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THE GREEN TECHNOLOGY USAGE FACTORS AND SME"s BUSINESS  
PERFORMANCE IN SELECTED MANUFACTURING INDUSTRIES

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of Technopreneurship with Honours

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## STUDENT'S DECLARATION

„I hereby declare that the work in this PSM is my own except for quotations and summaries which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree“.

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## **DEDICATION**

To my beloved family especially my parents thank for the education, teaching and give love completely from the uterus until now. I love you. See you later in paradise.  
In Sha Allah.

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## ABSTRACT

Nowadays, environmental issues are really given a huge impact to industries and society. The existence of green technology is to ensure these environmental issues will decrease. Besides, the implementation of green technology is to enhance business performance especially for manufacturing industries. Other than that, the purpose of the study is to identify the factors that contribute to the use of green technology and how it affects business performance. The survey through questionnaire was conducted to collect respondent's perception of the use green technology in influencing performance in business and 172 respondents and valid questionnaires has been collected. The analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 22 and multiple regression model. As conclusion, this research has found that knowledge management influenced business performance.

## **ABSTRAK**

*Pada masa kini, isu-isu alam sekitar yang benar-benar memberi impak yang besar kepada industri dan masyarakat. Kewujudan teknologi hijau adalah untuk memastikan isu-isu alam sekitar akan berkurangan. Di samping itu, pelaksanaan teknologi hijau adalah untuk meningkatkan prestasi perniagaan terutamanya bagi industri pembuatan. Selain daripada itu, tujuan kajian ini adalah untuk mengenal pasti faktor-faktor yang menyumbang kepada penggunaan teknologi hijau dan bagaimana ia memberi kesan kepada prestasi perniagaan. Kajian melalui soal selidik telah dijalankan untuk mengumpul persepsi responden teknologi penggunaan hijau dalam mempengaruhi prestasi dalam responden perniagaan dan 172 dan soal selidik sah telah dikumpulkan. Analisis ini dijalankan dengan menggunakan Statistical Package for Social Sciences (SPSS) versi 22 dan model regresi berganda. Kesimpulannya, kajian ini telah mendapati bahawa prestasi perniagaan pengurusan pengetahuan dipengaruhi.*

## TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	<b>STUDENT DECLARATION</b>	<b>II</b>
	<b>DEDICATION</b>	<b>III</b>
	<b>ACKNOWLEDGEMENTS</b>	<b>IV</b>
	<b>ABSTRACT</b>	<b>V</b>
	<b><i>ABSTRAK</i></b>	<b>VI</b>
	<b>TABLE OF CONTENTS</b>	<b>VII</b>
	<b>LIST OF TABLES</b>	<b>XI</b>
	<b>LIST OF FIGURES</b>	<b>XII</b>
	<b>LIST OF APPENDICES</b>	<b>III</b>
<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b>1</b>
	1.1 Introduction	1
	1.2 Background of study	1
	1.3 Problem Statement	3
	1.3.1 Energy	3
	1.3.2 Building	3
	1.3.3 Water and waste management	4
	1.3.4 Transportation	4
	1.4 Research Objectives	5
	1.5 Research Questions	5
	1.6 Significant of Study	5
	1.7 Scope of Study	6
	1.8 Layout of Research	7
	1.9 Conclusion	8



<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE</b>
<b>CHAPTER 2</b>	<b>LITERATURE RIVIEW</b>	<b>9</b>
	2.1 Introduction	9
	2.2 Overview Background of Study	10
	2.3 Definition of Concepts	11
	2.3.1 Green Technology	11
	2.3.2 Business Performance	12
	2.3.3Small – Medium Industry (SMEs)	14
	2.4 Successful of Business Performance	15
	2.5 Government Support	16
	2.6 Knowledge Management	18
	2.7 Adoption	19
	2.8 Benefits and Effects	20
	2.9 Barriers	22
	2.10 Theory	24
	2.11 Research Framework	25
	2.12 Hypothesis	26
	2.13 Summary	27
<b>CHAPTER 3</b>	<b>RESEARCH METHODOLOGY</b>	<b>28</b>
	3.1 Introduction	28
	3.2 Research Design	29
	3.2.1 Explanatory Research	30
	3.3 Research Flow Chart	31
	3.4 Methodological Choices	32
	3.4.1 Descriptive Research	32
	3.4.2 Quantitative Method	32
	3.5 Data Sources	33
	3.5.1 Primary Data	33
	3.5.2 Secondary Data	34
	3.6 Location of Research	35
	3.7 Research Strategies	36

3.8 Targeted Population and Sampling Size	37
3.8.1 Probability Sampling	37
3.9 Time Horizon	39
3.10 Research Instrument	40
3.10.1 Pilot Test	40
3.10.2 Reliability Analysis	40
3.10.3 Correlation Analysis	41
3.10.4 Regression Analysis	41
3.11 Analysis Data	42
3.12 Summary	43
<b>CHAPTER 4</b>	<b>DATA ANALYSIS</b>
4.1 Introduction	44
4.2 Reliability Analysis	45
4.2.1 Pilot Test	45
4.3 Descriptive Statistics on Demographic	47
4.4 Descriptive Statistics Analysis for Variables	51
4.5 Inferential Analysis	53
4.5.1 Pearson's Correlation Analysis	53
4.5.2 Relationship between IV and DV	54
4.5.3 Analysis Regression	55
4.5.3.1 Objective and Hypothesis Test	55
4.5.3.2 Multiple Regressions	57
4.5.3.2.1 Hypothesis 1	61
4.5.3.2.2 Hypothesis 2	62
4.5.3.2.3 Hypothesis 3	62
4.5.3.2.4 Hypothesis 4	62
4.5.3.2.5 Hypothesis 5	63
4.5.3.2.6 Hypothesis 6	63
4.6 Summary	64

<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE</b>
<b>CHAPTER 5</b>	<b>CONCLUSION AND RECOMMENDATION</b>	<b>66</b>
	5.1 Introduction	66
	5.2 Discussion of Major Findings	67
	5.2.1 Hypothesis 1	67
	5.2.2 Hypothesis 2	68
	5.2.3 Hypothesis 3	69
	5.2.4 Hypothesis 4	69
	5.2.5 Hypothesis 5	70
	5.2.6 Hypothesis 6	71
	5.3 R- squared model	71
	5.4 Limitation of the research	72
	5.5 Recommendation of the research	73
	5.6 Conclusion	74
	<b>REFERENCES</b>	<b>76</b>
	<b>APPENDICES A</b>	<b>84</b>
	<b>APPENDICES B</b>	<b>91</b>

## LIST OF TABLES

TABLE NO	TITLE	PAGE
1.1	State and Manufacturing SMEs Sectors	7
3.1	The State and the Number of SMEs Sector	35
3.2	Determining Sample Size Population	38
3.3	Gant Chart PSM1	39
3.4	Rules of Thumb about Cronbach's Alpha Coefficient Size	41
3.5	Analysis Methods	43
4.1	Rules of Thumb about Cronbach's Alpha	45
4.2	Reliability Statistics of IV	46
4.3	Descriptive Statistics on Demographic	48
4.4	Descriptive Statistics Analysis for IV and DV	52
4.5	Pearson Correlation Coefficient	53
4.6	Correlation between IV and DV	54
4.7	ANOVA of Green Technology Usage Factors	56
4.8	ANOVA of Business Performance	56
4.9	Model summary of Multiple Regression Analysis	57
4.10	ANOVA	58
4.11	The Coefficients	58
4.12	Summary of Hypothesis and Result	64
5.1	Summary of Hypothesis and Result	67
5.2	Gant Chart PSM	91

**LIST OF FIGURES**

<b>FIGURES NO</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Theory of Adoption	24
2.2	Research Framework	25
3.1	Research Flow Chart	31

**LIST OF APPENDICES**

<b>APPENDICES</b>	<b>PAGE</b>
Appendices A	84
Appendices B	91

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

This chapter discussed on the background of the study, statement of the problem, the research objectives as well as research questions. Other than that, the significant of the study also will be discussed in this chapter as to show the overall of research.

#### **1.2 Background of study**

Technological development and globalization makes industries more concern on environmental issues. Many industries in Malaysia especially Small and Medium Enterprise (SMEs) tried to give a positive action to the environmental issues by making several changes towards a few aspects in production. As the customers wants more oriented to sustainable and eco-friendly products, organizations hence take the opportunity by implementing their Green Technology towards the improvement of industry competitiveness.

According to SME's Corporation, SMEs profile in 2011 indicated a variety of sectors such as services, manufacturing, agriculture, construction and mining and quarrying. SME statement refers to this corporation, total employment by SMEs is 3,669,259. The distribution percentage of SMEs by sectors is the services sector (90%), manufacturing (5.9%), agriculture (1%), construction (3%) and mining and quarrying (0.1%). The manufacturing sector occupies the second position compared with other sectors. SMEs are the backbone of economic growth in the country. Annual Growth of Gross Domestic Product (GDP) and SME Overall GDP (%) (constant 2010 prices), the overall growth of SMEs growth from 2011 to 2015 was 5.0 % (Department of Statistics, 2011).

Green technology is an innovation to save the environment. Adopting the green technology into late technology is intending to make the earth green free from any harm and danger. Green Technology is an innovation form of energy and gives the concept of cleanliness and freshness (Puvanasvaran, 2012). Malaysian government plays a significant role and identified green technology as a major growth under the National Green Technology Policy in July 2009 (Gee, 2009). Under this policy, the green technology has been identified as the development and application of products, equipment and systems used to conserve the natural environment and resources.

Technology and innovation are viewed as key drivers in the move towards a greener, low-carbon economy. The development of new green technologies offer the prospect of providing new drivers for economic growth in the 21st century and show how modern economy can growth sustainability and reap the largest rewards. Over the last two decades, awareness of green sustainability has increased significantly in many business organizations and enterprises. Clean production as a part of green sustainability has become increasingly important strategic issues for companies in most industries. Applying the corporate green sustainability strategy may enhance corporate image, increase competitiveness through the use of new improved technologies, and improve health, safety of employees and leading to better productivity.



### **1.3 Problem Statement**

Over the last two decades, awareness of green sustainability has increased significantly in many business organizations and enterprises. Economic growth, industrialization and growing population in developing countries such as Malaysia has resulted in the promotion of green technology that presents the most viable way of meeting with the new green-related activities for environmental conservation. The Malaysian government has played a strong role in ensuring environmental sustainability by way of introducing necessary policies and implementing them. Green technology covers a broad area of production and consumption technologies. The adoption and use of green technologies involves the use of environmental technologies for monitoring and assessment, pollution prevention and control, and remediation and restoration.

KeTTHA (2009) stated that „Green Technology“ refers to products, equipment or systems which minimizes the degradation of the environment; has zero or low greenhouse gas (GHG) emission, safe for use and promotes healthy and improved environment for all forms of life, conserves the use of energy and natural resources, and promotes the use of renewable resources. There are four key areas of focus within the green technology. There are:

#### **1.3.1 Energy**

- Application of GT in power generation and energy supply side management, including co-generation by the industrial commercial sectors.
- Application of GT in all energy utilization sectors and demand side management programs.

#### **1.3.2 Building**

- Adoption of GT in the construction, management, maintenance and demolition of buildings.

### **1.3.3 Water and waste management**

- Adoption of GT in the management and utilization of water resources, wastewater treatment, solid waste and sanitary landfills.

### **1.3.4 Transportation**

- Incorporation of GT in Transportation infrastructure and vehicles, in particular biofuels.

The scenario now shows that many industries were trying to adopt green technology in their business. Green technology is very important and gives a positive influence on business performance among SMEs in Malaysia. Applying the green sustainability strategy may offer numerous benefits, such as cost saving on raw materials, energy and reducing production cost. However, the problem from the situation is, Small and Medium Enterprise (SMEs) around the world have little knowledge about green technology and do not understand the concept of environmental management. The concept of green is still very new to Malaysian SME owners or managers although many green conferences, seminars and campaigns have been carried out for quite some time (Krishna et.al, 2012). In addition, according to Puvanasvaran (2012), is making a study of studies empirical whether resident in Malaysia is ready adaptation of green technology and society to accept changes in their country. However, this research emphasized the aspect of business performance among Malaysian SMEs in manufacturing industry.

#### **1.4 Research Objectives**

The objectives of this study are :

- I. To identify the difference between the Green Technology usage factors and Business Performance base on types of manufacturing industry.
- II. To identify the relationship between Green Technology usage factors and Business Performance.
- III. To determine the main Green Technology usage factors that influence the Business Performance.

#### **1.5 Research Questions**

The research aim and objectives will be achieved through the following research question:

- I. Does any difference exist between the Green Technology usage factors and Business Performance base on types of manufacturing industry ?
- II. What is the relationship between Green Technology usage factors and Business Performance ?
- III. What the the main Green Technology usage factors that influence the Business Performance ?

#### **1.6 Significant of Study**

This research is important to the SMEs manufacturing industries in Malaysia. The finding from this research will helps to guidance and recommends the effective green technology to be applied, and the research outcomes could be used to enhance SME"s business performance as well. The finding from this research may be useful to SMEs in order to go for sustainable development. People or organization will

become more aware on the impact of environmental issues in our nation. Besides, tagging with business performance can enhance the social status of a company. The findings of this research also might give the empirical contribution whereby will help SMEs manufacturing industries in the implementation of Green Technology. On the other hand, it is also contribute on the theoretical whereby the findings of this research will help to increase the understanding of Green Technology implementation by filling up the knowledge gaps.

### **1.7 Scope of Study**

This research is about the Green Technology and Business Performance among Malaysia SMEs in selected Manufacturing Industries. The researcher decided to choose Malaysia SMEs in selected Manufacturing Industries as the place in conducting the research due to the data availability. There are also has rich of secondary data which is very useful in this research.

In this research, the primary data is extracted. By using primary sources, researcher may collect precisely the information needed. Therefore, the information needed is related with the exploration and identification of green technology usage in Malaysia SMEs manufacturing industries. The secondary data also supported the whole progress of research. Researcher had surfed the formal website of a few SMEs manufacturing industries, reading books, journal and articles. This information is prominent as sources of secondary data finding. Among SMEs and the state of the manufacturing sector which has the highest position is:

Table 1.1: State and Manufacturing SMEs Sectors

Numbers	Manufacturing Sectors	State
1	➤ Textiles and wearing apparel	Selangor, Wilayah Persekutuan Kuala Lumpur, Melaka and Johor
2	➤ Food products	
3	➤ Fabricated metal products	
4	➤ Printing and Reproduction of recorded	
5	➤ Machinery and equipment	

Table 1.1 shows the selected of manufacturing sectors which are textiles and wearing apparel, food products, fabricated metal products, printing and reproduction of recorded and machinery and equipment in conducting this research. It covers in Selangor, Wilayah Persekutuan Kuala Lumpur, Melaka and Johor.

## 1.8 Layout of Research

This research consists of five chapters as listed below:

- The first chapter introduces the background, objectives, scope, importance and limitations of the research.
- Chapter 2 is a review of literature related to the SMEs, definition of concepts, and implementation of factors.
- Chapter 3 describes the methodology used for this research. Research instrument that was conducted for data collection and analysis are also elaborated in this chapter.
- Chapter 4 presents the results analysis and discussion. It consists of the survey results, manufacturing practices in the Malaysian SMEs and relationship between manufacturing practices and performance.
- Chapter 5 concludes the main findings in relations to the objectives of the research and provides suggestions for future research.

## 1.9 Conclusion

The interest of Small and Medium Enterprise (SME) in developing and growth their business by making several changes towards a few aspect in production has been plourishing in this current situation. However, the implementation of Green Technology gave a few effect to the Business Performance of SME. Business Performance is important to the success of a company. The study in SMEs manufacturing industries is focused on how the implementation of Green Technology could enhance the Business Performance for the manufacturing industries be able to offer better quality products and services to the customers. The issues of sustainability of business performance and environmental issues create concern among user or customers.

Therefore, this research aims to identify the effect of Green Technology implementation towards Malaysia SME in selected manufacturing industries. The researcher needs to explore the various dimensions of business performance in the SME manufacturing industries. Other than that, researcher also needs to analyze the relationship between Green Technology and Business Performance. The next chapter reviews the background literature of the research.

## CHAPTER 2

### LITERATURE RIVIEW

#### 2.1 Introduction

By the critical review of the literature was necessary to help the researcher to develop a thorough understanding of insight into previous work that relates to the research questions and objectives. The review will set the research in contact by critically discussing and referencing work that has already been undertaken by drawing out key points. This chapter will discuss about the effectiveness of green technology implementation towards Malaysia SME"s business performance in selected manufacturing industries. The researcher obtains literature review from several sources such as web site, journal and article.

## 2.2 Overview Background of Study

Many industries in Malaysia especially Small and Medium Enterprise (SMEs) tried to give a positive action to the environmental issues by making several changes towards a few aspects in production. As the customers wants more oriented to sustainable and eco-friendly products, organizations hence take the opportunity by implementing their Green Technology towards the improvement of industry competitiveness.

Green technology is an innovation to save the environment (Puvanasvaran, 2012). According to Puvanasvaran, adopting the green technology into late technology is intending to make the earth green free from any harm and danger. Green Technology is an innovation form of energy and gives the concept of cleanliness and freshness. Malaysian government plays a significant role and identified green technology as a major growth under the National Green Technology Policy in July 2009 (Gee, 2009). Under this policy, the green technology has been identified as the development and application of products, equipment and systems used to conserve the natural environment and resources.

Technology and innovation are viewed as key drivers in the move towards a greener, low-carbon economy. The development of new green technologies offer the prospect of providing new drivers for economic growth in the 21st century and show how modern economy can growth sustainability and reap the largest rewards. Over the last two decades, awareness of green sustainability has increased significantly in many business organizations and enterprises.