

Conference Paper

Environmental Accounting, Strategy, Sustainability Development Goals and Process Innovation

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Abstract

Increased awareness regarding environmental issues has encouraged organizations to use environmental accounting and strategy that deliver many benefits, including an increase process innovation which supported by sustainability development goals. This study aims to examine the effect of implementation of environmental accounting and strategy of the company's process innovation which moderated by SDG's. The sample used 9 of industrials company's located in DKI Jakarta that registered as participants of PROPER Programme 2017 on food and beverages and pharmacy sub sectors with using survey data that pointed to accounting and production division. The analytical technique's helped by using SPSS 25 software. The parameter of significant value at 0,05 level. The result has indicate that:(1) the implementation of environmental accounting has a negative and significant effect to process innovation; (2) strategy has a positive and significant effect to process innovation;(3) SDG's does not have a significant effect top roccess innovation; (4) SDG's has proven to moderate and strengththen relationship between implementation of environmental accounting to process innovation; (5) SDG's has provento moderate, but weaken relationship between strategy to process innovation.

Keywords: environmental accounting, strategy, sustainability development goals, process innovation

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1. Introduction

In today's globalized world, the industrialization has revealed a growing rate, through mass products and the use of heavy machinery that produces waste that impact to environmental degradation. The process of production activities in industrial companies should be relate to the consumption of raw materials, energy, water and other natural resources that will cause an increase the amount of waste and emissions produced, which has led environmental problems to society (Kurnia, 2017).

Process of innovation can provide an overview for companies to minimize costs and improve quality of product that will increase profitability and performance of company

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(Hartini, 2012). An increase of environmental problems which causes by industrial activities has been brought the environmental minister to provide PROPER Programme to encourage especially for industrial companies for making sustainability reporting, that has been success to minimize environmental expenses with significant amount.

Environmental accounting is aim to provide the information of environmental cost which is relevant to stakeholders to make decisions (Susilo & Astuti, 2014). As we all known that people could be a part of stakeholders, therefore they want to companies not only determine to increasing profit but also to pay attention and responsibility to prevent environmental problems (Pratiwi, 2013).

Strategy has an importance role to resolve any critical activities of company. Strategies recognize the means by which the organization aims to accomplish its organizational objectives and goals and also to develop capability in adapt with environmental changes (Soleh, 2008). The Indonesian government has suggested companies to be participate to save the earth from environmental damage with implement environmental accounting system based on sustainability reporting that is encourage to do innovation to reach SDG's.

Rustika (2011) proved that environmental accounting and strategy has positive influence on innovation. Similiarly Rahayu (2016) concluded that environmental management accounting related with process innovation. Kurnia (2017) proved that strategy has positive influence on process innovation. Then, Ishartono & Raharjo (2016) said that SDG's should be supported both vertical and horizontal. Therefore, this study aims to investigate the role of implementatiton of environmental accounting and strategy to process of innovation with SDG's as moderating.

1.1. Theory and Hypothesis Development

The company's environmental impact is the potential impact of the products produced by the company. The environmental impact of the company can be reduced by innovating, one of which is to innovate in the production process (Aldilah, 2015). This is relate to the research conducted by Rahayu (2016) which also states that environmental management accounting has a positive and significant effect on process innovation. This is also in accordance with the *legitimacy theory* which states that companies try to adjust the situation with the regulations that apply in the community so that they can be accepted in the external environment (Sari, 2013). Therefore information about the environment presented in the financial statements can influence the company to innovate especially process innovation.

H1: Environmental accounting has a positive effect to process innovation

A company that focuses on matters related to the direct impact of business processes by a company, can carry out a strategy or policy such as modification of production processes so as to minimize the negative impacts resulting from the activities of the company (Purwanto, 2007). Kurnia (2017) also states that there is a significant influence between strategies, especially operating strategies on production process innovation. In the *legitimacy theory* also explained that legitimacy can be obtained through communication strategies by sending accurate and reliable information (Shockley-Zalabak, et.al, 2003) in (Kasmawati, 2014). The narrative text in the annual report is one tool that can be used by company management to make the activities and results of the company look legitimate (Aerts, 1994) in (Budiani, 2011). Therefore the selection of the right strategy by the company can also influence innovation, especially innovation in production process activities.

H2: Strategy has a positive effect to process innovation

The pressure for innovation for companies, especially industrial companies, aims to realize the creation of sustainable development goals where innovation can create sustainability that includes social, economic and environmental dimensions. Therefore, with the targeted sustainability development goals, achieved in 2030 can encourage the creation of innovation, especially innovation in the production process carried out by the company. Rustika (2011) also said that sustainable development can affect a company to innovate in order to create sustainable development that takes into account the surrounding environment. This is certainly in accordance with the *theory of the triple bottom line* which has dimensions of people, profit, and planets where companies can seek profit without ignoring the welfare of the community and the preservation of the surrounding environment, one of which is by conducting innovations in its business activities.

H3: SDG's has a positive effect to process innovation

The higher of implementation of environmental accounting will encourage on innovation, especially process innovation carried out by the company. This is relate to the concept of sustainability development goals that focus on increasing business to continue to strive to leave sufficient resources for future generations in a sustainable manner (Rustika, 2011). This also relate to the research conducted by Ngoyo (2015) which states that one of the goals in supporting sustainable development is to preserve the environment both on land and at sea and sustainable use of resources.

Therefore, the role of sustainability development goals can influence the relationship between environmental accounting and innovation, especially innovation in the

production process so that it can be relate to the concept of sustainable development that has a basic dimension, that are social, economic and environmental. These three dimensions are also in accordance with the *theory of the triple bottom line* which consists of elements of people (companies that care about social and the surrounding environment), profits (companies try to increase profits for the company), and planets (the company's ability to preserve nature or the earth).

H4: SDG's strengthen relationship between environmental accounting to process innovation

According to an international business report compiled by PwC in 2015, as many as 90% of respondents consisting of the general public around the world expect that companies need to implement sustainability development goals into strategy and innovation in the way they do business. Realizing sustainability development goals requires a change in mindset that does not only focus on short-term goals but also looks at the long-term as a whole. Good growth is the key to sustainable development that does not focus only on economic growth, but also growth which plays a role in increasing the value of society, protection and environmental preservation (Irhoan Tanudiredja, PwC. 2015).

This is relate to the research conducted by Suaedi (2005) in Mokodompit, et al (2015) which states that the need to create a sustainable development, the company should create more innovative strategies so that the company could maintain its business continuity for a period of time the long one. *In the theory of triple bottom line*, it is explained that companies can make an activity or strategy of activities, such as an increase in productivity obtained by improving work management starting from simplifying processes, reducing inefficient activities, saving processing time and service. Cost efficiency can be achieved if the company can save on material use and minimize costs. Hartini's (2012) said that the adoption of the innovation process is recognized as increasing production efficiency and the quality of the products produced. Therefore, the existence of sustainable development targets can also encourage companies to carry out strategies or efforts in innovation, especially process innovation.

H5: SDG's strengthen relationship between strategy to process innovation

2. Research of Methodology

This study use 9 industrials companies located in DKI Jakarta and followed PROPER programme 2017 in food & beverages and pharmacy sub sectors as a sample. Moreover,

this study also used survey data that pointed to accounting & finance and production division include employee and manager at industrial companies. Data analysis techniques used multiple linear regression analysis to test the effect of environmental accounting and strategy on process innovation and using MRA analysis (Moderated Regression Analysis) to test the effect of moderating variables with using SPSS for windows version 25.

3. Results

This research was using multiple linear regression analysis with MRA (Moderated Regression Analysis) was conducted to examine the effect of independent variables of environmental accounting, strategy, and SDG's on dependent variable of process innovation and to examine moderating variable. The result is show on the table 1. Based on t-test result, it is known that t-value for environmental accounting on process innovation of -2,843 with a significance value 0,006, the value is $< 0,05$ so it can be concluded that environmental accounting has a significant effect on process innovation, but with negative coefficient. Hence, hypothesis 1 is declined.

Moreover, t-value for strategy on process innovation is 2,535 with a significance value 0,014, the value is $< 0,05$ so it can be concluded that strategy has a significant effect on process innovation, with positive coefficient. Hence, hypothesis 2 is accepted. Moreover, t-value for SDG's on process innovation of -0,021 with a significance value 0,983, the value is $> 0,05$ so it can be concluded that SDG's does not have significant effect on process innovation. Hence, hypothesis 3 is declined. Moreover, t-value for moderated variable EA*SDG's of 2,866 with a significance value 0,006, the value is $< 0,05$ so it can be concluded that SDG's successfully moderate and strengthen between environmental accounting on process innovation. Hence, hypothesis 4 is accepted. Then, t-value for STR*SDG's of -2,486 with a significance value 0,016, the value is $< 0,05$ so it can be concluded that SDG's successfully moderate but not strengthen between strategy on process innovation. Hence, hypothesis 5 is declined. The result of t-test value show on table 2.

TABLE 1

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	76.336	146.251		0.522	0.604
	Environmental Accounting	-5.828	2.05	-5.232	-2.843	0.006
	Strategy	4.803	1.895	4.237	2.535	0.014
	Sustainability Development	-0.067	3.186	-0.055	-0.021	0.983
	EA*SD	0.131	0.046	8.609	2.866	0.006
	S*SD	-0.102	0.041	-7.359	-2.486	0.016

a. Dependent Variabel: Inovasi Proses
(Source: Output SPSS 25, 2019)

TABLE 2

Hypothesis	Significance	Result
Hypothesis 1	0,006	Significant Influence
Hypothesis 2	0,014	Significant influence
Hypothesis 3	0,983	Not Significant
Hyphotesis 4	0,006	Significant Influence
Hypothesis 5	0,016	Significant Influence

4. Discussion

4.1. The Effect of Environmental Accounting of Process Innovation

Based on statistical result, the significance value equals to 0,006 and has a negative coefficient means that EA has a negative and significant effect on PI. EA through information about environmental cost does not increase or encourage process innovation. The sample company in this research are still focused to create environmental cost report as their social responsibility to repair the damage or pollution caused by their operate activities. This shows that the company has not been able to replace or find new ways and solutions to minimize costs by keep being a good quality.

4.2. The Effect of Strategy of Process Innovation

Based on statistical result, the significance value to 0,014 and has a positive coefficient means that strategy has a positive and significant effect on PI. The use of appropriate strategies can encourage process innovation. This indicates that decision made by management in industrial companies can encourage companies to look for new solutions or modify production processes in order to saving costs without ignoring the quality produced. Other research supporting this outcome is the study of Kurnia (2017) who disclose that strategy has a significant effect on process innovation. This also correspond to the *theory of legitimate* proposed by Deegan (2002) that company legitimization are focused on stakeholders perspective. Companies should be able to adjust business processes with rules or norms applicable in the community to anticipate legitimacy gap to survive or improve the achievements obtained in the long run (Fitriyani, 2012).

4.3. The Effect of SDG's of Process Innovation

Based on statistical result, the significance value to 0,983 means that SDG's does not have a significant effect on process innovation. The pressure and rewards from the government not capable to encourage the sample company in this research to do process innovation. This could be happened because companies still complicated to achieving SDG's and need some steps especially to understanding the concept.

4.4. SDG's, Environmental Accouting of Process Innovation

Based on statistical result, the significance value to 0,006 and has a positive coefficient means that SDG's capable to moderate and strengthen the relationship between implementation of EA on process innovation. Implementation of EA can encourage process innovation strengthened by SDG's that has been accepted in overall so the result are together can encourage process innovation. This also correspond to *triple bottom line theory* proposed by Elkinton (1997) that this result match the three main dimensions of this theory, that are people, profit, and planet. EA through their environmental cost report as their kind of social responsibilities to community (*people*). Then, the damage that caused by companies encourage them to find a new ways on organization in production process to improve qualities with minimize cost then can make the *profit* increase. Moreover SDG's that strengthen relationship between EA on IP caused by

pressure from government and stakeholders to supporting to save the earth (*planet*) from environmental problems.

4.5. SDG's, Strategy of Process Innovation

Based on statistical result, the significance value to 0,016 and has negative coefficient means that SDG's capable to moderate, but not strengthen the relationship between strategy on process innovation. This can be caused the use of strategies in company sample in this research that are already effective, therefore SDG's not strengthen relationship between strategy and process innovation.

5. Conclusion

This study aims to estimate and analyze the implementation of EA and strategy to process innovation with SDG's as moderating variable. The sample used in this study are food & beverages and pharmacy sub sectors companies that being as participant PROPER Programme 2017 located in DKI Jakarta. This study uses multiple regression analysis and MRA (Moderated Regression Analysis) with SPSS for windows version 25. The conclusions based on the research findings are (1) Implementation of EA has a significant and negative effect to PI, (2) Strategy has a significant and positive effect to PI, (3) SDG's does not have effect to PI, (4) SDG's proved can moderate and strengthen relationship between EA to PI, (5) SDG's proved can moderate, but not strengthen relationship between strategy and PI.

This study has several limitations and can be used as consideration in the future studies. These limitations can be explained by the following (1) This study uses a questionnaire without being equipped with interviews or open questionnaires, (2) This study only took samples of 9 industrial companies that were only registered as participants in the PROPER Programme 2017 in DKI Jakarta area which only included 60 respondents, (3) This study only takes samples of industrial companies in the food and beverage sub-sector and the pharmaceutical sub-sector. So that it cannot generalize to other sub-sectors as a whole.

Based on the description of the limitation that the researcher has described earlier, this study has several suggestion as consideration in subsequent research. The suggestion can be described by the researcher as follows (1) further research can use a more sample, (2) further research can use another software besides SPSS for windows

for more accurate result, (3) further research can use a combination of quantitative and qualitative methods to get better result.

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