

Green Marketing Mix Role Toward Sustainability Performance of Petrochemical Industry in Indonesia

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Abstract

Petrochemical industry plays a vital role in the economic growth of a nation then petrochemicals is also considered as a cost-based industry. Indonesia has higher demand growth against the global demand growth. Therefore, to achieve the industry economic sustainability, it is a need to have a better management strategy toward production efficiency. Thus firms should try to incorporate the 4 Ps' of marketing mix such as green product, green price, green distribution and green promotion into green marketing. The concept of green marketing mix pertains to the elements that are designed to achieve the strategic and financial goals of a firm, particularly in terms of reducing their negative (or increasing their positive) effects on the natural environment. This study was conducted among petrochemical olefin manufactures based in Banten Province Indonesia. The result showed that green marketing mix directly has a positive effect on sustainability economic performance, environment performance and social performance respectively. In addition, green marketing mix has already started to be run within petrochemical industry in Indonesia.

Keywords

Sustainability, Green Marketing Mix, Petrochemical, Green Product, Green Price, Green Distribution, Green Promotion

1. Introduction

As petrochemical industry plays a vital role in the economic growth of a nation then petrochemicals is also considered as a cost-based industry. Indonesia has higher demand growth against the global demand growth. Polyethylene and Polypropylene are examples of the products used to produce consumer goods' packaging. Therefore, to achieve the industry economic sustainability it is a need to have a better management strategy toward production efficiency. Thus firms should try to incorporate the 4 Ps' of marketing mix such as green product, green price, green distribution and green promotion into green marketing. The concept of green marketing mix pertains to the elements that are designed to achieve the strategic and financial goals of a firm, particularly in terms of reducing their negative (or increasing their positive) effects on the natural environment.

Bhalerao & Deshmuh (2015) stated that various factors that influence environmental degradation could broaden to the meaning of green marketing. It is quite challenging for firms to see that products are produced in a way that not harm society and the environment but at the same time be profitable. The significant result relationship between 4' Ps Marketing with sustainability performance of Bhalerao & Deskmuh (2015) research, motivate this study to find a model between green marketing mix role toward firm sustainability performance, particularly assimilation of green

marketing and marketing mix by way of considering the 4' Ps of marketing in the petrochemical industry in Indonesia.

Sustainability has been expressed as a value system aimed at the orientation of decision makers and their management to transform their responsibility for environmental, economic and social behavior into business practices within the legitimacy of the society at large (Luthra *et al.*, 2014 and Olugu *et al.*, 2010).

2. Conceptual Model

Stakeholder Theory. The stakeholder theory (Freeman, 1984, p.43), stated that "Any organization performs to benefit and satisfy its stakeholders including government, investors, political groups, customers, suppliers, communities, trade associations, and employees". The Tri Bottom Line (TBL) concept on sustainability firm performance is related to the stakeholder theory. Not only the firm's concern on their economic, environment and social performance sustainability, but also the government itself. From petrochemical firms stakeholder perspective, there are other factors that also motivate businesses to improve their environmental records and enhance their competitiveness in the marketplace, despite the government enforcement on green industry concept that drives businesses to go green and implement environmental management systems (EMS).

Marketing Strategy Theory. Green marketing strategies can be implemented through a process called greening of the marketing mix, a process which is an environmentally friendly company. Green marketing mix strategies including developing green-based products, green logistics, green promotion, green pricing, and green consumption. The strategy includes the adoption of eco-marketing orientation as a business philosophy, government intervention, life cycle analysis and works together to gain business success (Polonsky & Mintu, 1995).

2.1. Sustainability Performance

Sustainability is often operationalized using the concept of the triple bottom line developed by Elkington (1997), which integrates economic, environmental and social sustainability. The triple bottom line suggests that firms need to engage in environmentally and socially responsible behavior and that positive economic gains can be made in the process (Gimenez *et al.*, 2012). The triple bottom line helps organizations look not only on the economic value that they generate but also it makes it possible to incorporate environmental and social values, which may be multiplied or reduced, into the assessment of their activities (Zak, 2015).

2.1.1 Economic Performance

Sustainability has significant effects on the economic decisions due to a number of reasons (Ross, 2015), including:

- **Sustainability concerns and good environmental management:** The concerns emphasize the efforts of the business to reduce waste, conserve energy, minimize carbon footprints and attempt to recycle wastes and other useable products.
- **The power of customer choice and public opinion:** These concerns are regarding the awareness of consumers about the preservation of natural resources and protecting the environment.
- **Potential for advantage over competitors:** These concerns focus on the implementation of sustainability practices to reduce costs and increase resource efficiency that enhance the financial bottom line and build a reputation of being eco-friendly.

2.1.2 Environment Performance

The activities of corporations and business operations affect the natural environment in many ways. As the importance and demand for clean water, pure air, fewer toxins and several other benefits of environmentally friendly corporations and stewardship increase, there have been improvements regarding the environmental behavior of organizations.

Sustainability and environmental issues are among the most pressing concerns for modern humanity, governments, and environmentally conscious business organizations to promote organizational sustainability, specifically for the emerging economies (Hsu *et al.*, 2013; Fabbe-Costes *et al.*, 2014; Tseng *et al.*, 2015).

2.1.3 Social Performance

The concept of social responsibility and the integration of TBL into corporate strategy are gaining popularity. Elkington (1997) stated that this dimension requires the assessment and measurement of the organization's impact on the social systems of the communities in which it operates, whether it is a local, national or global level. Globally, there are various standards that can help in measuring the social dimension of TBL.

2.2. Green Marketing Mix

Green marketing mix elements consist of internal marketing mixes such as product, price, distribution, promotion, the provided information, operations policies, and individuals. Green prior study by Eneizam *et al.* (2015); Hasan & Ali (2017); Eneizam & Wahab (2016); Leonidou *et al.* (2013), concluded that there is positive relationship between green marketing mix (green marketing strategy of 4P) and firm performance. Further there is significant effects of 11green product, green price, green promotion, green distribution, strategic competency and marketing resources significantly positively affects organizational performance

2.2.1 Green Product

Rath (2013) describes those products are manufactured from the industry through the green technology and that caused no environmental hazards are called “Green Products”. Gopalakrishnan and Muruganandam (2013) said that due to the efforts of the government and organizations, people have started to think green; they have brought green products into their consideration set.

2.2.2 Green Pricing

Green pricing programs concern pricing practices that account for both the economic and environmental costs of production and marketing, while providing value for customers and a fair profit for business (Martin & Schouten, 2012). Pricing of green marketing is important and considering the fact that they support environmental friendliness so the value can be added to the product for changing its appearance, functionality and through customization. (Shrama & Goyal, 2012).

2.2.3 Green Distribution

Chin *et al.* (2015) identified that the main objectives of green distribution are to encourage using environment friendly packaging raw materials and systems, standardizing packaging process in coordination with suppliers, using recycled materials along with producing recyclable packages, and reducing energy consumption in warehouses. Muma *et al.* (2014), Chin *et al.* (2015), and Seroka-Stolka (2014), latest study in Jordan confirmed that green distribution has a significant impact on environmental performance.

2.2.4 Green Promotion

Hasan & Ali (2017) stated that the success of green promotion is a success factor to influence the firms’ performance. They concluded that green advertising must be able to communicate the relationship between a products or services with the environment and finally could enhance the corporate image of the companies.

3 Hypothesis Development

Hence, this study postulates that green marketing mix practices positively affects sustainability of firm performance.

The research hypotheses framework is illustrated at figure 1 below with hypotheses are developed as follow:

H₁: Green marketing mix has a positive effect on sustainability economic performance.

H₂: Green marketing mix has a positive effect on sustainability environment performance.

H₃: Green marketing mix has a positive effect on sustainability social performance

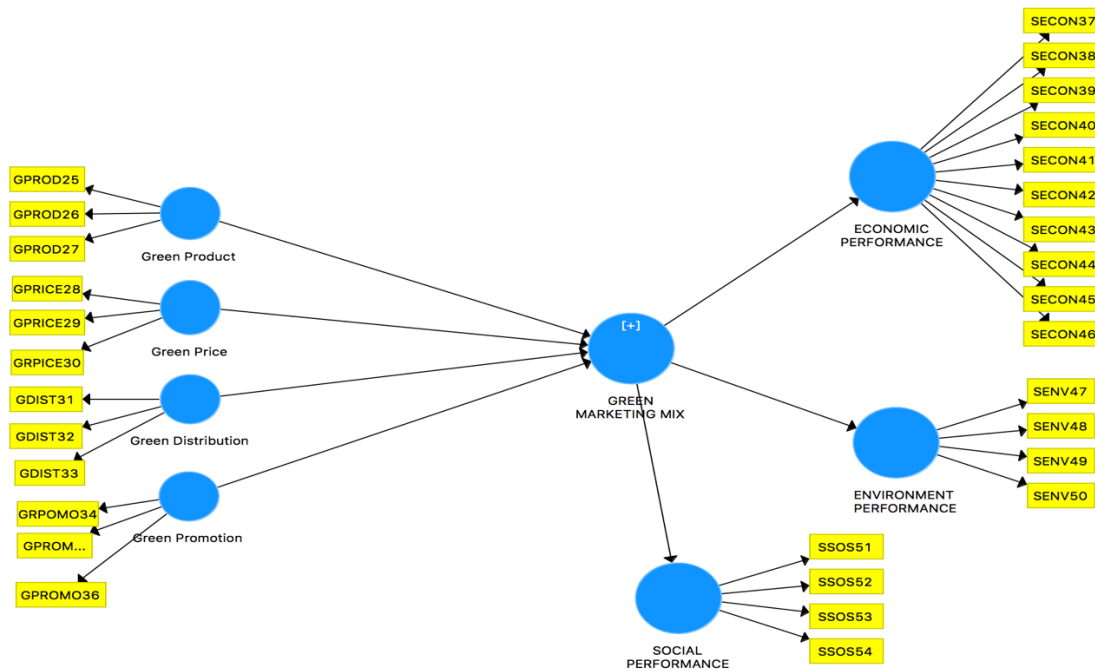


Figure 1. Research Model

4 Sample, Data Collection and Measurements

This study focuses only for the Olefin petrochemical manufacturers, located in Banten province Indonesia and this survey is a purposive random sampling. Having data screening form outliers by SPSS then the data ready for measurement analysis is 255.

The research model (figure 1) of this study consists a higher order construct. According to Hair et al (2017), instead of modeling the attributes on a single construct layer, higher-order modeling involves summarizing the lower-order components into a single multidimensional higher-order construct. This modeling approach leads to more parsimony and reduces model complexity, whilst in situations characterized by collinearity among constructs, establishing a higher-order structure can reduce collinearity issues and may solve discriminant validity problems.

The measurement validity test is conducted to all the first order construct subject to their reflective model. These reflective variables within the first order construct are:

- i covers green product's items measurement, green pricing's items measurement, green distribution's items measurement and green promotion's item measurement (Syal & Jindal ,2016 and Mahmood *et al.*, 2017)

Green Product Measurements cover :

1. Use organic raw materials to manufacture products
2. Products been standardized to ensure safety as per law
3. Provide recyclable packaging for products
4. Product packaging biodegradable
5. Producing products with least percentage of the adverse reflections on the human beings.
6. Producing products with less pollution
7. Products free of strong toxicity materials

Green Pricing measurements cover:

1. Costs associated with green product processing
2. Customers comfortable paying a premium for green products
3. Proportionately pricing
4. Higher price

Green Distribution measurements cover:

1. Fuel efficient on transportation fleet
2. Source raw materials for green products
3. Using distinguished agents.
4. The store in company is clean
5. Dealing with agents friendly to the environment

Green promotion measurements cover:

1. Seminar and conferences related to the environment
2. Supporting the environmental centers
3. Information on environment friendly products / production , waste disposal method
4. Marketing communication to reinforce and educate environment protection.
5. Corporate Social Responsibility

ii. covers the endogen variable economic, environment and social performance, such as :

Economic performance (Younis *et al.* (2016): decreasing fee for waste treatment and discharge; profit growth; market share growth; market need fulfillment; decrease fee for environmental accidents; profit consistently with the past three years; decrease of energy consumption cost; growth on sales and earnings; customer satisfaction; increase customer loyalty.

Environment performance (Younis *et al.* (2016): Reduced air emission; Reduced waste water: Reduced solid wastes; Decreased consumption for hazardous / harmful/ toxic materials ; Decreased frequency for environmental accidents Improve a company's environmental situation

Social performance (Younis *et al.* (2016): Improved corporate image; Social commitment: Preserve environment ; Enhanced employee job satisfaction

According to Ramayah, et al., (2018), in the assessment of reflective measurement model, three main assessment criteria are needed at the outset such as the internal consistency reliability, convergent validity (indicator reliability / outer loading and average variance extracted) and discriminant validity. In this study, all the items' loadings for reflective construct have fulfilled all the criteria of the minimum cut-off value such as at 0.70 for the consistency reliability (Hair, et.al., 2013) as well as pass the threshold of minimum 0.70, 0.70 and 0.50 (Fornell & Larker, 1981) for the convergent validity Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) respectively.

Having measured the first order construct then the higher order construct measurement of green marketing mix will use the two stage approach as the tool for higher order construct measurement, particularly when there is formative construct. The green marketing mix has formative construct. Hence, the green product, green pricing, green distribution and green promotion are modeled to the second order namely green marketing mix. In term of two stage approach, Becker, et.al., (2012) stated that the two-stage approach proves more useful than the repeated indicator approach because it can be applied to estimate the higher- level, i.e., the path coefficient to and from the higher-order constructs.

Once we have confirmed that the construct measures are reliable and valid, the next step addresses the assessment of the structural model (figure 2) results.

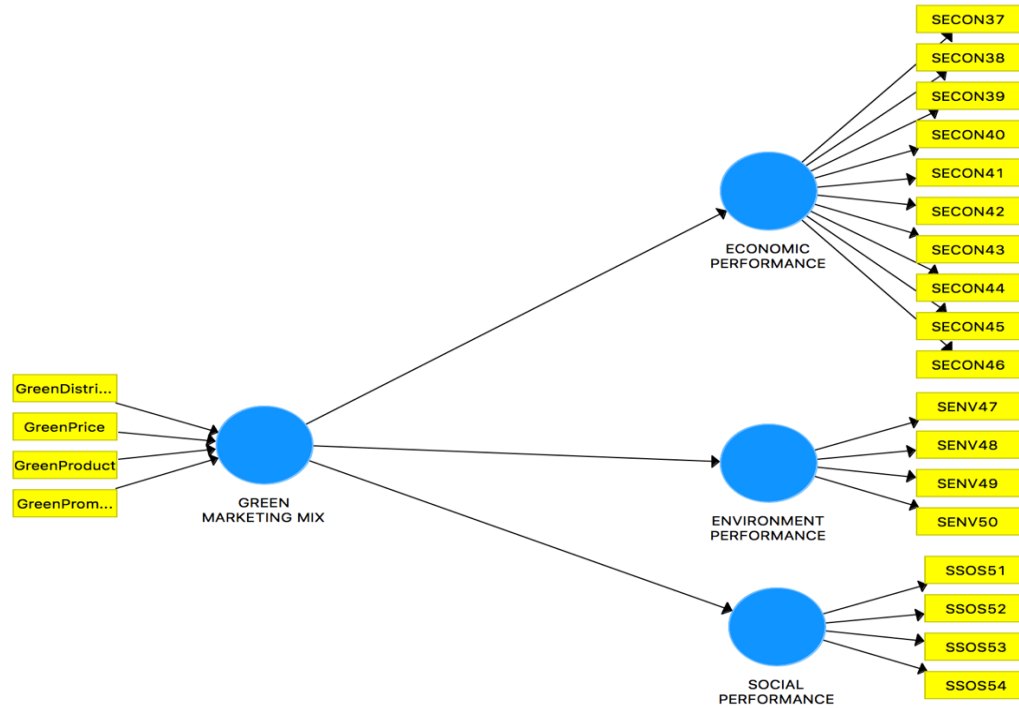


Figure 2. Structural Model

Hair (2018), suggested five indicators for the inner model measurement namely coefficient of determination (R^2), Effect size (f^2), predictive relevance (Q^2), the goodness of fit (GoF) and path coefficient. The measurement results are presented at table 1 – 6 below.

Table 1. Inner VIF value

	ECONOMIC PERFORMANCE	ENVIRONMENT PERFORMANCE	SOCIAL PERFORMANCE
GREEN MARKETING MIX	2.894	2.894	2.894

Table 2. Path values

RELATIONSHIP	PATH COEFFICIENT	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
	Original Sample (O)				
GREEN MARKETING MIX -> ECONOMIC PERFORMANCE	0.54	0.538	0.082	6.547	0
GREEN MARKETING MIX -> ENVIRONMENT PERFORMANCE	0.574	0.573	0.089	6.414	0
GREEN MARKETING MIX -> SOCIAL PERFORMANCE	0.238	0.254	0.104	2.294	0.011

Table 3. Confidence interval bias results

	Original Sample (O)	Sample Mean (M)	Bias	5.00%	95.00%
GREEN MARKETING MIX -> ECONOMIC PERFORMANCE	0.54	0.538	-0.002	0.405	0.674
GREEN MARKETING MIX -> ENVIRONMENT PERFORMANCE	0.574	0.573	-0.001	0.427	0.723
GREEN MARKETING MIX -> SOCIAL PERFORMANCE	0.238	0.254	0.016	0.068	0.399

Table 4. R Square result

Construct	R Square	R Square Adjusted	Remarks for R Square
ECONOMIC PERFORMANCE	0.494	0.486	R ² accepted. It is under category of Substantial (Cohen, 1989); Moderate (Chin, 1998); close to moderate (Hair <i>et al.</i> , 2017)
ENVIRONMENT PERFORMANCE	0.322	0.311	R ² accepted. It is under category of Substantial (Cohen, 1989); Moderate (Chin, 1998); close to moderate (Hair <i>et al.</i> , 2017)
SOCIAL PERFORMANCE	0.309	0.298	R ² accepted. It is under category of Substantial (Cohen, 1989); Weak (Chin, 1998); close to moderate (Hair <i>et al.</i> , 2017)
GREEN MARKETING MIX	0.634	0.631	R ² accepted. It is under category of Substantial (Cohen, 1989); Moderate (Chin, 1998); Moderate (Hair <i>et al.</i> , 2017)

Table 5. Effect size result

	ECONOMIC PERFORMANCE	ENVIRONMENT PERFORMANCE	SOCIAL PERFORMANCE
GREEN MARKETING MIX	0.199	0.168	0.028

Table 6. Hypothesis

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Decision	(R ²)	(f ²)	(Q ²)
H₁	GREEN MARKETING MIX → SUSTAINABILITY ECONOMIC PERFORMANCE	0.54	0.082	6.547	0	Supported	0.494	0.199	0.296
H₂	GREEN MARKETING MIX → SUSTAINABILITY ENVIRONMENT PERFORMANCE	0.574	0.089	6.414	0	Supported	0.322	0.168	0.234
H₃	GREEN MARKETING MIX → SUSTAINABILITY SOCIAL PERFORMANCE	0.238	0.104	2.294	0.011	Supported	0.309	0.028	0.217

Based on all criterion of structural model result which all the indicator value pass the benchmark value, thus the hypothesis of this study can be concluded that green marketing mix has positive relationship with sustainability firm performance.

5 Discussion and Conclusion

5.1 The extent of green marketing mix within petrochemical industry in Indonesia

These finding mean that even though the petrochemical products are categorized under commodity product, however, the marketing mix strategy is also valid to be run toward sustainability firm performance. Commodities and differentiated products are two very different types of products in the marketplace with different marketing strategies needed to generate adequate sales. Hofstrand (2018) stated that marketing strategy and its development program will depend on the type of product and buyer that will purchase the product. In green marketing, the marketing mix will have to be responsive to environmental concerns.

Although petrochemical products are under commodity product type, however, this type of product is also used all marketing concept toward firm performance. Al-Hersh & Aburoub (2015) stated that there is a strong correlation between each of the green marketing's criteria in combination and marketing performance variables (customer satisfaction, positive impression. the reputation of organization), in refining and petrochemical company. The activities of green marketing mix conducted at the petrochemical industry in Indonesia can be summarized based on some major players which presented in Table 7.

Table 7. Example summary of green marketing mix activities for petrochemical firms in Banten province, Indonesia

No	Company	Green Marketing Mix
1	Chandra Asri Petrochemical Tbk (Source: Annual Report Chandra Asri Petrochemical, 2017)	<p><u>Ecolabel Certification</u> Ecolabel certification from the Ministry of Environment for eco friendly plastic products (Grene[®]) valid until 18 March 2018. Currently, the Company is considering to migrate this certification from Swadeklarasi to SNI Ecolabel (SNI means: Indonesia National Standard)</p> <p><u>Green Industry Award 2017</u> The Company and SMI received respectively Level 5 Green Industry Award from the Ministry of Industry in Jakarta.</p> <p><u>Marketing Strategy:</u></p> <ul style="list-style-type: none"> - Participates in the Indonesian Olefins, Aromatic & Plastic Association - Customers can also be engaged to provide input related to the consistency of product quality. - Providing satellite warehouse in East Java to expedite delivery time to customers. - Organizing seminars and exhibitions in cooperation with machinery manufacturers and catalyst producers aimed for the introduction and development of products. - Marketing products through agents or distributors for small-scale customers. The Company sells most of the products directly to consumers.
2	Indorama Ventures (PT Indorama; PT Polychem Indonesia; PT Indorama Polypet Indonesia; PT Indorama Ventures Indonesia) (source: Annual Report Indorama Ventures (2017)	<p><u>Classify main customers for PET into four main groups.</u></p> <p><u>EcoVadis award:</u> Gold Recognition, ranking in the top 4% of suppliers in the category of manufacture of basic chemicals and top 3% of suppliers in all categories assessed by EcoVadis.</p> <p><u>Product Stewardship subject to Environmental Dimension of Sustainability</u></p>
3	PT Polychem Indonesia (Source: Annual Report, 2017)	<p><u>Eco-friendly Award 2014</u></p> <p><u>Environmentally Friendly Companies</u></p>

5.2 The relationship between green marketing mix and sustainable firm performance

As hypothesis H₁, H₂, and H₃ indicate that green marketing mix directly have a positive effect on sustainability economic, environment and social performance respectively. Thus finding supports the sustainability literature. Such literature stated that green marketing encompasses marketing practices, policies, and procedures that take into account the natural environment concerns; these activities aim to generate revenue and provide outcomes that full all the product or product line objectives of both the organization and individuals. Hence, the concept of green marketing mix pertains to the elements that are designed to achieve the strategic and financial goals of a firm, particularly in terms of reducing their negative (or increasing their positive) effects on the natural environment. This concept is consistent with the view that each element of the marketing mix is created and executed in a manner that reduces the detrimental effects on the natural environment (Eneizan & Wahab, 2016).

The marketing literature indicates the advantages of pursuing green initiatives, such as larger financial gains and market share, high levels of employee commitment, increased firm performance, and enhanced capabilities. Environmentally responsible actions likewise increase customer satisfaction and firm value and reduce threats to the company, thus increasing firm valuations. Eneizan & Wahab (2016) research study on green marketing strategy concluded that green product, green price, green distribution, green promotion indicated that the green marketing strategy effect positively on the financial and non-financial performance of firms.

5.3. Conclusion

In conclusion, sustainability considerations should be taken into account in the petrochemical industry, considering the scarcity of natural resources and importance of this industry in development in one hand and environmental damage caused by this industry on the other hand. The petrochemical industry in Indonesia indicates that the green marketing mix role affect the sustainability of firm performance.

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References

- Abzari, M., Shad, F.S., Sharbiyani, A.A.A.,Morad, A.P. (2013). Studying the Effect of Green Marketing Mix on Market Share Increase. *European Online Journal of Natural and Social Sciences* 2013; www. European-science. Com vol. 2, No. 3 (s), p.641
- Al-Hersh, A.M & Aburoub, A,S. (2015). The Impact of Application Green Marketing Criteria on the Marketing Performance. *Global Journal of Management and Business Research: E Marketing Volume 15 Issue 2 Version 1.0* Publisher: Global Journals Inc. (USA) Online ISSN: 2249-4588 & Print ISSN: 0975-5853
- Becker, J.-M., Klein, K., Wetzels, M., (2012). Hierarchical latent variable models in PLSSEM: guidelines for using reflective-formative type models. *Long Range Planning* 45 (5/6), 359e394. Elsevier.
- Bhalerao & Deskhmuh. (2015). Green Marketing: Greening the 4 Ps of Marketing. *International Journal of Knowledge and Research in Management & E-Commerce Vol.5, Issue 2, April, 2015.p 5-8.*
- Chandra Asri Annual Report (2017). PT Chandra Asri Petrochemical Tbk. Indonesia
- Chin, T.A., Tat, H.H., Sulaiman, Z., Zainon, S.N.L.M. (2015). *Green Supply Chain Management Practices and Sustainability Performance*. American Scientific Publishers Advanced Science Letters.
- Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Oxford: Capstone.
- Eneizan, B.M., Wahab, K.A., Bustaman, U.S.A. (2015). Sustainability, green marketing and green economy: Literature review. *International Journal of Applied Research* 2015; 1(12): 954-958
- Eneizan ,BM. & Wahab, K.A, (2016). Effects of Green Marketing Strategy on the Financial and Non-Financial Performance of Firms: A Conceptual Paper . *Journal of Business Management Review* 2016, 6:5 . Arabian Journal of Business and Management Review . ISSN :2223-5833
- Fabbe-Costes, N., Roussat, C., Taylor, M and Taylor, A. (2014), Sustainable Supply Chains: A Framework for Environmental Scanning Practices. *International Journal of Operations and Production Management, Vol.34 No 5, p.664-694.*

- Fornell, C., and Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research* (18:1), pp. 39-50.
- Freeman, R.E. (1984). *Strategic Management: A Stakeholder Approach*. Pittman, Marshfield, M.A
- Gimenez, C. – Sierra, V. – Rodon, J. (2012). Sustainable Operations: Their Impact on the Triple Bottom Line. *International Journal of Production Economics*, Vol. 140 (1), 149–159.
- Gopalakrishnan MS, Muruganandam D. A (2013). Micro analysis on Dissect of Consumer's to Procure Green Products. *Life Science Journal*. 2013; 10(2).
- Hair, J., Black, W., Babin, B., & Anderson, R. (2013). *Multivariate Data Analysis*. Pearson Education Limited.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Second Edition. Thousand Oaks, California: Sage Publications.
- Hair, J.F., Sarstedt, M., Ringle, CM., & Gudergan, S.P. (2018). *Advanced Issues in Partial Least Square Structural Equation Modeling (PLS-SEM)*. Thousand Oaks, CA: Sage
- Hasan, Z and Ali, N.A., (2017). Modelling the Relationship Between Green Marketing Strategies and Performance Outcomes for Business Sustainability. Global Conference on Business and Economics Research (GCBER) 2017 14-15 August 2017, Universiti Putra Malaysia, Malaysia Available online at August 14-15, UPM, Malaysia. www.econ.upm.edu.my
- Hofstrand, D. (2018). *Marketing Strategies*. Ag. Decision Maker. Iowa state university-extension and outreach. file C5-18. August.
- Hsu, C., Tan, K.C., Zailani, S.H.M. and Jayaraman, V. (2013). Supply Chain Drivers that Foster the Development of Green Initiatives in An Emerging Economy, *International Journal of Operations & Production Management*, Vol. 33 No. 6, pp. 656-688.
- Indorama ventures annual report Indorama. (2017). PT Indorama Indonesia.
- Leonidou, CN, Katsikeas, CS and Morgan, NA. (2013). Greening the Marketing Mix: Do Firms Do It and Does It Pay Off?. *Journal of The Academy of Marketing Science*, 41 (2). 151- 170. ISSN 0092-0703. <http://dx.doi.org/10.1007/s11747-012-0317-2>
- Luthra, S., Garg, D., & Haleem, A. (2014). Green supply chain management: Implementation and performance – a literature review and some issues. *Journal of advances in management research*, 11 (1). 20-46
- Mahmoud, T.O., Ibrahim, S.B., Ali, A.H., Bledy, A., (2017). The Influence of Green Marketing Mix on Purchase Intention: The Mediation Role of Environmental Knowledge. *International Journal of Scientific & Engineering Research*, Volume 8, Issue 9, September-2017 ISSN 2229-5518
- Martin, D., & Schouten, J. (2012). *Sustainable marketing*. Upper Saddle River, NJ: Prentice Hall/ Pearson.
- Muma, B., Nyaoga, R., Matwere, R. and Nyambega, E. (2014). Green Supply Chain Management and Environmental Performance among Tea Processing Firms in Kericho County- Kenya. *International Journal of Economics, Finance and Management Sciences*, 2(5), pp. 270-276
- Olugu, E.U., Wong, K.Y., & Shaharoun, A.M. (2010). A comprehensive approach in assessing the performance of an automobile closed-loop supply chain. *Sustainability*, 2. 871-889.
- Polychem Annual Report. (2017). PT Polychem Indonesia .
- Polonsky, M.J and Alma T. Mintu, A. T (1995). *Environmental marketing: strategies, practice, theory, and research* Wimsatt, editors.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., Memon., M.A. (2018). *Partial Least Squares Structural Equation Modeling (PLS-SEM) using smartPLS 3.0. An Updated and Practical Guide to Statistical Analysis*. Second Edition. Pearson
- Rath, R.C., (2013). An Impact of Green Marketing on Practices of Supply Chain Management in Asia: Emerging Economic Opportunities and Challenges. *International Journal Supply Chain Management*. Vol.2. No.1.
- Ross, D.F. (2015). *Distribution Planning and Control: Managing in the Era of Supply Chain Management*. Springer.
- Seroka-Stolka, O. (2014). Environmental Management Practices in Polish Enterprises - An Empirical Analysis. *Eurasian Journal of Business and Management*, Eurasian Publications, 2(3), 1-10.
- Shrama, A., & Goya, T. (2012). A contemporary sustainable strategy: Green marketing. *International Journal in Multidisciplinary and Academic Research (SSIJMAR)*, 1(2).
- Syal, A., Jindal and L (2016). Evaluation of Green Marketing Strategies in FMCG Segment. *International Journal of Emerging Trends in Science and Technology*. DOI: <http://dx.doi.org/10.18535/ijetst/v3i06.11>
- Tseng, M.L., Lim, K.M. and Wong, W.P. (2015), Sustainable Supply Chain Management: A Closed – Loop Network Approach. *Industrial Management and Data System*, Vol. 115 No 3, p. 436-461.

Younis, H. (2016). The impact of the dimensions of green supply chain management practices on corporate performance. Phd Thesis. University of Wollongong in Dubai. 2013-0953 – Print ISSN: 2013-8423
<http://dx.doi.org/10.3926/jiem.1558>

Zak, A. (2015). Triple Bottom Line Concept in Theory and Practice. *Research Papers of Wroclaw University of Economics nr 387*. Social Responsibility of Organizations Directions of Changes. Publishing House of Wroclaw University of Economics Wroclaw.

Biographies

Abdul Talib Bon is a professor of Production and Operations Management in the Faculty of Technology Management and Business at the Universiti Tun Hussein Onn Malaysia since 1999. He has a PhD in Computer Science, which he obtained from the Universite de La Rochelle, France in the year 2008. His doctoral thesis was on topic Process Quality Improvement on Beltline Moulding Manufacturing. He studied Business Administration in the Universiti Kebangsaan Malaysia for which he was awarded the MBA in the year 1998. He's bachelor degree and diploma in Mechanical Engineering which he obtained from the Universiti Teknologi Malaysia. He received his postgraduate certificate in Mechatronics and Robotics from Carlisle, United Kingdom in 1997. He had published more 150 International Proceedings and International Journals and 8 books. He is a member of MSORSM, IIF, IEOM, IIE, INFORMS, TAM and MIM.

Yuany Farradia is currently PhD candidate of technology management in the Faculty of Technology Management and Business at the Universiti Tun Hussein Onn Malaysia since October 2018. Her master degree in natural resources economics has been obtained from Universiti Putra Malaysia (UPM) in the year 1993-1995. Her bachelor degree in Agriculture in field of fisheries has been obtained from Universitas Padjadjaran, Bandung Indonesia in 1991. Currently she is a lecture at various universities in both Jakarta and Bogor, Indonesia where she teaches production and management operation, strategic management operation, global marketing, entrepreneurship, service management, organization behavior, human resource development plan at both undergraduate and postgraduate level.

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