

EFFECTIVENESS OF GREEN INNOVATION TOWARDS BUSINESS
PERFORMANCE IN SELECTED MANUFACTURING INDUSTRIES

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DECLARATION OF ORIGINAL WORK

“I hereby declare that this project paper is the result of my own and independent work except the summary and experts that have been specifically acknowledgement”

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DEDICATION

I would like to thank my mom and my dad for all the supports, encouragement, funds, and time while I was studying to let me success in my life. I also want to thank my friends who help me a lot in completing all the tasks that have been given by lecturers.

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Abstract

Nowadays, environmental issues have been a critical issue to the entire world. The earth is getting weak due to air pollution, water pollution, green house effects, and so many more. Lacking in terms of the awareness of this issues, therefore people are still doing activities that will affect environment. However, there are still governments and organizations that aware about this problem. So they decided to implement green innovation into their current technologies and production to fulfill the environment standard procedure. In order to implement green innovation, organizations want to ensure that this green innovation can give positive impacts in their business performance. Thus, green innovation consists of green product innovation and green process innovation are believe may help to enhance business performance at the same time protecting the environment. For green product innovation, they are likely about the characteristic of the product or the elements in the making of the product. Therefore, this research aims to identify the relationship between green product innovation and business performance. On the other hand, green process innovation is the elements in the process of the production. Moreover, this researcher aims to identify the relationship between green process innovation and business performance. To achieve those objectives, 156 respondents has been answered the questionnaire and the collected data has been analyzed using coefficient correlation and multiple regression to determine the relationships. As a conclusion, this research has found that green innovation influenced business performance.

Abstrak

Pada masa kini, isu-isu alam sekitar telah menjadi isu kritikal kepada seluruh dunia. Bumi semakin lemah disebabkan oleh pencemaran udara, pencemaran air, kesan rumah hijau, dan banyak lagi. Kekurangan dari segi kesedaran isu-isu ini membuatkan orang masih melakukan aktiviti-aktiviti yang akan memberi kesan kepada alam sekitar. Orang biasanya tidak sedar tentang isu-isu ini. Orang terus melakukan aktiviti-aktiviti yang akan memberi kesan alam sekitar. Walau bagaimanapun, masih terdapat kerajaan dan organisasi yang sedar tentang masalah ini. Jadi, mereka mengambil keputusan untuk melaksanakan inovasi hijau ke dalam teknologi mereka. Ia bermakna, mereka mengubah teknologi semasa dan pengeluaran untuk memenuhi standard prosedur alam sekitar. Dalam usaha untuk melaksanakan inovasi hijau, organisasi mahu memastikan inovasi hijau ini dapat memberikan kesan positif dalam prestasi perniagaan mereka. Oleh itu, inovasi hijau terdiri daripada inovasi produk hijau dan inovasi proses hijau dipercayai boleh membantu untuk meningkatkan prestasi perniagaan dan pada masa yang sama dapat melindungi alam sekitar. Untuk inovasi produk hijau, mereka berkisar tentang ciri-ciri produk atau unsur-unsur dalam pembuatan produk. Oleh itu, kajian ini bertujuan untuk mengenal pasti hubungan di antara inovasi produk hijau dan prestasi perniagaan. Sebaliknya, inovasi proses hijau adalah elemen-elemen dalam proses pengeluaran. Selain itu, penyelidik ini bertujuan untuk mengenal pasti hubungan antara proses inovasi hijau dan prestasi perniagaan. Untuk mencapai objektif tersebut, 156 responden telah menjawab soal selidik dan data yang dikumpul telah dianalisis dengan menggunakan pekali korelasi dan regresi untuk menentukan hubungan. Kesimpulannya, kajian ini telah mendapati bahawa inovasi hijau mempengaruhi prestasi perniagaan.

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LIST OF ABBREVIATIONS

ANOVA	=	Analysis of Variance
SME	=	Small Medium Enterprise
SIRIM	=	Scientific and Industrial Research Institute of Malaysia

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CHAPTER 1

INTRODUCTION

This research is about the effectiveness of green innovation towards business performance in selected manufacturing industries. The main purpose in this chapter is to evaluate the basic concept of the study and the significance of the topic. This thesis is starting by discussing the background of the research follow by the problem statements. The objectives of the research also had been study in this chapter to know the purpose in finding the problem statements about the topic.

1.1 Background of Study

In this era, environmental issue is one of the biggest challenge that have been discuss by all countries. This is because, environmental cases are increase from time to time. Example of environmental issues are waste of product, energy consumption, air pollution, water pollution, green house effects and some more. Thus, government decided to prevent and overcome this problem by applying greenness in their technology.

Green technology is a technology that evolving group of methods and materials from techniques for generating energy to non-toxic cleaning products. Wikipedia said that environmental technology (*envirotech*), green technology (*greentech*) or clean technology (*cleantech*) is the application of one or more of environmental science, green chemistry, environmental monitoring and electronic devices to preserve the natural environment and resources, and to control the negative impacts of human involvement.

As green technology was spread to a lot of countries, many opinions suggest the transition of green technology to green innovation. Recent OECD (2012) analysis suggests that without intensified policy action, global greenhouse gas (GHG) emissions are likely to increase by 70% by 2050. Thus, from the current green technology, they need something that can improving the greenness. The transition started when OECD countries and emerging economies alike are seeking new ways to accelerate the transition to green growth through technology and innovation (OECD, 2012).

They also argue about the transition to green innovation will require more than supply-side, technology-push approaches. It will also require demand-side measures and careful organisational and institutional changes. However, there are still got a few challenges in order to transiting from green technology to green innovation. The challenges are to make even the goals of ministries, exploration funding agencies,

higher education institutions and social and market-based institutions so that they focus on green growth in all its dimensions (OECD, 2012).

Innovation comes from Latin word “novus”, which means new or introduction of something new (Arditi & Kale, 1997). According to Aouad, Ozorhon, & Abbott (2010), innovation is an idea, practice, or object perceived as new by a person or other unit of adoption. It means, anything which is new or improving, is an innovation and it is not only focusing on production only. It can be in all departments of the company. One of the reasons why we need innovation is to avoid pressures from customers, competitors and regulators (Porter & Linde, 1995). It relates with how a firms’ improvement affects their performance and the existence of new competitors also leads to innovation. Innovation has become critical to the survival of firms and a weapon with which to preserve competitive advantage (Chiou, Chan, et. al., 2011).

In Malaysia, they have Ministry of Energy, Green Technology and Water to ensure that Malaysia will not left behind to implement green innovation into their technologies. United Nations Environment Programme (2016), the third strategic thrust of the National Policy on Science, Technology and Innovation (NPSTI) 2013-2020, “Energizing Industry” is identified as the prime enabler for companies to adopt innovative, green and environmentally friendly approaches (KeTTHA, 2016).

As we focusing on green innovation, the definition of green innovation is, it consists of innovation in technologies for energy saving, pollution prevention, waste recycling, green product designing, and corporate environmental management (Chen, Lai, & Wen, 2006). Anything that relates green technology can be improve through green innovation. It is not limited to products and services only. As long as it contributes for a reduction environmental impact (OECD, 2009). According to (Carrío’n-Flores & Innes, 2010), green innovation demand is for environmental performance.

1.2 Problem Statement

Today, the number of countries that applying green innovation in their technologies are increase. This is because, green innovation comes with benefits such as energy saving, pollution prevention, waste recycling, green product designing, and corporate environmental management (Chen, Lai, & Wen, 2006)

In order of implementing green innovation, generally companies will experience an increasing pressure from stakeholders to reduce environmental impact, not only from main companies but also from entire supply chains, including customers/purchasers, governments and regulators, non-governmental organizations (NGO), communities, shareholders, and even internally from company employees (Koplin, 2007).

According to Halila & Rundquist (2011), eco-innovation stimulates economic growth and development. Environmental management also can increase the organizations' profitability because it permits reducing costs, increasing market demand (Co^{te}, Booth, & Louis, 2006). Khanna, Deltas, & Harrington (2007) state that stringent environmental regulations is often enough to induce innovation as firms are becoming to be more innovative in order to gain competitive advantage.

However, there are some previous studies that stated green innovation are not affecting business performance. Many economists and managers thought that eco-innovation as an additional cost burden for the firm (Ambec, Cohen, et al., 2011). Porter & Linde (1995) state that they argue investments in eco-innovation can improve a firms' competitiveness, increase its profits and reduce pollution.

In conclusion, the purpose of this research is to measure whether green innovation affect business performance or not. On the other hand, this research also identifies the elements of green innovation that affecting business performance. This helped firms to increase the business performance when implement green innovation.

1.3 Research Objectives

The objective of this research is to assess the effectiveness of green innovation on business performance. Therefore, the primary purpose is listed as below:

1. To identify the relationship between green product innovation and business performance.
2. To identify the relationship between green process innovation and business performance.
3. To identify the relationship between green innovation and business performance

1.4 Research Questions

In seeking to achieve objectives research, the following questions were highlighted to be the framework providing guideline for the research work;

1. What is the relationship between green product innovation and business performance?
2. What is the relationship between green process innovation and business performance?
3. What is the relationship between green innovation and business performance?

1.5 Scope of Study

This research is conducted to determine the effectiveness of green innovation towards business performance in selected manufacturing industries. The targeted scope of this research is selected manufacturing companies that implement green innovation in their product or process.

As the researcher is focusing in few parts of manufacturing industries that implement green innovation in Malaysia, according to the latest update of Small and Medium Enterprise (SMEs) statistics, the top three highest of states that have manufacturing industries are Selangor, Kuala Lumpur and Johor. Then, the top five highest of manufacturing sectors in Malaysia are textiles and wearing apparel, followed by food and beverages, fabricated metal products, printing and reproduction and lastly machinery and equipment.

1.6 Limitations of the Study

Due to the obstacles that occur, this research cannot provide a widespread review of effectiveness of green innovation in business performance towards manufacturing industries. These are few limitations due to the data collections, financial and period of time.

Problems that might occur during data collections are respondents do not give full commitment when answering the questionnaire. So it affected the results. Other than that, there might be a limit of information that come out from that particular company due to their rules and regulations. Next, the researcher faced a financial problem. The researcher needs to went to every manufacturing companies in Malaysia that implement green innovation just to get the genuine data about this topic. Besides, the researcher needs to find a lot of sources and data about performance of those manufacturing companies that cost a big amount of money.

Lastly it regards with the short period of time. this study is unable to reach a lot of companies because the duration of the study is less than a year. As a result, it is insufficient to obtain feedback from a wider range of respondents and lack of response from companies.