higher education database.

Table 2. Variable definitions and data source

<i>Variable(s)</i>	<i>Definitions</i>	<i>Data Source</i>
Web-based ICD	GICD Index: total combined score of IC items (adopted the Tripartite Classification of Intellectual Capital Disclosure Items by Low et al. (2015)); and Web accessibility items	University websites
Autonomy	Dummy variables of whether: included as Legal Entity state universities (Score 0) or Public Service Agency state university or private universities	University websites
Competitiveness	Dummy variables of whether: the name of the university is stated in the QS World University Ranking 2018 or not	QS World University Ranking (http://www.webometrics)
Age	Number of years since the established year	University websites
Size	Number of student and lecturer	Indonesian Directorate General of Higher Education website

This paper focuses the variables relationship namely, Autonomy, Competitiveness, Age, Size as the determinant factors toward Web-based intellectual capital disclosure. Because the model uses more than two independent variables, thus this study utilize a multivariate analysis called as the multivariate regression model (Wijnhoven et al., 2014). Based on the theoretical model, the following is regression models.

$$\text{Web-based ICD}_{i,t} = \beta_0 + \beta_1(\text{Autonomy})_{i,t} + \beta_2(\text{Competitiveness})_{i,t} + \beta_3(\text{Age})_{i,t} + \beta_4(\text{Size})_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where Web-based ICD is the global intellectual capital disclosure index of university; β_0 is the constant; β_1 – β_4 is the coefficient of the determinants variables (Autonomy, Competitiveness, Age, and Size); ε_i is the error or disturbance terms of university. According to Wijnhoven et al. (2014), multivariate regression model can be tested by using Warp PLS, therefore Warp PLS will be utilised in this paper.

RESEARCH RESULTS AND ANALYSIS

Validity and Reliability Test

In Table V the relationships among variables with square root of AVE are shown diagonally and the numbers that are showed in the diagonal section should be the biggest among the other coefficient correlation of latent variables (Kock, 2015). Moreover, the VIFs must be lower than 3.30 or 10 for the relax

criteria (Kock, 2015). Table 3 and Table 4 below show that all variables already fulfilled the validity and reliability test.

Table 3. Correlations among Variables with Square Root of AVE

Variable	ICD	AUT	COM	AGE	Lect	Std
ICD	0.842	0.612	0.354	0.168	0.324	0.372
AUT	0.612	1.000	0.489	0.146	0.225	0.174
COM	0.354	0.489	1.000	0.190	0.497	0.412
AGE	0.168	0.146	0.190	1.000	0.420	0.370
Lect	0.324	0.225	0.497	0.420	1.000	0.825
Std	0.372	0.174	0.412	0.370	0.825	1.000

Table 4. Collinearity Values

	<i>Web-based ICD</i>	<i>Aut</i>	<i>Com</i>	<i>Age</i>	<i>Lect* Size</i>	<i>Std*Size</i>
Full collinearity VIFs	1.824	1.958	1.669	1.225	3.637	3.367

Analysis Result

Table 5 demonstrates the overall information regarding the analysis result of web-based intellectual capital disclosure. As to intellectual capita item classes specifically, in average, every higher education institution unveils 16.71 intellectual capital items (67% of absolute intellectual capital items) on its site, with an exceptional focus on internal capital (88% of the overall internal capital items uncovered, in average, by each higher education institution) and trailed by external capital (58 percent) and human capital (56%).

In addition, as it can be seen in Table 5, the average mean value of ICD index is 0.67 which is considered as high. This indicate that most of the intellectual capital disclosure item has been disclosed in the main website own by Indonesian universities which can also be seen in Table 6. In the perspective of the presentation which is reflected through web accessibility item, in average, each of the Indonesian higher education university disclose 67.7% from the total of web accessibility items or about 11.69 items being disclosed by each of Indonesian university, where it is dominated by technology items (79% of total technology items is presented on average), followed by interactivity with user items (67%) and navigability (52%). The finding is in line with Rossi (2018) and shows how higher education institutions utilize the potential offered by sites for disclosing intellectual capital information, thus, it can enhance the accessibility and understandability of stakeholders.

Table 6 describes the results of web-based intellectual capital disclosure for each item. In terms of intellectual capital disclosure item, the highest disclose intellectual capital item are “Brand identity”; “Brand Merchandising”; “Post-graduation”; and “high education and specialisation programs” in external

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Table 5. Web-based Intellectual Capital Disclosure Analysis Result

	Total Items	Mean	%	Min	Max
Human Capital	8	4.47	56%	0	7
Internal Capital	8	7.06	88%	4	8
External Capital	9	5.18	58%	3	8
Total ICD (content)	25	16.71	67%	8	23
Technology	4	3.17	79%	2	4
Navigability	9	4.67	52%	3	5
Interactivity with user	4	3.84	67%	3	4
Total Web Accessibility Item (presentation)	17	11.69	67.7%	8	13
Total GICD	42	28.40	67.6%	18	36
Indices of Disclosure					
ICD Index		0.67		0.31	0.92
GICD Index		0.68		0.43	0.86

capital criteria, and “Higher education culture”; “Management philosophy”; and “Infrastructure facility” in internal capital criteria. It can be seen that all 83 universities fully disclosed this items (100%).

Furthermore, the highest disclosed item in human capital criteria is “Information about PhD courses” with 76 out of 83 (92%) universities disclosed this item. In addition, the lowest disclosed item is coming from “Students information” from external capital criteria with only 4 universities (5%) disclosed it, followed by “Graduate student’s information” that is also included in external capital criteria and “Information about PhD students” that is included in human capital criteria.

From the perspective of web accessibility item, the result in technology criteria show that all of the official websites (100%) owned by Indonesian universities provide fast download speed and incorporated imaged and graphs inside their websites. In navigability criteria, 100% of the universities has provided help button, possibility in changing text size and visible content menu in their websites to improve the convenience in accessing the websites. Meanwhile, 100% of the universities also provide access and link on social and cultural activities and information about higher education activities in their websites to enhance the interactivity with users. Contrarily, in navigability criteria, all of the 83 universities don’t provide glossary of terminology, option to change into higher readability mode, table of content and Multilanguage option. Furthermore, in technology criteria, only 17% of the total university sample provide sound file in their official websites. Table 7 below showed the descriptive analysis of each of the variable, including minimum, maximum, mean, and standard deviation.

In Table 7, it shows that number of student (Std) has a minimum and maximum value of 342 and 60,750 respectively, with a mean value of 19,302.550, while the number of lecturer has a minimum and maximum value of 27 and 2,616, with a mean value of 811.397. Both has a standard deviation value of 12,815.950 and 582.385 respectively. Meanwhile, autonomy (AUT) which has a minimum and maximum value of 0 and 2, and a mean value of 0.698, with a standard deviation value of 0.694. The next variable is age (AGE) that has a minimum and maximum value of 9 and 73 respectively, with a mean value of 49.626 and has a standard deviation value of 16.061. Next is the last independent variable which is competitiveness (COM) which has a minimum and maximum value of 0 and 1 respectively and a mean

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Table 6. Web-based Intellectual Capital Disclosure Analysis Result for Each Item

Intellectual Capital Item Disclosure		% of higher education institutions	0	1	Frequency
External Capital					
1	Brand identity	100%	0	83	83
2	Brand Merchandising	100%	0	83	83
3	Student satisfaction	10%	75	8	8
4	Mobility programs for students	78%	18	65	65
5	Post-graduation, high education and specialisation programs	100%	0	83	83
6	University third mission-spin off	48%	43	40	40
7	University third mission research consortia and cluster	71%	24	59	59
8	Students information	5%	79	4	4
9	Graduate students information	6%	78	5	5
Internal Capital					
1	Patent rights	57%	36	47	47
2	Publications	95%	4	79	79
3	Higher education culture	100%	0	83	83
4	Management philosophy	100%	0	83	83
5	Infrastructure facility	100%	0	83	83
6	ICT Infrastructure	88%	10	73	73
7	National research project	96%	3	80	80
8	European and international research project	77%	19	64	64
Human Capital					
1	Information about Lecturers	54%	38	45	45
2	Information about PhD students	14%	71	12	12
3	Information about PhD courses	92%	7	76	76
4	Information about Research colleagues	80%	17	66	66
5	Staffs' mobility programmes	27%	61	22	22
6	Information about staff administration	59%	34	49	49
7	Internationalisation of lecturers	76%	20	63	63
8	Training programmes	47%	4	39	39
Web Accessibility Item		% of higher education institutions	0	1	Frequency
Technology					
1	Download speed of the main website (<10s)	100%	0	83	83
2	Images and Graphs	100%	0	83	83
3	Sound files usage	17%	69	14	14
4	Video files usage	99%	1	82	82
Navigability					
1	Help button	100%	0	83	83
2	Glossary of terminology	0%	83	0	0
3	Readability (option to change into higher readability mode)	0%	83	0	0
4	Text size (Possibility to change text size)	100%	0	83	83
5	Table of content	0%	83	0	0
6	Internal search engine	72%	23	60	60
7	English language option	95%	4	79	79
8	Multilanguage option (other International language besides English)	0%	83	0	0
9	Visible content menu	100%	0	83	83
Interactivity with User					
1	Access and link on library	88%	10	73	73
2	Access and link on social and cultural activities	100%	0	83	83
3	Information about other higher education services, physical exercise, etc.	100%	0	83	83
4	Access to social network	96%	3	80	80

Table 7. Web-based Intellectual Capital Disclosure Analysis Result for Each Item

Variable	Min	Max	Mean	Std. Deviation
ICD	0.43	0.83	0.707	0.086
AUT	0	2	0.698	0.694
AGE	9	73	49.626	16.061
COM	0	1	0.108	0.312
Std (Size)	342	60,750	19,302.550	12,815.950
Lect (Size)	27	2,616	811.397	582.385

that have value of 0.108 with a standard deviation value of 0.312. Furthermore, the dependent variable of this paper which is web-based intellectual capital disclosure (ICD) has a minimum and maximum value of 0.43 and 0.83, with a mean of 0.707 and has a standard deviation value of 0.086.

Figure 1. Structural model

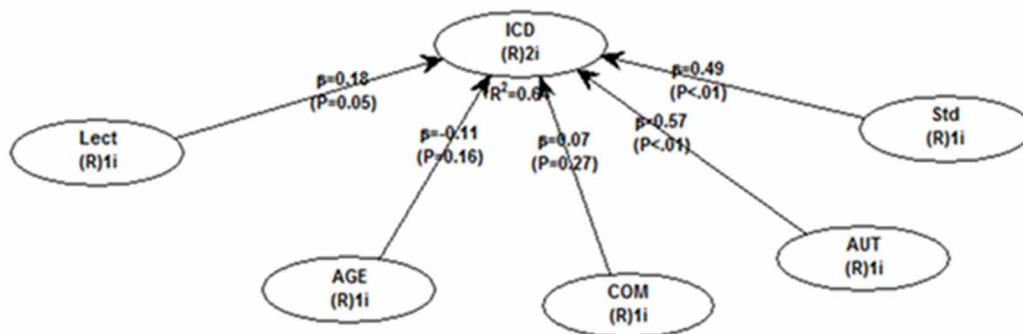


Figure 1 shows the result of direct effect of age (AGE), competitiveness (COM), autonomy (AUT), and size which is reflected as number of student (Std) and number of lecturer (Lect) to web-based intellectual capital disclosure (ICD). Both number of student and number of lecturer as the measurement of size, have significant positive effect towards the GICD index as the indicators of web-based intellectual capital disclosure with the coefficient of 0.49 (p-value<0.01) and coefficient of 0.18 (p-value=0.05) respectively. Furthermore, autonomy also has significant positive effect towards web-based intellectual capital disclosure, with the coefficient of 0.57 (p-value<0.01). However, age and competitiveness has no

significant effect toward web-based intellectual capital disclosure, with coefficient of -0.11 (p-value=0.16) and coefficient of 0.07 (p-value=0.27) respectively.

Table 8. Web-based Intellectual Capital Disclosure Analysis Result for Each Item

Independent Variable	Dependent Variable	Effect Size
Autonomy	Web-based ICD	0.358
Competitiveness	Web-based ICD	0.023
Age	Web-based ICD	0.029
Size (number of student)	Web-based ICD	0.224
Size (number of lecturer)	Web-based ICD	0.061

As seen in the table 8, it can be seen that the effect of autonomy to web-based ICD is big, since the size of autonomy effect to web-based ICD is 0.358, which is higher than 0.35. In addition, the effect of number of student toward web-based ICD is medium, since the size of number of student to web-based ICD is 0.224, which is higher than 0.15 and lower than 0.35. Meanwhile, the effect of competitiveness to web-based ICD; the effect of age and web-based ICD; the effect of number of lecturer and web-based ICD are weak since the size is equal to 0.023, 0.029, and 0.061 (above 0.02 and under 0.15).

Table 9. Web-based Intellectual Capital Disclosure Analysis Result for Each Item

		Aut	Com	Age	Size*Std	Size*Lect
<i>Direct Effect</i>	Web-based ICD	0.574***	0.065	-0.110	0.494***	0.177**
<i>Total Effect</i>	Web-based ICD	0.574***	0.065	-0.110	0.494***	0.177**

* p<0.10 (weakly significant); **p<0.05 (significant); ***p<0.01 (highly significant).

Based on Table 8 and Figure 1, the hypothesis and research result shows there are 3 hypothesis that are accepted in this paper such as, autonomy toward web-based ICD, number of student toward web-based ICD and number of lecturer toward web-based ICD

SOLUTIONS AND RECOMMENDATIONS

Autonomy and Web-based ICD

Autonomy is found to have positive impact toward web-based intellectual capital disclosure. It means the higher the level of autonomy. The result is in line with the previous studies (Sánchez et al., 2009, Rahayuningtas and Triana, 2017), the greater the autonomy possessed by a college, it will increase the willingness of the high institution to make disclosure of intellectual capital. With the existence of

autonomy, universities have the flexibility to manage their institution to encourage higher education institutions to seek more funds that can be obtained from stakeholders, one of which is through the disclosure of intellectual capital. University that possess the highest level of autonomy have the highest degree of freedom in managing their institution especially in terms of developing better intellectual capital disclosure which can be used to attract and manage government fund and public funds (Sánchez, 2009). Furthermore, in order to acquire those funds, university need provide a highly reliable information. Based on previous researches numerous IC scientists (Abeysekera, 2006; Dumay and Cai, 2015; Secundo et al., 2016) have stated that conducting traditional ICD through annual reports will cause the emergence of unreliable information, because annual report is not designed to concentrate exclusively on IC reporting. By using web-based disclosure, university can provide greater transparency, reliability and accessibility in disclosing intellectual capital information with minimum cost (Gallego-Alvarez et al., 2011).

Competitiveness and Web-based ICD

The result of this research shows that competitiveness gives no significant influence toward web-based intellectual capital disclosure. Thus, the result of this research is in contrary with the result of previous study (Chen and Chen, 2013). This may be cause by the awareness for Indonesian universities to compete globally is still low. The number of Higher Education Institution in Indonesia in 2018 has been increased to 4,270, consisting of universities, polytechnics, academies and institutes (Director General of Higher Education, 2014). However, based on QS World University Ranking, since 2015 until 2018 period, the number of Indonesian universities that are recognised as higher education that has fulfilled international standard are still 9. Based on the college rankings released by the QS World University Ranking, in 2018 the best ranking that universities were able to achieve in Indonesia was ranked only 277 achieved by the University of Indonesia (UI), even in 2019, the ranking achieved actually declined to rank 292. This indicate that an increase in the number of tertiary institutions in Indonesia has not been followed by awareness of Indonesian universities to increase their competitiveness. It can be concluded that Indonesian universities don't use web-based intellectual capital disclosure as the primary tool in maintaining or even rise the university's quality that is recognised internationally, because of the low awareness in increasing the competitiveness in global manner still exist among Indonesian universities.

Age and Web-based ICD

From the statistical point of view, the result of this research shows that age give no significant influence toward web-based intellectual capital disclosure, which indicate that this research is in line with the result of previous study (Gallego-Alvarez et al., 2011; Bisogno et al., 2014; Rossi et al., 2018) which stated that age has no significant effect toward web-based intellectual capital disclosure. This inconsistent result are caused by two things, namely: (1). Age is not a mirror of experience and understanding in intellectual capital disclosure, the longer the age of the company does not mean the better level of understanding and experience related to intellectual capital will be achieved, resulting in capital disclosure intellectuals cannot be optimal. (2) Age cannot be used as benchmarks for the extent of intellectual capital disclosure because the functions and roles of government that are less than optimal are generally occur in developing countries like Indonesia, that is indicated by higher of corruption, collusion and nepotism, ineffective policies and efficient, and bureaucratic malfunctions.

Size and Web-based ICD

Size which is reflected in number of student give highly positive significant influence toward web-based intellectual capital disclosure which indicate that this research is in line with the result of previous study (Gallego-Alvarez et al., 2011;) which stated that size reflected as the number of student has significant effect toward web-based intellectual capital disclosure. Furthermore, the new indicator in measuring size that is reflected as the number of lecturer show the similar result as size that is reflected as the number of student which is positive significant relationship exist between number of lecturer toward web-based intellectual capital disclosure with coefficient value of 0.177 and p-value of 0.046. This means the result is in line with the statement of García-Sánchez et al. (2013) that said number of customer and organizational worker should be included as the indicator in measuring size. If it is related to university perspective, number of student is the customer and number of lecturer is the organizational worker. Therefore, it can be concluded that the more number of student and lecturer own by university the higher education do more web-based intellectual capital disclosure. The reason is because larger universities possess a wider number of audience and resulting in the needs of maintaining their institution images through intensive disclosure on the internet (Gallego-Alvarez et al., 2011). In addition, bigger public entity more politically noticeable and are liable to more prominent outer impact from their stakeholder network, for example citizens, governments, understudies (Gallego-Alvarez et al., 2011; García-Sánchez et al., 2013; Rossi et al., 2018)

CONCLUSION

The purpose of this research is to find out the existence regarding the new method in disclosing intellectual capital called as web-based intellectual capital disclosure to overcome the limitation of traditional intellectual capital disclosure and also examine the determinant factors that may influence web-based intellectual capital disclosure of Indonesian universities such as autonomy, competitiveness, age, and size. The sample used in this research comes from Indonesian higher education institution which have A accreditation and have official websites. The total number of sample that fulfil the sampling criteria are 83 Indonesian universities. The observation period is 1 year which is 2018 period.

Independent variables that are incorporated in this research are autonomy (divided into three levels which are legal entity state university, public service agency state university, and private university), competitiveness (QS World University Ranking), age, and size (number of student and number of lecturer). The dependent variable that is used in this paper is web-based intellectual capital disclosure (intellectual capital disclosure item and web accessibility item).

In addition, the result of this research show that there is an evidence about the usage of web-based intellectual capital disclosure done by Indonesian universities. Furthermore, autonomy and size give positive impact toward web-based intellectual capital disclosure, while age and competitiveness give no significant effect to web-based intellectual capital disclosure. Based on the statistical result, autonomy give the highest contribution regarding the impact toward web-based intellectual capital disclosure among other determinant factors displayed through the effect size of autonomy to web-based intellectual capital disclosure. The reason is because autonomy provide freedom for universities in managing their institution in order to develop better intellectual capital (core competitiveness for university) resulting in attracting more government and public fund.

This paper also provide suggestion for university management to utilize autonomy in increasing disclosure of intellectual capital through websites resulting in attracting more public and government fund and displaying the information regarding university's size through the number of student and lecturer that can also enhance web-based intellectual capital disclosure that can help university to gain more students and lecturer. For the stakeholders of university, intellectual capital disclosure done through website can increase the understanding and reliability regarding the information about the performance of university. Furthermore, through website it can enhance the accessibility and presentation regarding the information about intellectual capital disclosure done by higher education institution.

There are some limitations that might affect the study of the research, these limitations are described to improve further studies in the future. First limitation of this study is regarding the R Square. The R Square number is considered to be low, showing that there are other variables that have an effect but not included in the study. In addition, the number of samples used is still too small compared to the number of universities in Indonesia. Another limitation of this study is that it only covers Indonesian universities as the sample for the research. Future studies could be improved by do benchmarking with universities in the other country. When this is included, a better comparison can be drawn up too in terms of comparing universities based on its reputation and how it impacts towards web-based intellectual capital disclosure in global scope. Suggestion for further research are the process of reviewing the web-based intellectual capital item on the official website of higher education should be conducted by more than one person, to enhance the reliability of the data acquired. In addition, testing new variables obtained through a more in-depth study and increase the amount of research sample should be done in for the future study.

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