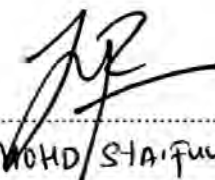


## CONFIRMATION

We acknowledge that we have read this thesis and in our opinion this thesis is sufficient in terms of scope and quality for the award of Bachelor of Technopreneurship

Signature



Supervisor's Name

Mohd/Saiful Rizal

Date

20/6/2014

Signature



Panel's Name

Amir Aris

Date

20/6/14

ECOPRENEURSHIP AND SOCIAL SHAPING ON GREEN VEHICLES IN THE  
CONTEXT OF MALAYSIAN AUTOMOTIVE INDUSTRY

NORHASIKIN BINTI HASHIM

Report submitted in fulfilment of the requirements for the Bachelor Degree of  
Technopreneurship

Faculty of Technology Management and Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

JUNE 2014

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## DECLARATION

I admit that this report is my own work except the summary and excerpts of each  
which have been duly acknowledged

Signature

  
:.....

Name

: NORHASIKIN BT. HASHIM

Date

: 20<sup>th</sup> JUNE 2014

## **DEDICATION**

For both of my parents

## ACKNOWLEDGEMENT

The author would like to express sincere gratitude to supervisor, Dr Mohd Syaiful Rizal bin Abdul Hamid through his guidance and encouragement that has been given over to undergo this project. A bunch of thanks also to the panel, Mr Amir bin Aris who helped in assessing the result of the author of this work.

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## ABSTRACT

Malaysian Automotive Industry plays an importance role to generate a sustainable economic value creation and maximize the long-term contribution to the national economy as well as to benefits the Malaysian consumers. Malaysia Automotive Institute (MAI) aims to promote a local vehicle assembly as well as production of electric vehicles for the next upcoming review of National Automotive Policy (NAP). The purpose of this agenda is to transform Malaysia into a hub that produces fuel-economy vehicles for the ASEAN by 2020. Entrepreneurs nowadays should see this as an opportunity to develop new business strategy to move from normal product development into green product development. This study will focus on several issues regarding the implementation of green vehicles in future. The increasing of gas and oil prices, global warming and the high level of carbon consumption on the road especially in urban area contributed to the implementation of these green vehicles. The objective of this study is, to identify the factors that shaping the electric vehicles implementation among Malaysian Automotive Industry. Then to identify the challenges faced by Malaysian automotive manufacturer or entrepreneurs to develop the green vehicles and to examine the organization incentives and business strategy performance for Malaysian Automotive Industry in order to implement the green vehicles. The study will used mixed method in order to collect all data or information. The method is chose to ensure to get comprehensive and extra information related with this study. The implementation of green vehicles and the involvement of ecopreneurs concept will ease manufacturer's efforts toward the successful of commercializing the new technology among Malaysian Automotive Industry. Hence, by encouraging the implementation of green vehicles in Malaysia, it would transform Malaysian Automotive Industry to be competitive through zero emission vehicles that is more green, clean and efficient.

## ABSTRAK

*Industri Automotif Malaysia memainkan peranan yang penting untuk menjana nilai ekonomi yang berterusan dan memaksimumkan sumbangan jangka panjang kepada ekonomi negara dan juga untuk manfaat pengguna Malaysia. Institut Automotif Malaysia (MAI) bertujuan untuk menggalakkan pemasangan kenderaan tempatan dan pengeluaran kenderaan elektrik untuk kajian yang akan datang akan datang Dasar Automotif Negara (NAP). Tujuan agenda ini adalah untuk mengubah Malaysia menjadi sebuah hab yang menghasilkan kenderaan bahan api-ekonomi bagi ASEAN pada tahun 2020. Usahawan hari ini perlu melihat ini sebagai satu peluang untuk membangunkan strategi perniagaan baru untuk bergerak dari pembangunan produk biasa kepada pembangunan produk hijau. Kajian ini akan memberi tumpuan kepada beberapa isu mengenai pelaksanaan kenderaan hijau pada masa depan. Peningkatan gas dan harga minyak, pemanasan global dan tahap penggunaan karbon yang tinggi di jalan raya terutamanya di kawasan bandar menyumbang kepada pelaksanaan kenderaan hijau ini. Objektif kajian ini adalah untuk mengenal pasti faktor-faktor yang membentuk pelaksanaan kenderaan elektrik di kalangan Industri Automotif Malaysia. Kemudian mengenal pasti cabaran yang dihadapi oleh pengilang atau usahawan automotif Malaysia untuk membangunkan kenderaan hijau dan untuk memeriksa insentif organisasi dan prestasi strategi perniagaan untuk Industri Automotif Malaysia dalam melaksanakan kenderaan hijau. Kajian ini akan menggunakan kaedah campuran untuk mengumpul semua data atau maklumat. Kaedah ini memilih bagi memastikan pengkaji mendapat maklumat yang komprehensif dan penambahan yang berkaitan dengan kajian ini. Pelaksanaan kenderaan hijau dan penglibatan konsep ecopreneurs akan memudahkan usaha pengilang ke arah kejayaan mengkomersilkan teknologi baru di kalangan Industri Automotif Malaysia. Oleh itu, dengan menggalakkan pelaksanaan kenderaan hijau di Malaysia, ia akan mengubah Industri Automotif Malaysia untuk berdaya saing melalui sifar pelepasan kenderaan yang lebih hijau, bersih dan cekap*

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of study**

The increasing of gas and oil prices contributed the shiftiest of National Automotive Policy to produce efficient vehicles, more significantly to produce electric vehicles in Malaysia. It turns every aspect of automotive industry in Malaysia especially automotive manufacturing firms to engage with new product development projects. The increases of vehicles on the road encourage the uses of gas and oil and definitely increase the carbon-consumption on the road. The green vehicles like electric vehicles can be seen as a current market demand nowadays as the other international automotive companies like Nissan, Honda or Toyota have come out with their own hybrid and electric cars where it is more benefits toward environment and better for future generation. These successful companies should act as Malaysian automotive benchmark to compete in developing the new technology.

Since Malaysian government is concerning to implement green vehicles, entrepreneurs should see this as an opportunity market that government gives where in National Automotive Policy (NAP) has stated more incentives will be given for new ventures or manufacturers to develop energy-efficient vehicles such as 100 percent Investment Tax Allowance (ITA) or customized training and research and development grants. For many, the electric vehicles offer a solution to environmental problems like

global warming and incentives towards the reduction of natural resources like oil and gas.

Hence, through this new measures and the purpose of implementing the green vehicles technology among Malaysian Automotive Industry, supportive from various areas such as stakeholders, expertise within and across organizational structures, government incentives and so forth is necessary in order to ensure that the technology implementation successful. The involvement of entrepreneurs or manufacturers in automotive industry indirectly will help Malaysian to produce innovative and competitive business model.

## **1.2 Research Questions**

It is importance for an industry to stay competitive in terms of technology advances. Although that, comprehensive and effective business model as well as the role of automotive manufacturer initiatives are important to develop a competitive strategy.

Firstly, the existing resources and capabilities that contribute to this green vehicles implementation are still in progress where the implementation of technology is still new in Malaysian Automotive Industry. Thus, entrepreneurs or manufacturers should identify the challenges or the problem that they may face throughout overall process of implementation.

Secondly, when it comes to the concept of social shaping, several paths need to be concerned from internal and external environment perspectives.

Therefore, the Research Questions of this study are:

1. What are the factors that shaping the implementation of electric vehicles in Malaysia?



2. What are the main challenges to implement the electric vehicles among Malaysian automotive manufacturer?
3. How was the performance of Malaysian manufacturers, initiatives or strategies to develop electric vehicles in future?

### **1.3 Research Objectives**

In order to achieve the objectives of national agenda, this paper reviews the National Automotive Policy (NAP) incentives to promote future Malaysian Automotive Industry and suggest entrepreneurial involvement by adopting the Social Shaping Technology (SST) which is advocated by Mackenzie and Wacjman (1985). The theory concepts basically act as a guide in this study to fulfill the objectives of the research.

The Research Objectives of this study are:

1. To identify the factors that shaping the electric vehicles implementation among Malaysian Automotive Industry.
2. To identify the challenges faced by Malaysian automotive manufacturers to develop the electric vehicles.
3. To examine the organization incentives and business strategy for Malaysian Automotive Industry in order to implement the electric vehicles in future.

### **1.4 The Scope of Study, Limitation and Key of Assumption**

The scope of this study is to investigate the efforts taken by Malaysian automotive manufacturer to implement the green vehicles and to promote entrepreneurial involvement in this industry by adopting the Social Shaping Technology (SST) theory by Mackenzie and Wacjman (1985). In order to identify social and economic activities force to make this implementation successful the study will investigate how the social, economic or government affected the technology

development. For example, the new Proton Perdana was launching using Honda's platform to redesign the new size of old Proton Perdana for government official used. The social interfere on the demand among cabinet ministers of Malaysia is one of the reason that the Prime Minister launching the new Proton Perdana based on the eighth-gen Honda Accord. The study is conducted among Malaysian Automotive companies like Proton, Perodua or Naza to ensure that comprehensive and adequate data collection is only applicable to Malaysian Automotive Industry.

Respondents on this research are divided into two groups for each company. The first group consists of managers, senior executives or executives from middle management level such as human resources manager or quality personnel. The first group commonly is a group that controlled the policy and future direction of the company. Five respondents are selected from the first group. The second group consists of the respondents like engineers or marketers that conducting daily task dealing with new product development and strategies to commercialize the green vehicles respectively. Five respondents are selected from the second group.

There are two limitations that can be identified in this research. Firstly, the research is to investigate efforts taken by Malaysian automotive manufacturer towards the implementation of green vehicles in order to achieve the national agenda. The research will only conduct for two Malaysian automotive brands which are Proton and Perodua. Thus, the outcome and the results from this research are only applicable based on the organization performance. Secondly, this study is to identify ecopreneurs's criteria among employees in business management in order to identify green business practices among Malaysian automotive companies. Thus, the study will focus onto Malaysian automotive employees only. Other information gains from primary and secondary data would be explained in Chapter 3.

### **1.5 The Importance of Study**

The study of Social Shaping is to investigate how the internal and external factors shaping the new technology development and identify the major challenges, also investigate the current organization performance so far to fulfill the national agenda. Other than that, this study is crucial to promote local entrepreneurs to engage with automotive industry in future more robust. From the results of this study, researcher wishes to identify whether the technology implementation of green vehicles in Malaysia would be successful in providing a good business model. The researcher also is expecting to investigate the effectiveness of social shaping and ecopreneurship concept to implement the green vehicles in Malaysia.

### **1.6 Summary**

In business operation, external and internal environment forces for the new product development are important as a complete process to bring product successful in the market. According to Kim and Wilemon, (2007) and Koen et al., (2001), the earliest stage of new product development is the phase between first opportunity and as it judged ready to enter the structured development process. The adoption of Social Shaping Technology (SST) by Mackenzie and Wajcman (1985) is to implement social and economic forces towards new product development. The research in Malaysian Automotive Industry seen as a new potential market for entrepreneurs or manufacturers to move from a normal automotive business operation to a more green automotive business operation by implementing the green vehicles in Malaysia.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter discussed about an adoption of Social Shaping of Technology (SST) and the criteria of ecopreneurs getting involved the opportunity to implement the electric vehicles in Malaysia. The chapter consists of seven sections, where the Section (2.2), explained on Ecopreneurship concept. Section (2.3) discussed about the Innovation and Entrepreneurial Efforts. Section (2.4) stated about a good business model for Malaysian Automotive Industry. Section (2.5) reviewed the recent papers about the Social Shaping Technology concept from the body of research that address the theory. Then, Section (2.6) is focused on the discussion about current issue arise for Malaysia to produce electric vehicles and its benefit. Section (2.7) is discussed about the major challenges of implementing electric vehicles and the Section (2.8) the theoretical framework is designed about the overall Social Shaping and ecopreneurhip.

## 2.2 Ecopreneurship concept

This section is discussed about the ecopreneurship concept with entrepreneurial traits which as one of strategic methods to encourage the implementation of green innovative product. According to Cohen et al (2007), entrepreneurs can help preserve the ecosystems, counteract climate change, improve fresh water supply, maintain biodiversity, and reduce environmental degradation and deforestation. This section focuses more on how to harness the innovative potential of environmentally conscious entrepreneurs, called ecopreneurs. This is one way to encourage more strategies that will create the environmental technologies needed in order to solve environmental problems.

According to Schaper et al (2002), ecopreneurship sometimes referred to 'green entrepreneurship'. Taylor and Walley (2003) stated that ecopreneurship as ethical entrepreneurship or a combination of two words 'ecological (eco) and entrepreneurship which implies the creation of an innovative company that supplies environmentally friendly products and services. The benefits of ecopreneurship is they are not just entrepreneurs but also peoples that enter eco-friendly markets, to make profits and they also have a strong, underlying, green values.

### 2.2.1 Types of ecopreneurship

There are several types of ecopreneurs related to this study. **Table 2.2.1** below shows different types of ecopreneurs:

References	Types of Ecopreneurs
Volery (2002)	<ul style="list-style-type: none"><li>- Environmental Conscious</li><li>- Develop innovation that either reduces resource and impact or improve cost efficiencies.</li></ul>

	<ul style="list-style-type: none"> <li>- Green Entrepreneurs</li> <li>- Aware of environmental issues and have their businesses in the environmental marketplace.</li> </ul>
Walley and Taylor (2002)	<ul style="list-style-type: none"> <li>- Innovative Opportunist</li> <li>- Financially oriented entrepreneur who spots a green niche or business opportunity that happens to be green.</li> <li>- Ad hoc or accidental entrepreneur</li> <li>- Spots opportunities that are green, rather than seek out a niche in green spaces.</li> <li>- Visionary Entrepreneur</li> <li>- Built their businesses based on sustainability principles</li> <li>- Ethical Maverick</li> <li>- Set up alternative style business on the fringes of society</li> </ul>
Linnanen (2002)	<ul style="list-style-type: none"> <li>• Self-Employer <ul style="list-style-type: none"> <li>- Advocates nature-oriented enterprises like eco-tourism.</li> </ul> </li> <li>• Opportunist <ul style="list-style-type: none"> <li>- Involved in environmental technology to help businesses and communities reduce environmental load on water, air and soil.</li> <li>- Have low desire to change the world and high financial drive.</li> </ul> </li> <li>▪ Successful Idealist <ul style="list-style-type: none"> <li>- Entrepreneurs have high desire to change the world and high financial drive.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Non-profit Business</li> <li>- Entrepreneurs have high desire to change the world and low financial drive.</li> </ul>
Isaak (2002)	<ul style="list-style-type: none"> <li>• Green Business</li> <li>- Entrepreneur did not start green business from scratch, but later discovered the advantages of greening their existing businesses</li> <li>• Green-Green Business</li> <li>- Entrepreneurs designed business to be green in its products and processes from scratch.</li> </ul>
Schick, Marxen, Freiman (2002)	<ul style="list-style-type: none"> <li>• Eco-dedicated</li> <li>- Consistently adopts environmentally friendly business practices.</li> <li>• Eco-open</li> <li>- Partially adopts environmentally friendly business practice.</li> <li>• Eco-reluctant</li> <li>- Adopts environmentally friendly business practices only when they are forced by regulations.</li> </ul>
Schaltegger (2002)	<ul style="list-style-type: none"> <li>• Alternative Actors</li> <li>- Businesses exist to support alternative lifestyle like type of counter culture.</li> <li>• Bioneers</li> </ul>

	- Inventors with strong research and development focus in high technology sectors like alternative energy sources.
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Sources: McEwen (2013)

According to Schumpeter (1942), entrepreneurs are the innovators and as society's needs evolve the entrepreneur provides the innovation or 'creative destruction' that gives society a new way of addressing problems.

In addition, Lennox and York (2011) and Tillery and Young (2009) stated that, the current solutions to environmental problems are inadequate for sustainability, need for entrepreneurial action to develop something new, whether it is a production methods, technological development, product or service distribution system or new organizational form.

Hence, the role of ecoentrepreneurs in business operations is importance for future sustainable and better environmental solutions. The business managers nowadays should have these ecopreneurs's criteria and build their business direction and strategies together to implement not just innovative products or services but also green business management in organizations. The next section is discussed about the innovation and entrepreneur's effort to provide key strategy activities that benefits business competitiveness.

### **2.3 Innovation and Entrepreneur's Efforts**

According to Calisir et al (2012), new product development is one of the key strategic activities form many firms to achieve competitive advantages. Even nowadays, companies put product innovation as prior to developing new products, producing high quality products, finding new markets and effectively dealing with the competitive environment.