

044_Tri_Siwi_Nugrahani.docx

by

Submission date: 25-Oct-2020 09:54PM (UTC+0700)

Submission ID: 1425770226

File name: 044_Tri_Siwi_Nugrahani.docx (68.67K)

Word count: 5757

Character count: 31693

Improvement Of Social Manufacturing Data Performance On Industry 4.0 Era

¹⁾Tri Siwi Nugrahani, ²⁾Harlina Safitri, ³⁾Sulkhanul Umam, dan ⁴⁾Evi Grediani

¹⁾²⁾³⁾Universitas PGRI Yogyakarta, ⁴⁾Akademi Akuntansi YKPN Yogyakarta

¹⁾trisiwi@upy.ac.id, ²⁾safitriharlina@gmail.com, ³⁾sulkhanul.umam@upy.ac.id

⁴⁾gredianie@gmail.com

Abstract. The Revolutionary Era 4.0 made it necessary for every company to pay attention to the value of performance responsibly which included several aspects of technology use with social manufacturing, profit, planet, and people with the triple bottom line concept. PROPER performance appraisal with the title Gold, Green, and Blue as the standard for companies that have carried out environmental care programs is a serious concern for companies to be included in that category.

This study tested 10 mining companies listed on the IDX and listed in PROPER from 2013-2019 with a total of 70 observations. Data analysis using Multinomial Logistic Regression. This study adds to the social evidence that manufacturing can improve PROPER performance, as well as the triple bottom line concept on the environment (planet), which can improve PROPER performance.

Keywords: Social Manufacturing, TBL, and Proper

1. Introduction

The industrial revolution 4.0 has been able to bring the development of social manufacturing, including the development of accounting in providing information that is not only disclosure of financial information but also non-financial. Information that was originally only financial in nature aimed at shareholders about to with concerning the economic concept has expanded to other aspects, namely non-financial information as measured by economic indicators and social indicators [1].

Companies are encouraged to always apply the principle of sustainability that the company is sustainable by paying attention to all aspects, including financial, social, environmental, and technology use. Social Manufacturing (SM), according to [2] means that the company continuously implements three dimensions, namely the Triple Bottom Line (TBL) by following per under with the three basics in the industry, especially the 4.0 revolution in ceramic companies in Italy. In the era of the Industrial Revolution 4.0, the company set a target to innovate a promising and sustainable production process using advanced technology and innovating through assembly lines [3] and [4].

The implementation of TBL is closely related to social manufacturing because it includes the environment as well as the social one known as the concept of Profit, Planet, and People. Environment and social are often associated with social responsibility as the idea that companies do not only stand on a single bottom line. Awareness of the importance of disclosing corporate social responsibility (CSR) with the idea that companies not only have economic and legal obligations to shareholders but also

obligations to other interested parties [5]. The CSR disclosure that was put forward is indeed one proof of social manufacturing which is also discussed in the TBL concept. Social responsibility is now an obligation for companies because it has been legalized by the Indonesian government as stated in Law No.40 concerning Limited Liability Companies [6] which was passed on July 20, 2007. As stated in article No. 74 of the PT L₁ states that the company carries out its business activities related to natural resources, it is mandatory to carry out social and environmental responsibility [7], this shows how close the environmental and social concepts are in the implementation of TBL.

Between social manufacturing, the implementation of the triple bottom line concept consisting of profit, people, and the planet as well as adherence to governance will certainly be able to show company performance. However, the company's ratings on environmental concerns are also a concern for investors or other stakeholders. The environmental performance assessment agency conducted by the Company Performance Rating Program (PROPER) can influence companies to create good environmental awareness by carrying out activities or using materials that do not damage the environment [8]. Environmental performance is the company's performance in creating a good (green) environment [9] and by following per under with the Regulation of the Minister of Environment of the Republic of Indonesia Number 06 of 2013 concerning PROPER [10] that environmental management performance is measured, one of which is the company's achievement in following PROPER. Furthermore, PROPER can assess the efforts and/or activities of the company to control disasters and/or environmental damage as well as the management of hazardous and toxic waste. Moreover, the current industrial era requires company care to pay attention to all aspects as an assessment that is not only financial.

This study aims to examine the implementation of companies in implementing Social Manufacturing (SM) and the Triple Bottom Line (TBL) concept especially in mining companies listed in PROPER and listing on the IDX 2013-2019. The reason for selecting a sample of mining companies is because the type of company sector is closely related to the use of natural resources, which requires sophisticated technology, and requires good management supervision. This study has succeeded in adding to the evidence that PROPER can evaluate companies listed on the IDX in implementing environmental programs associated with the application of the Planet concept on the Triple Bottom Line.

This study examines the implementation of social manufacturing which is closely related to corporate intelligence in using technology, such as the study [11] suggests the concepts and characteristics of SM include distribution, adaptive, and social intelligence in proactive decision making, and has a socialized organization of resources and producers in the product life cycle. Apart from SM in the use of technology, this study also examines the implementation of financial and non-financial aspects included in the Triple Bottom Line (TBL) concept, which includes profit, people, and the planet. The first concept in the form of profit includes how much companies pay attention to economic aspects in measuring company performance [12]. The second TBL concept, namely People, means that companies pay attention to social aspects in carrying out activities, including concern for the surrounding community and management knowledge in preparing for competition, especially in the era of globalization [13]. The third concept of TBL is Planet or environment which measures the company's performance from the way the company creates a good (green) environment [9]. Even if the company presents environmental performance, the company is considered to provide good news for investors [8]. Measurement of the TBL concept, both Profit, People, and Profit using the instrument [14] with each concept of 20 items for a total of 60 items.

Several social aspects of manufacturing, profit, people, and planet in TBL will be able to influence the Proper performance appraisal because the Proper performance assessment is a comprehensive assessment taking into account all aspects that are not only financial but also non-financial, especially environmental factors. Companies that receive the Proper rating will be able to influence users of financial statements to trust the company because PROPER assigns a company predicate whether the company is good or not in carrying out activities and cares about the environment or not. Especially in the era of the current industrial revolution 4.0, where the environment greatly affects all aspects of life, including mining companies listed in PROPER, it is necessary to test whether they have paid attention

to the application of social manufacturing and implemented the TBL concept with profit, people and the planet. Therefore this study intends to examine whether there is an influence between social manufacturing, triple bottom line implementation on PROPER performance?

2. Literature Review and Hypothesis Development

2.1. Agency Theory

According to [15] agency theory explains that there is a separation of company ownership and accountability for decision making. The agency relationship always creates problems between the owner and the agent because of the different mindsets and interests between the two parties. Agency theory explains the relationship between agents and principals. The agent is the manager of the company while the principal is the owner (shareholder). The agency relationship has many factors that influence the disclosure of social responsibility, including supervision costs, contract costs, political visibility [16]. This study is based on agency theory related to the interest of management or the company in showing company performance by providing information not only from the financial side but also assessing the environmental, social, and technological or social performance of manufacturing. Meanwhile, agency theory viewed from the principal's point of view means that the stakeholder will assess the company's performance achievement not only from the financial aspect but also from other aspects.

2.2. Appraisal of company performance with PROPER

Every company is required to always prepare financial reports as an assessment of the performance that has been achieved. Financial reports can show company achievements that are not only based on financial aspects but also environmental aspects including eco-design which can complement company achievements by looking at developments in concrete business cases [17]. If the company shows environmental performance, it means that the company can create a good environment [9] and the company has used materials that do not damage the environment [8].

By following per under the Regulation of the Minister of the Environment of the Republic of Indonesia Number 06 of 2013 [10] Regarding the Company Performance Rating Program Environmental Management (PROPER), the environmental performance assessment of companies is measured by the achievements of the companies participating in the program. PROPER is an assessment program of the efforts of the person in charge of a business and/or activity in controlling environmental pollution and/or damage as well as the management of hazardous and toxic waste. The proper stages include: 1) preparation, 2) rating assessment, 3) self-assessment, 4) screening of green candidates, 5) green and gold assessment, and 6) announcement and 7) follow-up.

PROPER has the following assessment criteria: 1) compliance, and 2) more than what is required in the regulations (beyond compliance). For compliance assessment, the aspects assessed are compliance with: a) environmental document requirements and reporting, b) water pollution control, c) air pollution control, d) hazardous and toxic/B3 waste management regulations, and, e) potential land damage. The compliance assessment criteria are updated every year by incorporating the latest regulations into the criteria. The assessment criteria on aspects beyond compliance are dynamic in nature because they are always adjusted to technological developments, the application of best environmental management practices, and global environmental issues. The criteria for assessing more aspects than required (beyond compliance) include a) environmental management system assessment criteria, b) resource utilization, and c) community empowerment assessment. According to [18] PROPER can motivate corporate environmental management through existing environmental management instruments, namely environmental law enforcement and economic instruments. The application of PROPER can answer the need for access to information on transparency and public participation in environmental management.

2.3. Social Manufacturing (SM)

Social manufacturing (SM), according to [19], namely the implementation of SM as a continuous innovation by having social networks and open innovation can strengthen the process of sharing social

resources. Launching new products within the SM paradigm is made easier and cheaper. The SM paradigm will not be limited to small and medium enterprises and individual entrepreneurs but will be extended to large companies. According to [20] there is no potential conflict of interest concerning research and financial support [11].

Social manufacturing is closely related to the use of technology, but a study [21] suggests that IT investment does not always increase company performance. There are 4 aspects, according to [22], the occurrence of the productivity paradox of IT ownership, including (1) measurement error. An error occurs in the input and output measurements. (2) There are delays or lags. The time delay here arises from the difference in time analysis of the payoff of costs versus benefits. (3) Redistribution: IT is used in redistribution activities between companies. This makes IT useful, but these benefits cannot be measured in total output. (4). Mismanagement, errors in IT management can make IT look unproductive when measured statistically.

The use of IT or technology that is defined as social manufacturing requires manufacturing equipment and smart interactive terminals connected directly to the network which makes all manufacturing, consumption, and service activities realized online [23] and can show the system to monitor the production process in a smart manufacturing manner, starting from the selection process. materials, the production process to the final product cannot be separated from the use of technology [24]. According to [11] suggested that a company that implements Social Manufacturing continuously and a social manufacturing network consisting of the internet will make the community individually and socially fully participate in the whole process of making product life by outsourcing, facilitating personalization, real-time production, and consumption patterns and being socialized, which in finally resulting in a new industrial revolution that is closely related to the Triple Bottom Line concept by following per under with the opinion [2] that a company that implements Social Manufacturing (SM) means that the company continuously implements the aspects of Profit, People, and Planet in the Triple Bottom Line (TBL), where the company also pay attention to environmental performance. Likewise with a study [25] which proved that PROPER has been successful in becoming an evaluation tool for environmental management and a trigger for sustainable industrial technology innovation. Regarding technological and environmental innovations in PROPER companies, the 1st hypothesis is:

H1: There is a social influence of Manufacturing on PROPER performance.

2.4. Triple Bottom Line: Profit, Planet, and People

The Triple Bottom Line (TBL) concept is actually related to business sustainability [26]. The concept of performance appraisal related to financial and non-financial aspects in a sustainable manner is then strengthened by strict laws that create conflicts between companies and stakeholders because to achieve higher environmental success is often accompanied by increased social accountability and environmental protection that is strengthened in the context global and UN provisions 2012-2030.

The concept of profit from the implementation of TBL in PROPER companies uses the TBL Index assessment conducted by the sample companies. [14] uses a score of 1 if the company discloses the concept of profit or economic aspects in TBL. Score 0 if not. The concept of TBL which is reviewed from the aspect of profit (economic dimension) shows how companies apply the concept of profit in the company. [18], [27], and [14] test the profit on the economic dimension, in the Triple Bottom Line concept. [28] proved that Profit does not affect on PROPER performance. Companies need to pay attention to whether the concept of profit in the triple bottom line will be able to affect the performance of the companies that are included in the Proper list, then the submission of hypothesis 2 is as follows:

H2: Profit in the Triple Bottom Line affects PROPER Performance

The concept of People or social is more commonly known as Corporate Social Responsibility (CSR). [18] have tested the social or community concept of TBL implementation with company results that reveal social activity will increase high profitability, according to a study [1] showing that companies

that have high profits demand management to provide social and environmental activities as a manifestation of social contracts that occur in social interactions. The implementation of the People concept is measured by dummy variables from 2 categories with a score of 1 if there is social disclosure, and a score of 0 if not, using the instrument [14]. This study examines people who are associated with environmental performance achievements in the PROPER category, then hypothesis 3 is:

H3: The concept of People in the Triple Bottom Line affects PROPER performance

The Planet concept in the Triple Bottom Line implementation relates to the environment. [16] tested TBL about concerning environmental performance assessment between companies in the US and Japan. The total triple bottom line disclosure is greater, driven by non-economic disclosures in the triple bottom line disclosure, Japan is higher in reporting environmental disclosures. Environmental performance is the company's efforts to create a good environment by carrying out activities or using materials that do not damage the environment [8]. [18] and [8] examined environmental performance which has a significant effect on the extent of TBL disclosure.

The implementation of the Planet aspect in the TBL concept will affect the judgment of investors or stakeholders in assessing company performance which is indirectly reflected in the presentation of financial statements. Measurement of environmental aspects (Planet) in this study also uses the TBL index compiled by [14] by giving a score of 1 if environmental performance is listed and 0 if not. Planetary or environmental aspects are also related to the PROPER company performance, so hypothesis 4 is:

H4: Planets in the Triple Bottom Line affect the PROPER performance

3. Research Method

The sample of this research is mining companies listed on the IDX and listed in PROPER between 2013-2019, with a total of 70 company observations, provided that the company is included in the PROPER list. The method of determining the sample is purposive with the provisions of the company including the PROPER list. Data from the Annual Report. The research variables consisted of 2, namely the dependent variable and the independent variable.

This dependent variable, namely PROPER (Y), means that the company carries out an environmental program by following per under with the Republic of Indonesia's Environment Regulation No: 06/2013 concerning the Company Performance Rating Program in Environmental Management. The PROPER variable is categorical and has 5 levels. However, the results of the data analysis of this study indicate that those included in the PROPER list are companies that are ranked 3-5.

By following per under the provisions of the Multinomial Logistic Regression, the Reference category is selected based on PROPER frequency, *in this case, PROPER Gold (score 5 = very-very good)*, while Probability is PROPER Green (score 4 = very good) and Blue (score 3 = good). While there are 4 independent variables, namely:

3.1. Variable Social Manufacturing (X1):

The company uses sophisticated equipment and is directly connected to the network which makes all activities, consumption, and services online and can show the system to monitor the production process in a smart manufacturing manner [23]. In this case the measurement of social manufacturing by looking at the use of advanced technology from the company, including technology. Measurement of Social Manufacturing (SM) uses dummy variables with a score of 1 company using existing technology and 0 not.

3.2. Profit Variable (X2):

The company takes into account the assessment of the Profit aspect in the Triple Bottom Line. Measurement of Profit using an index of [14], by calculating the number of Profit items available,

divided by the total items. If the company discloses a score of 1 and 0 if not. There are 20 items related to profit, including general, customer, supplier, employee, investor/creditor, public sector, corporate investment, others.

3.3. Variable People (X3):

The companies pay attention to social aspects in implementing the Triple Bottom Line concept. Measurement of People with an index of [14], by counting the number of People items that exist, divided by the total items. If the company discloses a score of 1 and 0 otherwise there are 20 items, including general; employee; diversity, opportunity, and human rights; costumer and communities; integrity and ethics.

3.4. Planet Variable (X4):

The company pays attention to environmental aspect assessment in the Triple Bottom Line. Planet measurement uses an index of [14], by calculating the number of Planet items present, divided by the total items. If the company discloses a score of 1 and 0 if it does not consist of 20 items, it includes general; energy, water, materials; pollution, and waste management; others.

This study uses Multinomial Logistic Regression data analysis because the dependent variable is categorical and more than 2, it uses Logistic Multinomial Regression. Data analysis is in the form of 1) Simultaneous Test, 2) Likelihood Ratio Test (Hypothesis Test), 3) Simultaneous Test with Fitting Information Model, 4) Model Goodness Test (R2), and 5) Estimation Parameters and Logistic Regression Model Formation. The equation estimation model is by following per under Multinomial Logistic Regression, namely:c

7

$$\text{Logit } P (Y=1) = \alpha + \beta1 X1 + \beta2 X2 + \beta3 X3+ \beta4 X4$$

1 Research Results

This study uses a sample of 10 mining companies listed on the IDX (www.idx.com) in 2013-2019, bringing a total of 70 observations. The method of determining the sample is purposive with the provisions that the company is registered in PROPER.

4.1. Proper and Social Manufacturing Data

Based on the data analysis, it can be shown that there are 39 companies with the PROPER Blue category which means “Good” environmental performance, 23 companies are in the “Very Good” category and 8 companies have the Gold category which means “Very, Very Good. Table 1 also shows that not all companies invest in information technology and only 13 companies invest in advanced information technology. The following is a summary of Table 1 regarding PROPER and Social Manufacturing performance.

Table 1. PROPER and Social Manufacturing Performance Data

Criteria	PROPER	Criteria	Social Manufacturing
Blue	39 (55.70%)	Information Technology Investment	13 (18.6%)
Green	23 (32.90%)	No Information Technology Investment	57 (81.4 %)
Gold	8 (11.40%)		
	70 (100%)		70 (100%)

4.2. Partial Test / Hypothesis Test

Based on the Likelihood Ratio Test (Hypothesis Test), the independent variable that plays a role in predicting PROPER performance is Planet (X4), because the variable is p <0.05. Meanwhile, other variables do not contribute to predicting PROPER performance because p> 0.05. (Table 2).

Table 2. Likelihood Ratio Tests ((Hypothesis testing)

Effect	Model Fitting Criteria		Chi-Square	Df	Sig	information
	2 Log Likelihood of Reduced Model					
Intercept	94.796 ^a		0.000	0	0,000	
SOS_MAN	96.767		1.971	2	0.373	Uncontribution
PROF_TBL	95.233		0.437	2	0.804	Uncontribution
PEOP_TBL	97.491		2.695	2	0.260	Uncontribution
PLAN_TBL	110.565		15.769	2	0.000	Contribution

4.3. Simultaneous Test

Based on the Simultaneous Test with the Fitting Information Model with a significance of 5% (p < 0.05) there is sufficient evidence to state that is Planet (X4) which is statistically significant effect PROPER. (see Table 3).

Table 3. Simultaneous Test with the Fitting Information Model

Model	Model Fitting Criteria		Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.	
Intercept Only	131,528				
Final	94.796	36.731	8	0,000	

4.4. Model Goodness Test

Based on the Pseudo R Square (R2) test, the result was 0.482 according to Nagelkerke, which means that 48.20% PROPER is explained by Profit, People, Planet, and Social Manufacturing and 51.80% was explained by variables outside the research model. (Table 5).

Table 5. Pseudo R-Square

Cox and Snell	0.408
Nagelkerke	0.482
McFadden	0.279

4.5. Estimation Parameters and Logistic Regression Model Establishment

The results of the parameter estimation analysis (Table 6) show that the PROPER Blue category (row 1) there are significant variables (*), namely: Social Manufacturing (X1) and Planet (X4) at p < 0.05, while the Profit (X2) and People (X3) variables were not significant because p > 0.05.. Equation 1 is:

$$\ln P(Y = 3) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

$$\ln P(Y = 5)$$

$$\ln P(Y = \text{Blue}) = 25.993 + 18.100 X_1^* + 5.555 X_2 - 1.912 X_3 - 33.648 X_4^*$$

$$\ln P(Y = \text{Gold})$$

- The Social Manufacturing (X1) affects the probability that PROPER Blue is higher than PROPER Gold with a coefficient value of 18.100 and significant at p < 0.05 with an Odd Ratio value of 72555387.133.
- The concept of Triple Bottom Line on Planet (X4) affects the probability of achievement of PROPER Gold higher than PROPER Blue with a coefficient value of -33,648 and significant at p < 0.05 with an Odd Ratio value of 2.437E-15.

Equation 2.

$$\ln P(Y = 4) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

$$\ln P(Y = 5)$$

$$\begin{aligned} \ln P(Y = \text{Green}) &= 25.642 + 18.658 X_1 + 7.502 X_2 - 6.708 X_3 - 32.077 X_4^* \\ \ln P(Y = \text{Gold}) & \end{aligned}$$

- The Planet (X4) affects the probability that PROPER Green is lower than PROPER Gold with a coefficient value of -32.077 and significant at $p < 0.05$ with an Odd Ratio value of 1.173E-14.

Table 6. Estimation Parameters

PROPER ^a	B	Std. Error	Wald	df	Sig.	Exp(B)
Intercept	25.993	12.477	4.340	1	0.037	
B [SOS_MAN=,0]	18.100	0.710	650.050	1	0.000*	72555387.123
L [SOS_MAN=1,0]	0 ^b	.	.	0	.	.
U PROF_TBL	5.555	14.369	0.149	1	0.699	258.442
E PEOP_TBL	-1.912	8.392	0.052	1	0.820	0.148
PLAN_TBL	-33.648	14.495	5.389	1	0.020*	2.437E-15
Intercept	25.642	12.500	4.208	1	0.040	
G [SOS_MAN=,0]	18.658	0.000	.	1	.	126845195.626
R [SOS_MAN=1,0]	0 ^b	.	.	0	.	.
E PROF_TBL	7.502	14.510	0.267	1	0.605	1811.582
N PEOPLE_TBL	-6.708	8.603	0.608	1	0.436	0.001
PLAN_TBL	-32.077	14.550	4.860	1	0.027*	1.173E-14

Reference = Gold Category

* significant

5. Discussion

Based on Table 2, the Likelihood Ratio Test shows that the Social Manufacturing (X1) variable has a Chi-Square significance value > 0.05 , which means that social manufacturing does not contribute to the Proper model. However, if it is reviewed based on Table 6, the Wald Social Manufacturing value is 650.050 with $p = 0.000 < 0.05$, it means that hypothesis 1 is supported, which means that Social Manufacturing affects on PROPER because $p < 0.05$. The results showed that companies implementing Social Manufacturing or the use of Information Technology affected PROPER performance. This is in contrast to [25] because PROPER as an evaluation tool for environmental management and a trigger for sustainable industrial technology innovation can provide innovations that can improve PROPER performance.

The results of hypothesis testing 2 in Table 2 The Likelihood Ratio test shows that the Profit variable (X2) has $p = 0.804 > 0.05$, which means that the profit does not contribute to Proper, as well as based on Table 6 the Wald value is 0.437 with $p = 0.699 > 0.05$ because $p > 0.05$ means that the Tri Bottom Line Concept in the form of Profit does not affect on PROPER. Hypothesis 2 which reads: There is an effect of Profit on PROPER performance is not supported. The results of testing this hypothesis support research [28] that Profit does not affect on PROPER performance. This shows the concept of the Triple Bottom Line on Profits such as economic aspects including customers, suppliers, employees, investors, creditors, etc. which do not always affect environmental performance, it does not rule out the possibility that the company only focuses on profits. regardless of whether the advantage is damaging to the environment or not.

The People variable (X3) has a Chi-Square value of 2,695 with a significance of 0.260 which means that People do not contribute to the PROPER model because $p > 0.05$. Likewise, it can be seen from Table 6 with a Wald value of 0.052 with $p = 0.820 > 0.05$, it means that people do not affect PROPER performance so that hypothesis 3 which states: There is an effect of people on PROPER performance is not supported. The results of this study imply that the mining companies in this sample have community (social) performance which does not necessarily improve environmental performance. This result is in line with the study [18] which proves the social concept will increase profitability but not

environmental performance, as well as a study [1] which shows the same result. This result implies that social aspects such as human rights awareness, customer community do not affect on environmental awareness.

The Planet variable (X4) has the results of the Likelihood Ratio Test (Table 2) with $p\ 0.00 < p\ 0.05$, which means that the planet contributes to determining the PROPER model. Likewise, it can be seen from Table 6 with a Wald value of 5.389 with $p\ 0.020 < 0.05$. This shows that the submission of hypothesis 4 is supported, which means that Planet affects PROPER performance. Per Under with the study [14] which proved the application of TBL in the US and Japanese companies revealed more non-economic aspects than Japan which was higher than in the US. This study is in line with [18] and [8] which prove that environmental performance is closely related to TBL disclosure, especially environmental aspects (Planet). This shows that environmental aspects such as attention to energy, water, pollution, waste disposal management can also improve PROPER performance.

6. Conclusion

This study provides novelty in the PROPER test by distinguishing blue, green, and gold ratings. Also Besides, social manufacturing with the use of technology can predict Proper achievements. Based on the multinomial logistic regression test, it was found that social manufacturing and planetary influences Proper performance. The Blue Proper category is higher than Gold Proper with a coefficient of 18.100 and significant at $p < 0.05$ with an Odd Ratio value of 72555387.133. The concept of Triple Bottom Line on Planet (X4) affects the probability of PROPER Gold being higher than Blue with a coefficient value of -33.648 and significant at $p < 0.05$ with an Odd Ratio value of 2.437E-15.

This research can prove that apart from the TBL concept, social manufacturing, or investment in the use of technology also needs to be considered in improving Proper performance. By following the opinion [25] which states that with the PROPER assessment, companies can evaluate environmental management and can motivate company managers to always innovate by using sustainable industrial technology.

The concept of sustainability also needs to be considered for the application of a decent return on performance. Because profit has always been the main goal of the company in considering economic aspects. Although earnings do not show significant results but also affect decent performance, according to a study [28] that companies that pay attention to the concept of earnings can influence decent performance. Likewise with the concept of People (X3), although it shows insignificant results, it needs to be paid attention by the company. The awareness of the company to pay attention to community aspects needs to be emphasized again so that the implementation of the Social Responsibility Law can really be implemented which also has an impact on improving environmental performance.

This study has limitations, with an unbalanced composition between ratings that can affect the results. Future studies can be used with a balanced performance composition.

References

- [1] A. K. Nugroho and A. Purwanto, "Pengaruh Karakteristik Perusahaan, Struktur Kepemilikan, Dan Good Corporate Governance Terhadap Pengungkapan Triple Bottom Line Di Indonesia," *Diponegoro J. Account.*, vol. 2, no. 2, pp. 2337–3806, 2013.
- [2] A. M. Braccini and E. G. Margherita, "Exploring organizational sustainability of Industry 4.0 under the triple bottom line: The case of a manufacturing company," *Sustain.*, vol. 11, no. 1, 2018.
- [3] H. Kagermann, W.-D. Lukas, and W. Wahlster, "Industrie 4.0: Mit dem Internet der Dinge auf dem Weg zur 4. industriellen Revolution," *VDI Nachrichten*, no. 13, pp. 3–4, 2011.
- [4] M. Hermann, T. Pentek, and B. Otto, "Design principles for Industrie 4.0 scenarios," *Proc. Annu. Hawaii Int. Conf. Syst. Sci.*, vol. 2016-March, pp. 3928–3937, 2016.
- [5] N. Wijaya, "Pengaruh Intellectual Capital Terhadap Kinerja Keuangan Dan Nilai Pasar Perusahaan Perbankan Dengan Metode Value Added Intellectual Coefficient," *J. Bisnis dan Akunt.*, vol. 14, no. 3, pp. 157–180, 2012.

- [6] U. P. N. 40 RI, "Undang Undang RI No. 40 Tahun 2007 Tentang Perseroan Terbatas," 2007.
- [7] L. Santioso and E. Chandra, "PENGARUH PROFITABILITAS, UKURAN PERUSAHAAN, LEVERAGE, UMUR PERUSAHAAN, DAN DEWAN KOMISARIS INDEPENDEN DALAM PENGUNGKAPAN CORPORATE SOCIAL RESPONSIBILITY," *J. Bisnis dan Akunt.*, vol. 14, no. 1, pp. 17–30, 2012.
- [8] T. R. Putri, R. N. Sari, and R. N. Sari, "Pengaruh Kepemilikan Asing , Kinerja Lingkungan Dan Pengaruh Politik Terhadap Luas Pengungkapan Corporate Social Responsibility Pada Perusahaan Pertambangan Yang Terdaftar Di Bursa Efek Indonesia," *J. Sos. Ekon. Pembang.*, vol. 3, no. 9, pp. 268–285, 2013.
- [9] E. Wany, S. A. Murni, and Kholidiah, "Pengaruh Corporate Environmental Performance dan Corporate Social Accounting Disclosure Terhadap Corporate Economic Performance Lingkungan," *Media Ris. Akuntansi, Audit. Inf.*, vol. 13, no. 2, pp. 35–61, 2013.
- [10] RI, "Peraturan Menteri Lingkungan Hidup RI NO.06 Tahun 2013 Tentang Program Penilaian Peringkat Kinerja Perusahaan Dalam Pengelolaan Lingkungan Hidup," 2013.
- [11] P. Jiang, J. Leng, K. Ding, P. Gu, and Y. Koren, "Social manufacturing as a sustainable paradigm for mass individualization," *J. Eng. Manuf.*, vol. 230, no. 10, pp. 1961–1968, 2016.
- [12] G. Svensson, N. Høgevold, C. Ferro, J. C. S. Varela, C. Padin, and B. Wagner, "A Triple Bottom Line Dominant Logic for Business Sustainability: Framework and Empirical Findings," *J. Business-to-bus. Mark.*, vol. 23, no. 2, pp. 153–188, 2016.
- [13] N. Z. Afifah, L. Andrawina, and A. Kumiawati, "Penilaian Knowledge Management System Readiness Di Perusahaan G Berdasarkan Faktor People , Process , Dan Technology B-44 B-45," 2011.
- [14] J. L. Ho and M. E. Taylor, "An empirical analysis of triple-bottom-line reporting and its determinants: Evidence from the United States and Japan," *J. Int. Finance. Manag. Account.*, vol. 18, no. 2, pp. 123–150, 2007.
- [15] M. Jensen and W. Meckling, "THEORY OF THE FIRM: MANAGERIAL BEHAVIOR, AGENCY COSTS AND OWNERSHIP STRUCTURE Michael," *J. financ. econ.*, vol. 3, pp. 303–360, 1976.
- [16] A. Belkaoui and P. G. Karpik, "Determinants of the Corporate Decision to Disclose Social Information," *Accounting, Auditing & Accountability Journal*, vol. 2, no. 1. pp. 36–51, 1989.
- [17] V. P. Rodrigues, D. C. A. Pigosso, and T. C. McAloon, "Process-related key performance indicators for measuring sustainability performance of ecodesign implementation into product development," *J. Clean. Prod.*, vol. 139, pp. 416–428, 2016.
- [18] N. A. Rosyidah, "Analisis Pengungkapan Triple Bottom Line dan Faktor Yang Mempengaruhi," *Equity*, vol. 3, no. 4, 2017.
- [19] P. Jiang and J. Leng, "The configuration of social manufacturing: A social intelligence way toward service-oriented manufacturing," *Int. J. Manuf. Res.*, vol. 12, no. 1, pp. 4–19, 2017.
- [20] P. Jiang, J. Leng, and K. Ding, "Social manufacturing: A survey of the state-of-the-art and future challenges," 2016.
- [21] R. Ardianti, "Tinjauan Terhadap Dampak Teknologi Informasi Dalam Organisasi Bisnis Dan Upaya Untuk Merealisasikan Manfaat Positifnya," *J. Manaj. dan Wirausaha*, vol. 8, no. 2, pp. 72–77, 2006.
- [22] E. Brynjolfsson and S. Yang, "Information Technology and Productivity: A Review of the Literature," *Adv. Comput.*, vol. 43, no. C, pp. 179–214, 1996.
- [23] B. Mohajeri *et al.*, "The impact of social manufacturing on the value chain model in the apparel industry," *Proc. 2014 IEEE Int. Conf. Serv. Oper. Logistics. Informatics, SOLI 2014*, pp. 378–381, 2014.
- [24] M. W. Sari, Herianto, I. B. Dharma, and A. E. Tontowi, "Design of Product Monitoring System Using Internet of Things Technology for Smart Manufacturing," 2020.
- [25] F. . Wahyudianto and R. Boedisantoso, "Penerapan PROPER sebagai Alat Pemicu Inovasi Teknologi Industri Berkelanjutan," 2016.

- [26] C. Ferro, C. Padin, N. Høgevoid, G. Svensson, and J. C. Sosa Varela, "Validating and expanding a framework of a triple bottom line dominant logic for business sustainability through time and across contexts," *J. Bus. Ind. Mark.*, vol. 34, no. 1, pp. 95–116, 2019.
- [27] F. Yanti and N. K. Rasmini, "Analisis Pengungkapan Triple Bottom Line Dan Faktor Yang Mempengaruhi : Studi Di Perusahaan Indonesia Dan Singapura," *Akuntansi*, vol. 13, no. 2, pp. 499–512, 2015.
- [28] S. L. Wicaksono, "Faktor-Faktor Yang Berpengaruh Terhadap Kinerja Lingkungan (Studi Pada Perusahaan PROPER Yang Terdaftar di Bursa Efek Indonesia)," 2012.

ORIGINALITY REPORT

7%

SIMILARITY INDEX

4%

INTERNET SOURCES

5%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

1	eprints.unsri.ac.id Internet Source	1%
2	www.econjournals.com Internet Source	1%
3	Pingyu Jiang, Jiewu Leng, Kai Ding, Peihua Gu, Yoram Koren. "Social manufacturing as a sustainable paradigm for mass individualization", Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, 2016 Publication	1%
4	"Sustainability, Green IT and Education Strategies in the Twenty-first Century", Springer Science and Business Media LLC, 2017 Publication	1%
5	repository.its.ac.id Internet Source	1%
6	Pingyu Jiang, Jiewu Leng, Kai Ding. "Social manufacturing: A survey of the state-of-the-art and future challenges", 2016 IEEE International	1%

Conference on Service Operations and Logistics, and Informatics (SOLI), 2016

Publication

7

studentsrepo.um.edu.my

Internet Source

1%

Exclude quotes On

Exclude matches < 1%

Exclude bibliography On