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Importance of Green Innovation in Malaysian SMEs: Advantages and Future Research

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Abstract

As competition among businesses intensifies on a global scope, companies will continuously be looking for ways to reduce waste and lower associated costs in order to maintain a successful corporate strategy and improve their branding in the marketplace. The awareness on the importance of green innovation is growing both in practice and in academia. Therefore, this paper provides current overview of the existing body of literature in the field of green innovation, identifying the most active scholars, institutions and relevant publications related to this topic. The main contribution is to define the importance of Green Innovation in Malaysian SMEs and the advantages of this implementation as reference for future research.

Keywords: Malaysia Small Medium Enterprise (SMEs), Green Innovation, Green Product Innovation, Green Process Innovation, Green System or Managerial Innovation

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1. Introduction

The concept of green is still very new to Malaysian Small and Medium Enterprises (SMEs), although many green conferences, workshop and awareness campaigns have been carried out for quite some time. The concept for green process and products in Malaysia is at the infancy stage (Yacob, P. et al., 2013). According to Zuhairah et al. (2015), given that knowledge about the existence of green initiatives in Malaysia is still lacking and there is only a minimum knowledge about the green concept in Malaysia despite all efforts from governmental and private institutions. The issue here is that "are Malaysian SMEs familiar with the green concept and concerned about the environment issue?". Prior researches have shown that the implementation of green practices and green innovation is influenced by existing and potential stakeholder groups in the form of external pressures from legislators, environmental groups, financial institutions and suppliers, as well as internally, by employees and company owner attitudes and knowledge (Yacob, P. & M. Krishna, M., 2012).

However, there is a need to determine the extent to which Malaysian SMEs are actually aware of green innovation to understand the importance and advantages which come along with this concept. In view of the above, it is clear that research on critical success factors for SMEs' success is still at a developing stage. Currently, there is still lack of a validated and solid critical success factors framework for SMEs as a guide to improve their competitiveness in the market especially in green innovation. The adaptation of green practices and green innovation may well promote the positive development impact of employees and also enhance productivity and profitability of SMEs for long term survival (Haslinda M. & Muruga C., 2016). Therefore, this paper will address the importance and advantages of green innovation in Malaysian SMEs as part of reason to implement this concept for reference on future research.

2. Problem Statement

SMEs are considered as one of the important sectors for economic growth in Malaysia. Based on this fact, the Malaysian Government has introduced several programs in helping and supporting local SMEs to grow and realize its vision to be a high income nation with developed status by 2020. However, the Malaysian SMEs are still losing their competitive advantage in the global business environment due to their low productivity and poor performance (Tehseen, Sajilan, Ramayah, & Gadar, 2015). Furthermore, Malaysian SMEs are found to provide a lower contribution to the nation's GDP and exports as compared to SMEs of many neighboring nations such as Japan, South Korea, and Singapore (Halim, Ahmad, & Ramayah, 2013).

In the global context, small businesses are very important to the world economies (Wiklund & Shepherd, 2005). The most important and the large contributor to world economies are small firms. That is why more researchers are seeking and trying to understand about SMEs. Governments and particularly those goverment agencies such as Ministry of Energy, Green Technology and Water (KeTTHA), GreenTech Malaysia, SME Corp and other goverment agencies which are responsible for the development of these firms, take deep interest in understanding about the development of these firms. As an example, industries especially SMEs in the US and UK are questing in sustainable development and environmental protection by virtue of green values and clean production. Compared with Malaysian SMEs, which are forced to ignore or abandon the green technology and green innovation imperative in favour of strategies that more directly impact on the bottom line, i.e. focus on survival rather than sustainability (Yacob, P. et al., 2013).

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Green Technology is the development and application of products, equipment and systems used to conserve the natural environment and resources, which minimize and reduces the negative impact of human activities (Monu B. & Neelam, 2015). Therefore, there exists the possibility for disconnection between environmental attitudes and environmental action in the SME context. This phenomenon has been observed in overseas studies (Tilley, 1999), but has not explored in the Malaysian context.

Previous research showed the importance of Malaysian SMEs as the driver for economic growth and the identification of critical success factors which could improve competitiveness and reduce the gap between Malaysian SMEs and SMEs in other countries in terms of contribution to the economy. Therefore, the first move for Malaysian SMEs to be a global player and main contributor in the Malaysian economic growth is to be partners with global players in major markets. This is to allow technological learning and innovation to take place, in turn to preventing losses of potential income as well as knowledge and technology transfer that otherwise would allow us to achieve the same success of developed countries. (Ramayah, Osman, Aziz, & Malliga, 2009). The important factors in technology transfer are the adoption of Green Technology and Green Innovation in manufacturing and organization.

In fact, the Malaysian Government is fostering a wide range of support to the small medium businesses in the country to foster involvement into the development on green innovation, through its Economic Transformation Programme (ETP) (Haslinda M. & Muruga C., 2016). Furthermore, the government is encouraging the adoption of Green Technology and Green Innovation, as decreed under the National Key Economic Area (NKEA). Green Technology is the application of technology innovation to conserve the natural environment and resources, and to curb negative impacts of human involvement during development activity of the country. The aim for this effort is to achieve a sustainable development in our daily life. As a rapidly developing nation and in the early phase of environment awareness, Malaysia is not excluded from the environment challenges of minimizing the negative environmental impacts (Yacob, P. et al., 2013).

As such, there is an urgency to stimulate the adoption and implementation of green innovation in SMEs. However, the majority of SMEs in Malaysia have not yet given enough attention to this issue, unless they are energy intensive venture or wish to present a clean and green image. In addition, the challenges of environmental initiatives in SMEs are relatively under researched (Worthington & Patton, 2005) and more need to be done to help SMEs to adopt environmental initiatives and go green (Hitchens et al., 2005). Therefore, this paper provides current overview of the existing body of literature in the field of green innovation, identifying the most active scholars, institutions and relevant publications related to this topic. The main contribution is to define the importance of Green Innovation in Malaysian SMEs and the advantages of this implementation as reference for future research.

3. Definition of Small Medium Enterprise (SMEs)

Since 2005, a common definition for SMEs endorsed by the National SME Development Council (NSDC) has been adopted across by Ministries and agencies, financial institutions and regulators involved in SME developing program. The definition of SME was simplified as follows (1) Manufacturing with Sales turnover not exceeding RM50 million OR full-time employees not exceeding 200 workers (2) Services and other sectors with Sales turnover not exceeding RM20 million OR full-time employees not exceeding 75 workers. A business can qualify as SME if it meets either one of the two specified criteria, namely sales turnover or full-time employees, whichever is lower (SME Corp. Malaysia,2013).

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Over the last decade, SME development in Malaysia has navigated a journey like no other. We have witnessed a growth momentum consistently sustained at a higher achievement than the overall Gross Domestic Product (GDP) growth of the country. **The growth trends of SMEs during 2011-2015 showed a positive growth trend.** SME GDP growth has surpassed that of the overall GDP growth. Likewise in the Tenth Malaysia Plan program by period of 2011-2015, SMEs continued to perform favorably. In 2014, the SME definition was revised resulting in about 8,000 additional firms joining the category of SMEs. As a result, SMEs recorded a significant one-off growth of 13.5%. However, excluding the redefinition effect, the underlying growth for 2014 was 7.9% and the average annual growth for the period 2011-2015 was 6.7% versus the overall economic growth of the country of 5.3%. As a result, SME contribution to GDP increased from 32.2% in 2010 to 36.3% in 2015. In Table 1 below shows the detail of SME GDP by Key Economic Activity (SME Corp. Malaysia, 2016).

Table 1. SME GDP by Key Economic Activity (constant 2010 price)

	SME Contribution to GDP			**SME GDP Growth**
	2010 (% share)	**2015 (% share)**	**Increase/ decrease in share**	**CAGR[1] 2011-2015 (%)**
Overall[2]	32.2	36.3	+4.1	6.7
Construction	0.9	2.1	+1.2	10.9
Services	19.6	21.4	+1.8	7.1
Mining & Quarrying	0.05	0.2	+0.15	9.3
Agriculture	4.3	4.3	0.0	2.9
Manufacturing	7.2	7.9	+0.7	6.7

Note: 1/ CAGR refers to compounded annual growth rate (underlying growth of 7.9% for 2014)
2/ Total value-added after taking into account import dutie
Source: Department of Statistics, Malaysia, 2016

The ability to innovate and adopt technological changes is a crucial factor determining the growth of a business. Studies under the SME Masterplan had demonstrated and showed that innovation and technology adoption is closely linked to the overall performance of SMEs. Technically, SMEs have the advantage to respond and adapt more quickly to latest business and technological changes due to small scale of their operations. The main factor constraining SMEs from innovating and adopting new technology is the high cost involved. In many advanced and developing countries, new innovations and ideas come from small businesses (SME Corp. Malaysia, 2016).

Many SMEs around the world have little knowledge about environmental management and do not understand the concept of environmental management. According to Weerasiri and Zhengang, (2012) it is very difficult for SMEs to see the clear link between Electronics Manufacturing Sector on implementation and the benefits. Although much of the past researches have focused on the impact of large companies on the environment issue, it has been suggested that the estimated collective impact of SMEs on the environment issue is substantial (Hillary, 2000) and could outweigh the combined environmental issue that impact of large companies. Therefore, it may be argued that more attention and effort should be given

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to the SME sector in the social and environmental management literatures in order to ensure the growth and success of SME in the same level with other large sector (Yacob, P. & M. Krishna, M., 2012).

4. Green Innovation Categories

Before discussing the importance and advantages of implementation on green innovation, a clarification of the concept of "green innovation" is needed. The definition of Green Innovation is the exploitation, production, or assimilation of a service, production process, product realization, or management and system methods to the organization adoption or developing company growth (Kemp and Pearson, 2008). Green Innovation nowadays has become one of the more important strategic tools and method used to obtain sustainable development in most of manufacturing industries in response to the increasing environmental pressure and awareness. Following this, Green Innovation can be classified into three main categories: Green Product Innovation, Green Process Innovation, And Green System or Managerial Innovation (Abdullah.M, & et al, 2015).

Figure 1: The Green Innovation categories

Source: Review of Managerial Science, Springer-Verlag Berlin Heidelberg, 2016

According to Chen et al. (2006), Green Product Innovation was identified as introducing significantly improved or new products because of environmental concerns (e.g., green design, non-toxic raw materials, prevention of pollution, savings of energy, minimization of waste, and recycling the waste). Figure 1 above shows the Green Innovation categories. For the Green Process Innovation, the definition refers to the innovation to producing environmentally friendly products that meet eco-targets by modifying and implementing the manufacturing processes and systems. Such modification and implementation includes waste recycling, energy savings, and pollution prevention. Green System Innovation refers to the process of identifying, implementing, and monitoring pioneering ideas that strengthen green environmental performance of a company, enhancing competitiveness in the process (Abdullah M, et al., 2015). From

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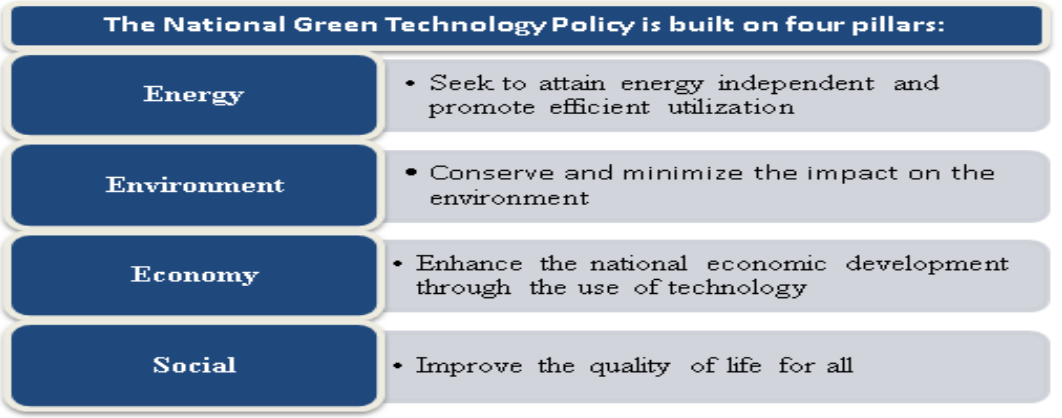
the various definition of green innovation existing in previous literature, it concludes as a new environmental approach, idea, product, process or services that concern on minimizing negative environmental impact and also create differentiation of developed product among competitors (Noor A.S. et al., 2012). Therefore, by identifying the main definitions of Green Innovation, it showed that this concept is important to be adopted and implemented by organizations.

5. The Importance and Advantages of Green Innovation

Green Innovation is an environmentally friendly concept of renewable energy branch of the environmental technology movement and with this, the importance cannot be ignored. There have been many reasons behind understanding the significance of green innovation, and perhaps volumes can be written and spoken on the subject. Whether it is the growing importance of green innovation in the industry or at homes, it is certain that things need to be done fast. Certain manufacturers are deterred from engaging in green innovation because of the difficulties involved and remain locked into established routines. Other firms actually attempt to innovate and invest in green innovation, but they may fail to produce and implement the new green products or processes to the market because they are unable to overcome these barriers. However, Malaysian manufacturing companies, especially SMEs have low awareness of Green Innovation and are facing a lot of barriers to achieving the benefits of Green Innovation (Pawanchik and Sulaiman, 2010). Ministry of Energy, Green Technology and Water (KeTTHA) Malaysia stated that the importance of Green Technology or Green Innovation is based on the four pillars of the National Green Technology Policy as shown in Figure 2 below (KeTTHA, 2011).

Figure 2: Four pillars of National Green Technology Policy



Source: Ministry of Energy, Green Technology and Water, Malaysia, 2011

Implementation of Green Innovation has a huge impact and provides many advantages to organizations. According to Bhardwaj M. and Neelam (2015), one of the advantages basically means that the business does not emit anything harmful into the environment (e.g : pollution on air, water, noise and etc.). Secondly, Green Innovation can bring economic benefits to the company by reducing the costs of sustainability and improve economic conditions (Giunipero et al. 2012). Furthermore, implementation

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and practices of Green Innovation requires less maintenance, where organisations do not have to spend a lot of money to operate the manufacturing activity and can minimize the effects of global warming by reducing CO2 emissions. Additionally, increasing consumers' awareness on the green innovation and environmental impact of their consumption choices and their willingness to reduce their ecological footprint has created new market opportunities for manufacturers or company (Harrison et al. 2005). All this statement showed that the adoption and implementation of Green Innovation provide many benefits with positive impact to the organizations. Table 2 below shows the summary for the advantages of Green Innovation by several scholars on this topic.

Table 2. Advantages of Green Innovation

Authors/ Year	Advantages of Green Innovation
Haslinda M. & Muruga C. (2016)	i) Organization/ firms to have a more competitive edge domestically and internationally. ii) Promote the positive development of employees and also enhance productivity and profitability of SMEs for long term survival.
Zuhairah H. & Noor A.(2015)	i) The performance of green innovation, product and process has a positive influence on the performance of the firms. ii) The green innovation involve saving in waste recycling, green products design and energy saving. iii) Green innovation represents with the concept of environmental protection into the design of the products.
Monu B. & Neelam (2015)	i) Something about improving clean environment and save energy resources. ii) To meet the needs of society in ways without damaging or depleting natural resources on earth.
Yacob, P. et al. (2013)	i) Cost-reducing in firm operation, for example, waste management, recycling, and reducing fuel and energy usage. ii) The potential financial benefit to the firm, rather than any motivation to protect the environment. iii) Centered on the perceived cost benefits of the implementation of environmental practices.

6. Future Research on Green Innovation

There are firms that actually attempt to innovate and invest in Green Innovation, but they may fail to produce and implement the new green products or processes to the market because they are unable to overcome barriers to implementation. Successful Green Innovation implementation depends on a firm's ability to overcome these green innovation challenges with identifying the potential barriers and solving it. However, Malaysian manufacturing companies, especially SMEs have low awareness of Green Innovation and face a lot of barriers to achieving the benefits of Green Innovation (Pawanchik and Sulaiman, 2010). Therefore, for future research, investigating the potential barriers to Green Innovation in Malaysian SME is important because there are limited discussions related to this specific context in the literature at present. In addition, the SME industry is still in its developing stages in terms of green initiatives and if the issue is not dealt with, it would have significant negative environmental impacts.

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Hence, the barriers to Green Innovation should be pursued aggressively to accommodate the current environmental situation. Furthermore, SMEs are growingly showing interest in the implementation of ISO 14001 Environmental Management System (EMS). SMEs are keen on improving their environmental impact and simultaneously determined to gain a variety of benefits through the implementation of ISO14001 EMS (Haslinda M. & Muruga C., 2016). So, for future research, it is also suggested that researchers include the implementation of ISO 14001 EMS as a part of the consideration to study Green Innovation initiative in SMEs.

7. Conclusion

In order to enhance the quality of products and services as well as cultivate a strong business reputation and performance, SMEs must keep up-to-date with the latest technologies. Innovation has also become increasingly crucial in helping a company distinguish itself from the competition and upgrading its operational standards, which will help improve growth prospects and business opportunities for the future (SME Corp. Malaysia, 2016). This paper provides an overview of the concept of Green Innovation (Green Product Innovation, Green Process Innovation And Green System Or Managerial Innovation) among previous researchers or scholars which are parallel with the objectives of corporate sustainability via extended producer responsibility for a greener yet profitable organization. To increase further understanding concerning the significance of adoption and implementation of green innovation initiatives, the importance and advantages to organizations on this concept was presented, particularly in the context of the manufacturing sector that focuses on Malaysian SMEs. Finally, this paper presented opportunities for researchers to discover more explicitly the area of Green Innovation for future research.

References

Abdullah.M, Zailani.S, Iranmanesh.M & K. Jayaraman (2015) Barriers to green innovation initiatives among manufacturers: the Malaysian case, *Review of Managerial Science, Springer-Verlag Berlin Heidelberg.*

Bhardwaj.M and Neelam (2015), The Advantages and Disadvantages of Green Technology, *Journal of Basic and Applied Engineering Research.*

Chen YS, Lai SB, Wen CT (2006) The influence of green innovation performance on corporate advantage in Taiwan. *J Bus Ethics 67(4):331–339.*

Giunipero LC, Hooker RE, Denslow D (2012) Purchasing and supply management sustainability: drivers and barriers. *J Purch Supply Manag 18(4):258–269.*

Halim, H. A., Ahmad, N. H., & Ramayah, T.(2013). Manoeuvring the rough commercial landscape through outsourcing: repositioning Malaysian SMEs. In P. O. de Pablos (Ed.), International business strategy and entrepreneurship: an information technology perspective: an information technology perspective (pp. 41-51). *US: Business Science Reference.*

Harrison R, Newholm T, Shaw D (eds) (2005) The ethical consumer. *Sage, Thousand Oaks.*

Haslinda M. & Muruga C.(2016). Malaysian SMEs Development: Future and Challenges on Going Green. *Procedia - Social and Behavioral Sciences 224 (2016) 254 – 262.*

Received:9 August 2018/Accepted:19 October 2018 /Published:3 December 2018

Hillary, R., (2000), Small and medium sized enterprises and the environment- Business Imperatives, *Green Leaf Publishing Ltd, UK.*

Hitchens, D., Thankappan, S., Trainor, M., Clausen, J. & De Marchi, B. (2005). Environmental performance, competitiveness and management of small businesses in Europe. *TijdschriftVoorEconomische En SocialeGeografie, 96(5): 541–557.*

Kemp R, Pearson P (2008) MEI project about measuring eco-innovation, final report, Maastricht. http://www.merit.unu.edu/MEI/papers/Final%20report%20MEI%20project%20DRAFT%20version%20March%2026%202008.pdf

KeTTHA (2011) National Green Technology Policy Pillars, Retrieved on 18 June 2017 from: http://www.kettha.gov.my/portal/index.php?r=kandungan/index&menu1_id=3&menu2_id=75&menu3_id=93#.WUX8c7bYXMw

Monu B. & Neelam (2015). The Advantages and Disadvantages of Green Technology. *Journal of Basic and Applied Engineering Research p-ISSN: 2350-0077; e-ISSN: 2350-0255; Volume 2, Issue 22; October-December, 2015, pp. 1957-1960.*

Noor A. S., Norhayati Z., Ahmad J., Mohd S., Md A., Muhamad Z.(2012) The relationship of green supply chain management and green innovation concept. *Procedia - Social and Behavioral Sciences 57 (453 – 457).*

Pawanchik A, Sulaiman S (2010) In search of InnovAsian: the Malaysian innovation climate report 2010. *Alpha Catalyst Consulting*.

Ramayah, T., Osman, M., Aziza, O., & Malliga, M. (2009). Technology Adoption among Small and Medium Enterprises (SME's): A Research Agenda, Proceedings Of World Academy Of Science, Engineering And Technology Volume 41 May 2009 (pp. 943-946) 2009 *WASET.ORG*

SME Corp. Malaysia (2013) Guideline for New SME Definition, SME Corp. Malaysia *Secretariat to the National SME Development Council*

SME Corp. Malaysia (2016) SME ANNUAL REPORT • 2015/16, SME Corp. Malaysia *Secretariat to the National SME Development Council*

Tehseen, S., Sajilan, S., Ramayah, T., & Gadar, K. (2015). An Intra-Cultural Study of Entrepreneurial Competencies and SMEs Business Success in 390 Review of Business Management., São Paulo, Vol. 18, No. 61, p. 370-391, Jul./Sept. 2016 Conceptual Model. *Review of Integrative Business and Economics Research, 4(3), 33*

Tilley, F. (1999). The gap between the environmental attitudes and the environmental behaviour of small firms. *Business Strategy and the Environment, 8: 238–248.*

Worthington, I. & Patton, D. (2005).Strategic intent in the management of the green environment within SMEs. *Long Range Planning, 38: 197–212.*

Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small businessperformance: a configurational approach. *Journal of Business Venturing, 20, 71-91.*

Weerasiri, S., and Zhengang, Z., (2012), Attitudes and Awareness towards Environmental Management and its Impact on Environmental Management Practices (EMPs) of SMEs in Sri Lanka, *Journal of Social and Development Sciences, 3(1), 16-23.*

Yacob, P. & M. Krishna, M. (2012). Green Practices: Perception of Malaysian SME Owners/Managers. *International Journal of Academic Research in Economics and Management Sciences, 1(3): 103-111.*

Received:9 August 2018/Accepted:19 October 2018 /Published:3 December 2018

Yacob, P. et al. (2013). The policies and green practices of Malaysian SMEs. *Global Business and Economics Research Journal, 2(2): 52- 74.*

Zuhairah H. & Noor A.(2015). The impact of green marketing strategy on the firm's performance in Malaysia. *Procedia - Social and Behavioral Sciences 172 (2015) 463 – 470*

Received:9 August 2018/Accepted:19 October 2018 /Published:3 December 2018