The Impact of Location, Size and University Age on Sustainability Performance

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Abstract:

Background: Universities have an important role in development public, and his involvement in development sustainable. Information about steps and action which done to sustainable development needs to be communicated to all university stakeholders. Many study about the factor which influence sustainability disclosure in business context. However, research on which factors influencing disclosure sustainability in university still rarely.

Objective: This study aims to examine the relationship between location, size and age of university in sustainability performance.

Study Method: Population and sample in this study is state universities and institutes in East Java-Indonesia, about 16 sample. Data study obtained from UIGM and university website. This study use multiple regression linear as statistical tools for data analyze.

Findings: The results show that only university age have influential to sustainability performance, while the location and university size have no effect.

Research Originality: The scope of this research is limited to state universities and institutes in East Java-Inonesia. This research provides an analysis of sustainability performance in higher education, which increase potential credibility and reputation in public.

Keywods: sustainability performance; location, size, age.

Introduction

Higher Education has own role important in public development, and his involvement in sustainable development. Information about the steps and taken actions towards sustainable development need communicated to all over higher education stakeholders. Sustainability reporting is managerial and accountability tools, and linking them to goals organizational strategic (Brusca et al, 2018). Universities need to do disclosure related sustainability performance for discuss profile, strategy, and system manage organization. Higher education expected become leader continuity and mover change, for ensure that now generation need and which will come more understood and built, so that professional which experienced in development system can educate students effectively to help make the transition to social patterns sustainable (Lozano et al, 2013). In management, higher education likened a business, with source income main originate from amount student, so that universities focus on imaging popularity effort, to use student as much as possible. However, university are also public sector organizations who have a moral responsibility to society and the government. In a few country like Europe, Australia And Singapore, university report annually periodically every year and can be accessed on the university's official website. The information presented in the annual report can be more accurate and can tracked compared to

information which posted in website (Rofelawaty & Ridhawati,2016). The sustainability report will reflect the university 's profile, management practices, management strategic plan, operational performance results, as well as show indicator management performance which success, both from the financial economic aspect and from the academic administration aspect. The concept of higher education sustainability reporting in an international context (Lozano, 2006; Ceulemans et al, 2015; Leal Filho et al, 2019) or in country certain, like Canada(Fonseca et al, 2011; Sassen & Azizi, 2018), *United Kingdom* (Adams et al, 2018; Lozano et al,2013) or Italy (Siboni et al, 2013; Corazza, 2018; Moggi, 2019), Spanish (Brusca et al, 2018), Australia (Gamage & Sciuli, 2017). University education no required for provide sustainable reporting, so that sustainability reporting is voluntary. Higher education are rare prepare regular reports on sustainability performance. This shows that voluntary sustainability reporting has just begun in the higher education sector, it is necessary to improve sustainability reporting practices (Fonseca et al, 2011). Not like company, reporting volunteer by university's still in stage beginning (Alonso-Almeida et al, 2015; Lozano, 2011; Sassen & Azizi, 2018).Higher education have been slow to adopt sustainability reporting practices including publish that report consistent and periodically (Sepasi et al., 2018). There has not been much research on sustainability reporting in higher education. Research (Rofelawaty & Ridhawati, 2016) shows that there are still very few universities in Indonesia which publish report annual in a way periodically like company, and part big report annual which served still in form report annual finances, not in kind sustainability performance report. This is in line with results study (Yasbie & Barakah, 2018) which find that information whichexpressed by universities is still limited to the scope of profile, strategy and governance manage organization. Standard disclosure special which related with environment and public still low. In 2010, the University of Indonesia published sustainable reporting guidelines with combine a number of sustainability reporting standard, special for universities. UI Green Metric World University Ranking on Sustainability, is UI initiative for promote sustainabilty in education institution all over world. This possible for share their experience and best practices on sustainability issues, as well as to measuring sustainability policies, and facilitating comparisons between universities. UI Green Metric (UIGM) is first ranked and is the only one that has establish voluntary standards to improve universities infrastructure and act towards sustainable campuses worldwide. Universities which take part in UIGM, be ranked according to certain criteria, and the results of the ranking become pride separately for the universities. This showed inclusion of the UIGM ranking order on the university website. The data shows that university which follow IUGM the more increase from year to year. University as public organization not own quite enough social answer and environment,so it is very important to express these responsibilities in information form which can accessed by all part which interested, internal nor external. Study about university sustainability performance can give contribution which interesting for practice reporting continuity as toolaccountability in non-business organizations. Therefore, this research aims to examine internal factors (location, size, and university age) to sustainbailty performance. Hopefully this study can give theoretical contributions to sustainability performance in higher education and contribute on sustainability performance reporting practices for policy considerations regarding importance activity and sustainability disclosure information in universities.

Literature Overview

Universities inand stakeholders have relevance in creation value and a number of innovative approach, like management and reporting capital intellectual,continuity or reporting integrated, as part from institutional agenda. Sustainability reporting can function as an instrument for universities to assess where the

universities is, and plan the direction change period in front of going to development system in higher education because sustainability reporting need institutionalized and introduced return to in higher education system. To reach its full potential, sustainability reporting must enter issues material and involve holder interest external. Universities need to be actively involved in planning organizational change for sustainability by assessing and reporting efforts in education, research and devotion public as well as university partnership (Ceulemans et al, 2015). Sustainability reporting can also as practice which useful for communicate university effort going to continuity (Alonso-Almeida et al, 2015; Lozano, 2011). Previous research shows that universities have do disclosure information which more detailed and varies. Practice university sustainability disclosure explained different factor (Jorge et al, 2018; Sassen et al, 2018). Sustainability reporting is disclosure information about the efforts and achievements of universities in carrying out activities continuity and become important attention for stakeholders. At the organizational level, universities have several similarities with organizations complex other like company, entity government, and organization non- government (Siboni et al, 2013)

The influence of university location on sustainability performance
EcoCampus
The term eco campus according to the environmental agency (in Prasetyo, 2011) can be understood as a campus that has environmental care and culture and has carried out environmental management systematically and continuously. Thus, an eco-campus or campus that is environmentally conscious must be able to create involvement of all campus residents in the campus environment so that they always pay attention to environmental aspects in their activities. As an institution that is considered an intellectual center, there is a moral demand for campuses to be able to act more wisely and innovatively towards the environment, thus requiring ideas that give rise to environmentally friendly programs (Salatin, 2011).

Sustainable Campus
A sustainable campus has become a global issue. The Stockholm Declaration in 1972 has opened the world's eyes to the existence of dependence between humans and the environment, giving rise to several ways to create a sustainable environment (Alshuwaikhat and Abubakar, 2008). The definition of a sustainable campus according to Meng, Abidin et al. (2007) is a campus that runs two sub-systems well, namely the ecosystem and the human system. The ecosystem sub-system consists of material, air, water, land and energy components, while the human sub-system is formed from knowledge, community, health, welfare and institutions.

Green Campus
A green campus is a concept that combines the environment with the campus world where the environmental concept which includes 3R, greening, in front of office, CSR and so on is combined with the campus concept which consists of the physical campus, location and behavior of campus residents. So it can be concluded that a green campus is a combination of green buildings, green places and green behavior. The implementation of the green campus concept in several universities is also known as a community college to increase energy efficiency, conserve resources and improve the quality of a sustainable environment and create a healthy learning environment (Humblet et al., 2010). First hypothesis this research is:

H₁ : University location influences sustainability performance.

Larger university have reported more sustainability information than smaller university except in matters of community and product responsibility (Jorge et al, 2018). Higher education show big convey sustainability reporting for performance its sustainability (Siboni et al, 2013). Big university usually connected with more stakeholders compared to the small one. The goal of large universities adopting

sustainability reporting is to show efficiency of their spending (Siboni et al, 2013). On level organization, universities own a number of similarity with organizationcomplex other like company, entity government, and organization non- government (Siboni et al, 2013). Second hypothesis this study is:

H $_2$: University size influences sustainability performance.

University age make higher education own experience which more lots compared to with new university. The experience have includes sustainability activities. Universities that have practiced sustainability proven by the ranking at UIGM (Jorge et al, 2018; Sari et al, 2020). Thrid hypothesis this study is:

H $_3$: University age influential to sustainability performance .

Research methods

UIGM is an instrument that supports the development of university sustainable (Suwartha & Sari, 2013). UIGM focuses on equality, economics and environment for greening by containing 39 indicators and 6 criteria, namely *Setting and Infrastructure, Energy and Climate Change, Waste, Water, Transportation,* and *Education*. This study use UIGM as reference for evaluate sustainability performance (Sari et al, 2020). The sample for this research is state universities in East Java-Indonesia (universities and institutes) as much 16 universities. Dependent variable of this research is sustainability performance, which measured with 1 if included in the UIGM ranking and 0 if otherwise. The independent variables consist of university location, university size, and university age. University location is measured with number 1 if the university is located on suburban and 0 if the location is in the city center. University size is measured by the natural log of the number of students. University age is measured from the year of establishment to the year of research.

Results And Discussion

The results of the descriptive analysis are presented in Table 1 which shows the average score for sustainability performance is 0.5. University locations have an average of 0.5. For university size, the average is 8.6 and university age has an average of 3.67.

Table 1. Results Statistics Descriptive

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
X1	16	0,00	1,00	0,5000	0,51640
X2	16	7,42	10,04	8,6074	0,73288
X3	16	2,94	4,23	3,6704	0,49700
Y	16	0,00	1,00	0,5000	0,51640
Valid N	16				

Table 2. F Test Results

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,912	3	1,304	178,775	,000 [b]
	Residual	0.088	12	0.007		

	Total	4,000	15			

The F test results show a p value of 0.000, where this value is <0.05, so the regression equation model is significant at an alpha level of 5%, which means the model formulated is correct.

Table 3. Coefficient of Determination

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,989[a]	0,978	0,973	0,08541	1,548

The R2 value of 0.978 or 97.8% indicates that the independent variables (location, size, age) influence sustainability performance simoultanly. The remaining 0.022 is influenced by other variables not examined in this study.

Table 4 . Multiple Linear Regression Results

Coefficients[a]								
Model				Standardized Coefficients	t	Sig.	Collinearity Statistics	
				Beta			Tolerance	VIF
1	(Constant)	-2,599	0,285		-9,106	0,000		
	X1	0,012	0,044	0,012	0,276	0,788	0,923	1,084
	X2	-0,162	0,059	-0,229	-2,720	0,019	0,257	3,895
	X3	1,221	0,089	1,176	13,673	0,000	0,247	4,053

The results show that the location of universities has no effect on sustainability performance with a sig p value showing 0.788 where this figure exceeds 0.05 and the t value is 0.276. Internal factors such as institutional policies are more influential than geographic location, Diaz et.al., (2023). The same thing is supported by research by Burmann et.al., (2021) which discusses various university rankings based on sustainability performance, and highlights that sustainability performance is influenced more by internal strategy and institutional collaboration than geographic location. The size of the university turns out to have a significant negative effect, as shown by the results of p value = 0.019 with t value = -2.720. Large universities often have complex organizational structures, making coordination and implementation of sustainability policies more difficult and more time consuming. With so many academic and research programs, large universities may not have enough focus on sustainability initiatives because resources and attention are scattered; Dale et.al., (2009). University size influential to sustainability performance, where big university reach wide audience and as a result must guard university image high level through sustainability performance. Large universities also have stakeholders large interests involved in their activities (Gallego-Álvarez et al, 2011). Larger universities are faced with stakeholder groups greater, leading to increased pressure to deliver sustainability performance and for maintain or build legitimacy. Besides that, large universities will become public attention, and have a greater impact on public. For consideration, university must show higher commitment to sustainability including improving its reputation (Jorge et al, 2018).

Among 3 variables examined as independent variables, only university age showed influence results with a p value showing a sig value of 0.000 with a t value = 13.673. University which already stand since long tend more skilled in practice sustainability performance and more understand development and demands

public (Gallego-Alvarez et al, 2011). Data research shows that universities in East Java-Indonesia have been around for a long time with an average age of 43 years, at that age have already gone lots experience in sustainability. Experience and university skills will affect sustainability performance. Older universities tend to have longer experience in managing academic and operational activities because they have gone through various challenges and have had the opportunity to learn from past mistakes. This experience helps in developing and implementing better sustainability practices. Sustainability policies have been adopted earlier and improved over time, Filho et al. , (2018). Older university typically have more mature infrastructure and may have made significant investments in sustainability facilities and have more resources, both financial and human, that can be allocated to sustainability initiatives, Lozano et al. , (2015). Older university often have a more established culture and deeply ingrained values. This is a commitment to sustainability. Long-established institutions have typically built networks and partnerships with outside organizations that support sustainability practices, Sharp (2002). Older university often have broader alumni networks and international collaborations. It provides the latest in sustainability. Strong networks also help in fundraising and gaining support for sustainability projects, Wright and Horst (2013).

Conclusion

This study try identify factor which influence performance sustainability of higher education. Higher education is a sector that has a role important in influencing society. The research was conducted at 16 universities country in East Java-Indonesia. Results analysis show that just university age that affects sustainability performance. University which already standing long enough is proven to have better experience in providing sustainability performance. Meanwhile, the location and size of universities have no influence on sustainability performance.

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