THE INFLUENCE OF INTERNATIONALITY AND LOCATION ON DISCLOSURE OF INTELLECTUAL CAPITAL: A STUDIES IN HIGHER EDUCATION

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ABSTRACT
The research examines the effect of internationality and location on intellectual capital disclosure on the official website. The research method uses a quantitative approach with a total sample of 85 State Universities registered with UniRank 2021. Data analysis techniques use multiple linear regression analysis. The results showed that structural capital became the most dominant component of intellectual capital. The variables of internationality and location positively affect the disclosure of intellectual capital. The limitations of this study are that the samples and research variables still need to be improved. Despite the limitations, this study has practical implications as a reference for universities on the importance of internationality and location to the disclosure of intellectual capital.

Keywords: Internationality; Location; Intellectual Capital Disclosure; Universities; Website

Keywords: Keantarbangsaan; Lokasi; Pengungkapan Modal Intelektual; Universitas; Situs Web

JEL Classification: E22; O34

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INTRODUCTION

In the last few decades, there has been a shift in the economic sector from an industrial economy to a knowledge-based economy, resulting in intangible assets gradually replacing tangible assets as a success factor for various types of organizations. Intellectual capital is an issue for multiple sectors, such as manufacturing, banking, and MSMEs. The positive role of intellectual capital for organizations, both in terms of disclosure and performance, has made academics focus on continuing studies on the potential of intellectual capital and its contribution to organizations (Khalique & de Pablos, 2015; Firmansyah & Yusuf, 2020; Tran & Vo, 2020). Universities have become the object of great attention in developing intellectual capital outside the conventional/profit-oriented lines. Higher education as part of education is a forum for increasing knowledge with scientific output, research results, scientific publications, and good relations with stakeholders (Ramírez, 2013).

Stakeholder theory emphasizes organizational accountability beyond simple financial or economic performance (Deegan, 2016). Organizations will voluntarily disclose information on their environmental, social, and intellectual performance, exceeding the data to meet stakeholder expectations. It is intended that by exposing extensive organizational information to the public, stakeholders will acquire the necessary information about the company (Puspitosari et al., 2017).

Stakeholders in tertiary institutions, according to Wardhani and Suhdi (2020), comprise main stakeholders (academic community) and additional stakeholders (the prospective new students, the state, the public, and personal sector enterprises).

Apart from the role of universities and their stakeholders, research on intellectual capital disclosure in universities is still a relatively under-explored topic (Ndou et al., 2018). In the digitalization era, organizations must reveal previously unknown things so that all stakeholders understand how the organization considers its ethical, social, and environmental impacts (Dumay, 2016). The website allows organizations to disclose information with consideration of time novelty. Thus, as a means of disseminating information, the website has technological features that make it easier for third parties to find all of the most recent news, which can be accessed globally at any time and from any location (Abdi & Omri, 2020). Intellectual capital emphasizes the relevance of knowledge by combining intelligence and capital (Serenko & Bontis, 2013). According to Cuozzo et al. (2017), intellectual capital is the integration of human resources, organization management, and good relations that exist in it. Because stakeholders in tertiary institutions emphasize the importance of intellectual capital information in making sound decisions, disclosure of intellectual capital is used to quantify intangible assets to describe the outcomes of knowledge-based efforts.

Factors that can motivate universities to disclose intellectual capital include internationality and location. Organizations with high international activity use voluntary disclosure to provide information for domestic and foreign stakeholders. Rossi et al. (2018) state that information on the official website of international higher education institutions has a positive effect on the disclosure of intellectual capital and shows that an environment with a higher level of competition will increase the motivation of tertiary institutions to disclose intellectual capital.

Various studies on the determinants of the disclosure of university intellectual capital have been carried out. Several studies have been conducted in developed countries, such as Italy, Greece, and Spain (Bisogno et al., 2014; Brusca et al., 2020; Ramirez et al., 2018; Rossi et al., 2018). On the other hand, several studies in Indonesia have also been conducted. However, the determinants that have been studied are...
mostly university characteristics, such as age, size, complexity, and accreditation (Ulum & Novianty, 2012; Fathony & Ulum, 2018; Gobel et al., 2020). In addition, the measurement framework for indicators of intellectual capital studied in Indonesia mainly only adapts previous research that has also been conducted in Indonesia. This study attempts to determine the effect of internationality and location on the disclosure of intellectual capital by adapting the developed framework of intellectual capital Ramirez et al. (2018) studied in Spanish universities. Intellectual capital components are divided into human, structural, and relational. Because there is still minimal research on intellectual capital in tertiary institutions in Indonesia, it is hoped that this research can contribute to providing an understanding of the determinant factors other than those that have been studied, as well as the characteristics of disclosing intellectual capital that still need attention for higher education institutions, significantly higher education institutions. The state is a form of public sector organization to create institutional value. Furthermore, this can be implemented in higher education resource management strategies to gain a competitive advantage.

METHOD

The research design carried out was quantitative research. The research model used is associative research by analyzing the effect of independent variables on the dependent variable. The population for this research is 85 State Universities that are registered with the 2021 UniRank Indonesia Ranking. Because the total population is less than 100, the sampling technique used is total sampling; that is, the research sample is the same as the total population, totaling 85 tertiary institutions. Data collection techniques in this study used documentation studies obtained from UniRank Indonesia and the websites of each tertiary institution.

The university intellectual capital instrument in this study was adapted from Ramirez et al. (2018), who has researched at State Universities in Spain. The novelty of this study was compared with Ramirez et al. (2018), namely the object of research currently being carried out in Indonesia, in this case, State Universities listed in the 2021 UniRank Ranking. The UniRank ranking is more representative than others within the scope of this research because UniRank provides a ranking assessment based on the popularity of the website of each tertiary institution. Apart from the research object, there are also differences in the measurement of intellectual capital disclosure variables in this study compared to other studies Ramirez et al. (2018). Table 1 presents indicators of the dependent variable (disclosure of intellectual capital) used in this study.

| Table 1. Intellectual capital disclosure indicators |
|---------------------------------|---------------------------------|
| Component                      | Indicator                        | Information                                                      |
| Human Capital                  |                                 |                                                                 |
| HC-1                           | Work-related knowledge/ know-how | Competency knowledge or skills possessed by lecturers/researchers at tertiary institutions. |
| HC-2                           | Employees                        | Information about staff, researchers, lecturers, and administrative staff. |
| HC-3                           | Employee's experience in the profession | Information refers to employees' experience at international or national levels in their profession. |
| HC-4                           | Employee qualifications          | Information that refers to the qualifications of teaching staff and educational staff. |
### Component of Intellectual Capital

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC-5 Employee compensation/ benefits</td>
<td>Information referring to welfare or other benefits for employees provided by the university.</td>
</tr>
<tr>
<td>HC-6 Cultural diversity</td>
<td>Information about the demographic distribution of employees.</td>
</tr>
<tr>
<td>HC-7 Program training</td>
<td>Education or training programs for employees are provided by universities.</td>
</tr>
</tbody>
</table>

**Structural Capital**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-1 Intellectual property</td>
<td>Explanation regarding patents, copyrights, registered and unregistered trademarks, and publications (journals, books, book chapters, e-journals, etc.) owned by universities.</td>
</tr>
<tr>
<td>SC-2 University Culture</td>
<td>A statement consisting of attitude, experience, beliefs, and college values.</td>
</tr>
<tr>
<td>SC-3 Management Philosophy</td>
<td>Statement regarding the vision and mission of the college.</td>
</tr>
<tr>
<td>SC-4 Process management</td>
<td>Information relating to processes/procedures in the management of tertiary institutions.</td>
</tr>
<tr>
<td>SC-5 Information systems/ networking systems</td>
<td>Information about system development, application use functions, and the information systems' influence on tertiary institutions.</td>
</tr>
<tr>
<td>SC-6 Research projects</td>
<td>Research projects conducted by universities.</td>
</tr>
<tr>
<td>SC-7 Financial relations</td>
<td>Information referring to the relationship between the university and its financial backers.</td>
</tr>
</tbody>
</table>

**Relational Capital**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC-1 Brands</td>
<td>Information about brands associated with higher education.</td>
</tr>
<tr>
<td>RC-2 Student/student satisfaction</td>
<td>Information relating to students and their learning satisfaction.</td>
</tr>
<tr>
<td>RC-3 Business/university partnerships</td>
<td>All activities and collaborations between the university and other organizations (companies, non-profit organizations, public authorities, local governments, and society).</td>
</tr>
<tr>
<td>RC-4 Student database</td>
<td>Student databases.</td>
</tr>
<tr>
<td>RC-5 Quality standards</td>
<td>Information refers to the quality of teaching or the quality of learning.</td>
</tr>
</tbody>
</table>

Source: Ramirez et al. (2018)

The content analysis method measures the intellectual capital disclosure variable by providing a checklist and a score of 1 for intellectual capital items disclosed on each university's official website. Meanwhile, items that are not disclosed will be given a score of 0. After completing the checklist, the next step is adding the items disclosed on each official college website (total score = 19).

\[
\text{Disclosure Index} = \frac{\text{Number of items disclosed}}{\text{Overall total items}} \quad \text{(Equation 1)}
\]
The first independent variable in this study is internationality, or according to internationalization, Knight (2021), which is the process of integrating international and intercultural dimensions into the objectives and functions of the system of national higher education institutions. The Office of International Affairs is the main door for international programs. The measurement used for internationality is the nominal scale. This variable is given a score of 1 if the university’s official website has information about the Office of International Affairs and 0 if there is no information about the existence of the Office of International Affairs. The second independent variable is the college’s location, which is grouped into two categories. The location measurement for universities located on the island of Java will be given a score of 1, while those located on non-Java islands will be given a score of 0.

The data analysis technique used is regression analysis with the help of STATA Software. Regression analysis is used to examine the factors that influence intellectual capital disclosure in Indonesian state universities. The regression analysis used is a multiple linear regression analysis with disclosure of intellectual capital as the dependent variable and the independent variables of internationality and location of the college.

RESULT AND DISCUSSION

Table 2 presents information about the frequency of the number of state universities that disclose each item of intellectual capital disclosure. Structural capital information is the most commonly disseminated indicator of intellectual capital regarding university culture, institutional vision and mission, management processes, and institutional information systems, which are 100% disclosed by the State Universities studied. All sample State Universities disclosed the information on quality standards on the relational capital component. Meanwhile, the intellectual capital items that were most rarely found were regarding student satisfaction and employee compensation, each of which was only 4.71% and 2.35% of the sample State Universities that disclosed them.

Table 2. Frequency of Disclosure of Intellectual Capital in Indonesian PTNs

<table>
<thead>
<tr>
<th>Component</th>
<th>Indicator</th>
<th>Frequency</th>
<th>% Total PTN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HC-1</td>
<td>Work-related knowledge/know-how</td>
<td>54</td>
<td>63.53</td>
</tr>
<tr>
<td>HC-2</td>
<td>Employees</td>
<td>77</td>
<td>90.59</td>
</tr>
<tr>
<td>HC-3</td>
<td>Employee’s experience in the profession</td>
<td>20</td>
<td>23.53</td>
</tr>
<tr>
<td>HC-4</td>
<td>Employee qualifications</td>
<td>61</td>
<td>71.76</td>
</tr>
<tr>
<td>HC-5</td>
<td>Employee compensation/benefits</td>
<td>2</td>
<td>2.35</td>
</tr>
<tr>
<td>HC-6</td>
<td>Cultural diversity</td>
<td>45</td>
<td>52.94</td>
</tr>
<tr>
<td>HC-7</td>
<td>Program training</td>
<td>14</td>
<td>16.47</td>
</tr>
<tr>
<td>Structural Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-1</td>
<td>Intellectual property</td>
<td>53</td>
<td>62.35</td>
</tr>
<tr>
<td>SC-2</td>
<td>University culture</td>
<td>85</td>
<td>100.00</td>
</tr>
<tr>
<td>SC-3</td>
<td>Management philosophy</td>
<td>85</td>
<td>100.00</td>
</tr>
<tr>
<td>SC-4</td>
<td>Process management</td>
<td>85</td>
<td>100.00</td>
</tr>
<tr>
<td>SC-5</td>
<td>Information systems/networking systems</td>
<td>85</td>
<td>100.00</td>
</tr>
<tr>
<td>SC-6</td>
<td>Research projects</td>
<td>57</td>
<td>67.06</td>
</tr>
<tr>
<td>SC-7</td>
<td>Financial relations</td>
<td>17</td>
<td>20.00</td>
</tr>
</tbody>
</table>
The object of this research is State Universities registered with the 2021 UniRank Ranking. Based on the determination of the sampling method through total sampling, 85 state universities registered with the UniRank Ranking have official websites that can be accessed.

Table 3. Characteristics of the Research Sample

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access the Official Website:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessible</td>
<td>85</td>
<td>100</td>
</tr>
<tr>
<td>Not accessible</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>State University Locations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Java Island</td>
<td>35</td>
<td>41.17</td>
</tr>
<tr>
<td>Non-Java Island</td>
<td>50</td>
<td>58.83</td>
</tr>
<tr>
<td>Existence of the Office of International Affairs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available</td>
<td>77</td>
<td>90.58</td>
</tr>
<tr>
<td>Not available</td>
<td>8</td>
<td>9.42</td>
</tr>
</tbody>
</table>

As seen from Table 3, the state universities which are the research samples are located in Java Island at 41.17% (35 institutions). Meanwhile, state universities on non-Java islands accounted for 58.83% (50 institutions). In addition, around 90% (77 state universities) have information regarding the existence of an International Affairs Office or International Office. Meanwhile, 9.42% (8 institutions) needed information about the Office of International Affairs or the International Office on the official website.

Furthermore, table 4 explains the descriptive statistics, which show the research data's average, minimum, and maximum values. The table explains that the average value of intellectual capital disclosure (ICD) is 0.60. The average tertiary institution discloses as much as 60% of the total intellectual capital indicators.

Table 4. Results of Descriptive Statistical Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Means</th>
<th>std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD (Y)</td>
<td>85</td>
<td>0.60</td>
<td>0.14</td>
<td>0.26</td>
<td>1</td>
</tr>
<tr>
<td>INTERs (X1)</td>
<td>85</td>
<td>0.90</td>
<td>0.29</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>LOC(X2)</td>
<td>85</td>
<td>0.41</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The state university with the highest intellectual capital disclosure score of 1 occurred at the Bogor Agricultural Institute. It is because the Bogor Agricultural Institute discloses all indicators of human capital, structural capital, and relational capital studied. It means that Bogor Agricultural University is very concerned about the importance of disclosing intellectual capital. Meanwhile, the lowest value of intellectual capital disclosure of 0.26 occurred at Musamus Merauke University. It is because Musamus Merauke University only disclosed four indicators of the structural
capital component and one indicator of relational capital. No information on the human capital component was disclosed.

The average value of the internationality variable is 0.90. It shows that the majority (about 90%) of the state universities studied have information about the existence of the Office of International Affairs on their official websites. The average value of the location variable is 0.41. It shows that the characteristics of the research sample based on their location are dominated by state universities outside Java Island. Intellectual capital information disclosed by universities has a standard deviation value of 0.14. The resulting standard deviation value is smaller than the average value; this shows that the disclosure of intellectual capital carried out at each tertiary institution has the same amount. The internationality variable has an average value of 0.90 with a standard deviation of 0.29. The location variable has an average value of 0.41 with a standard deviation of 0.49.

Table 5 shows the results of the classic assumption test. The Normality test was carried out using the Shapiro-Wilk test. Test results show a Shapiro-Wilk Z value of 1.227 with a probability of 0.109, more than the significance of 0.05. Therefore, it is concluded that the research regression model usually has distributed residuals. Furthermore, it is assumed that there is no multicollinearity in this research model, implying that the independent variables in this study are not highly correlated. This research model is not multicollinear. This conclusion is based on the statistical test findings of the Variance Inflation Factor (VIF) for each research variable $\leq 10$, and the Tolerance value for each research variable is $\geq 0.1$.

The Breusch Pagan test is used to determine heteroscedasticity. The choice in this test is based on the fact that if the probability value $> \chi^2$ is more significant than 0.05, it can be concluded that there is no heteroscedasticity. Table 5 illustrates that the results of the Pagan Breusch test for the regression model show a probability value greater than 0.05, so there is no heteroscedasticity. Thus, the regression model can be tested in the next stage.

### Table 5. Multiple Linear Regression Analysis Results

| ICD | Coef. | Q    | $P > |t|$ | VIF | Tolerance |
|-----|-------|------|-------|-----|----------|
| INTER | 0.12  | 2.60 | 0.011 | 0.108 | 0.927 |
| LOC  | 0.11  | 3.85 | 0.000 | 0.108 | 0.927 |
| _cons | 0.44  | 9.89 | 0.000 |       |          |

Shapiro-Wilk Z 1.227

Prob > z 0.109

chi² Breusch Pagan test 1.07

Prob > chi² Breusch Pagan test 0.301

F value 14.54

Prob > F 0.000

Adjusted R-squared 0.243

**The Effect of Internationality on the Disclosure of Intellectual Capital**

Internationality in universities positively affects intellectual capital disclosure (regression coefficient 0.12; sig. 0.011 <0.05). Internationality is a way to increase the competitiveness of a university. The influence of internationality on the disclosure of intellectual capital means that if higher education institutions pay more attention to aspects of internationality, the information on intellectual capital disclosed will also
increase. Internationality or university programs to enter the international realm are usually used to gain a better reputation (Fuadi, 2016). The website will become a suitable medium for expressing activities and promoting the university internationally so that the university's reputation is better known abroad (Álvarez et al., 2011; Aversano et al., 2020).

Higher education is an entity that has relations with the community both domestically and abroad as one of the stakeholders, so it must manage its resources for the benefit of stakeholders. Intellectual capital disclosure will increase in conditions where tertiary institutions carry out internationalization (cooperation with foreign parties). It is evidenced by research results showing that universities that inform the existence of an international affairs office or internationalization program on the official website will pay more attention to the extent of disclosure of intellectual capital. If a tertiary institution has an Office of International Affairs in its organizational structure, this can increase the disclosure of website-based intellectual capital information in tertiary institutions.

Based on stakeholder theory, higher education management is expected to take actions deemed necessary by stakeholders and report back to stakeholders. All stakeholders have the right to receive information about how the organization's activities, including internationalization, may affect them. Thus, the internationalization activities carried out by universities will increase the disclosure of intellectual capital.

The findings of this study indicate that information disclosed to the public through the disclosure of intellectual capital for the benefit of foreign partnerships is a form of implementing stakeholder theory. The internationality aspect, which is informed through the official website, is also a forum for higher education to improve quality, both in terms of learning, research, and quality of information for stakeholders, as well as the quality of higher education institutions in an international scope. The study's results align with research by Aulia et al. (2019) and Ramirez et al. (2018), which state that international programs affect intellectual capital disclosure.

### The Effect of the Location on the Disclosure of Intellectual Capital

The university's location positively affects intellectual capital disclosure (regression coefficient 0.11; sig. 0.000 <0.05). The effect of location on the disclosure of intellectual capital can be interpreted that the tighter the competition at the site of the tertiary institution, the more intellectual capital disclosed will increase. The public's point of view about the quality of higher education in Java Island is better than non-Javanese, proving that it affects the disclosure of higher education intellectual capital. Thus, universities on non-Java islands disclose information on intellectual capital, which is relatively lower than those on Java islands. In addition, the centralization of development on the island of Java can increase competition in various aspects, including intellectual capital information disclosure. The higher the competition in Java compared to Non-Java, it will also impact increasing tertiary communication to the public through the disclosure of intellectual capital. Thus, the location of the tertiary institution affects the disclosure of intellectual capital.

Each tertiary institution is interested in disclosing information to increase competitive advantage and as a promotional medium to the public to enhance the image of tertiary institutions. Through these advantages, universities in Java are more competitive in disclosing information on their intellectual capital. Based on observations from the 85 state universities studied, there are 13 state universities with...
legal entity status (PTN-BH), 11 of which are located on the island of Java. Concerning the location of the tertiary institution and stakeholders, the Board of Trustees (MWA) at PTN-BH plays a role in representing the interests of the government, the public, and the interests of the related tertiary institutions. Therefore,

Disclosure of information owned by universities in Java Island to the public through disclosure of intellectual capital can also be a form of implementing stakeholder theory. According to stakeholder theory, a university is not an entity that only operates for personal gain but also pays attention to stakeholders' interests because every activity of a higher education institution will impact the surrounding environment. Thus, universities need to be responsible to their stakeholders, one of which is by communicating through the disclosure of intellectual capital.

Other findings in this study indicate the dominance of accounting study programs by new students from all Indonesian tertiary institutions located on the island of Java (Kemenristekdikti, 2020). Based on these supporting findings, the culture for obtaining higher education in the Java region, especially in the accounting field, is in great demand. Therefore, with the dominance of accounting study programs that are increasingly in demand, it is possible to increase the understanding and motivation of tertiary institutions in managing their intellectual capital. The results of this study are not in line with what has been done by Fachrezi (2019) but support the research of Rahayuningtyas and Triana (2017), which states that location affects the disclosure of intellectual capital.

CONCLUSION

Based on the finding research, it is possible to conclude. First, the intellectual capital component most released by Indonesian state universities is connected to structural capital, while information concerning employee perks (in human capital) and student satisfaction (in relational capital) are the least disclosed. Second, there is a positive influence between the internationality of tertiary institutions on the disclosure of website-based intellectual capital. Third, there is a positive influence between the university’s location on the website-based disclosure of intellectual capital.

The limitations of this study are the relatively small research sample and the use of the intellectual capital framework of higher education adopted from foreign research. There may be differences in indicators with the intellectual capital framework of higher education originating within the country. The contribution of the independent variable to the dependent variable in this study is only 24.8%, so there may still be other determinants that should have been examined in this study.

Suggestions for future researchers: Increasing the number of research samples is highly recommended. Then, more thoroughly analyze the information about the intellectual capital presented. Further research is also suggested to add other factors that have yet to be studied in this study. Regardless of its limitations, this study has implications in practice as a reference, especially for tertiary institutions regarding the importance of determinants of intellectual capital disclosure, such as aspects of internationality and the location of tertiary institutions.

REFERENCES


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