

INNOVATION AND GREEN ORGANISATION AT SELECTED  
MANUFACTURING INDUSTRY IN MALAYSIA

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## DECLARATION

“I declare that this project is the results of my own research accept as cited in the reference. The research project has not been for any degree and is not concurrently submitted in candidature of my other degree.”

Signature : .....

Name : .....

Date : .....

## **DEDICATION**

This research paper is lovingly to my parents, En Md Taib Bin Abd Samad and Puan Saadiah Binti Kasaban, who have been my constant source of inspiration, they have given unconditional support with my studies. I am honoured to have their as my parents. Thank you for giving me a chance to prove and improve myself through all my walk of life. To all my family thank you for believing me for allowing me to further my studies.

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## ABSTRACT

The green technology or clean technology is recognised as the application of environment science to conserve the natural environment and resources for the purpose of curbing the negative impact of human activities. With the innovation and green organizations could be a factor towards the success of the industry to move forward in future. The objectives of this research project which aimed to examine the factors of that contribute to green organisation performance and to determine the main factor that contribute to green organisation performance. Moreover, this study also examines the green organisation performance among manufacturing industry in Malaysia and investigate the relationship between dependent variable (green organisation performance) with independent variable (level of employee awareness in term of green organisation and effect of innovation in green organisation) among manufacturing industry in Malaysia. The researchers believe that innovation and green organizations performance is a way of the survey was conducted through a questionnaire that was taken in Johor Bahru and Malacca to study the level of awareness of employees and effect of innovation in green organizations at selected manufacturing industries. The selected sample consisted of managers and employees in the state of Johor and Malacca. Data collected were analyzed using descriptive analysis. There result the effect of innovation and green organisation performance to providing useful performance for companies to improve their productivity and quality for competitive advantages in Johor and Melaka which the significant of relationship between level of employees awareness and effect of innovation with green organisation performance. This because they can predict their future in the past and at the same time achieving the objectives of their organization. The study found there is a relationship between the level of employees awareness and effect innovation in green organizations to measure of green organizations performance.

## ABSTRAK

Teknologi hijau atau teknologi bersih diiktiraf sebagai aplikasi sains alam sekitar untuk memulihara alam sekitar dan sumber-sumber untuk tujuan membendung kesan negatif daripada aktiviti manusia. Dengan inovasi dan organisasi hijau boleh menjadi faktor ke arah kejayaan industri untuk bergerak ke hadapan pada masa akan datang. Objektif projek penyelidikan ini yang bertujuan untuk mengkaji faktor-faktor yang menyumbang kepada prestasi organisasi hijau dan untuk menentukan faktor utama yang menyumbang kepada prestasi organisasi hijau. Selain itu, kajian ini juga mengkaji prestasi organisasi hijau di kalangan industri pembuatan di Malaysia dan mengkaji hubungan antara pembolehubah bersandar (prestasi organisasi hijau) dengan pembolehubah bebas (tahap kesedaran pekerja dari segi organisasi hijau dan kesan inovasi dalam organisasi hijau) di antara pembuatan industri di Malaysia. Para penyelidik percaya bahawa inovasi dan organisasi hijau prestasi adalah cara penyiasatan ini dijalankan melalui soal selidik yang diambil di Johor Bahru dan Melaka untuk mengkaji tahap kesedaran pekerja dan kesan inovasi dalam organisasi hijau di industri pembuatan dipilih. Sampel yang dipilih terdiri daripada pengurus dan pekerja di negeri Johor dan Melaka. Data yang diperolehi dianalisis dengan menggunakan analisis deskriptif. Terdapat mengakibatkan kesan inovasi dan prestasi organisasi hijau untuk menyediakan prestasi berguna untuk syarikat-syarikat untuk meningkatkan produktiviti dan kualiti untuk kelebihan kompetitif di Johor dan Melaka yang ketara hubungan antara tahap kesedaran dan kesan inovasi dengan prestasi organisasi hijau pekerja. Ini kerana mereka boleh meramalkan masa depan mereka pada masa lalu dan pada masa yang sama mencapai objektif organisasi mereka. Kajian mendapati terdapat hubungan antara tahap kesedaran pekerja dan inovasi kesan dalam organisasi hijau untuk mengukur prestasi organisasi hijau.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of the study

In this study, researchers discuss innovation and green organisation to reduce the negative impact on the environment in terms of energy consumption. United States of America, several European nations and countries, especially Taiwan has made a step in innovation and green organisation. Innovation and green organisation involves recycling, manage of employee performance and other. Innovation and green organisation can be achieved by increasing the awareness of the employees. According to Brunoro (2008), policies that focus on the protection of the environment are continually being developed worldwide.

According Malaysia science and technology indicators 2010 book January (2011), our country has adopted national climate change policies and junior carbon economy and achieves sustainable development. National technology policy has been formulated to achieve a number of objectives such as (i) reduce energy consumption and at the same time improving competitiveness and economic growth. (ii) facilitate the management of the green technology industry and boost the economy (iii) enhancing the competitiveness in technology development in Malaysia based on green technology (iv) conserve the environment in terms of sustainable development for future generations. (v) Enhance learning in the field of green technology widely.

In fact the information technology hardware and software expenditure of companies in forms a major chunk of the total budget. Computers have overtaken the workspace, with at least one personal computer (PC) per worker. Through desktop computing has replaced the reams of paperwork and files that once characterized the workplace. While making office work more efficient and less intensive can contribute to the carbon footprint in several ways. A carbon footprint is the impact on the environment of all the greenhouse gases consuming equipment in our day to day lives. A carbon footprint consists of a primary footprint and secondary footprint. A primary footprint measures the direct emission of fuel gases produced by domestic consumption and transportation. Secondary footprint consists of emission from the whole lifecycle of the product to its disposal. The manufacturing of personal computer, semiconductor, batteries and microelectronics also generate toxic waste, effective disposal of which is rarely undertaken. According to Sock Yen.Ng (2010), through innovation, green has been making improvement to enhance environment quality and provide a positive impact to the community and services.

The purpose of the study is to investigate the implementation of innovation and green organisation in a specific area that is towards the organization without committing waste in the manufacturing industry. This study aims to determine which organizations are willing to provide materials or supplies to avoid waste. In the manufacturing industry could also lead the industry towards innovation and green organizations. This study also identifies how the manufacturing industry (electronics) can solve the problem in terms of the use of waste materials, energy and costs. For example, create various organizations without wastage such as paperless.

Moreover, the researchers also found that employee's perceptions of innovation and green organizations using information technology (IT) can produce an effective labour productivity and employment. This study also emphasizes the importance of practice in organizations to avoid wastage

## 1.2 The problem statement

The Innovation and green organizations still less practiced in Malaysia. As Malaysia looking to forward to be developed working in 2020. Thus, the skills and awareness of technology within the organisation are crucial. Creativity in information technology innovation is the way to start the organisation.

Information technology (IT) plays more and more important role in life, all becomes more important also a problem of minimization of negative ecological influence of manufacture and IT equipment use. At the same time, IT possess huge potential on reduction of negative ecological influence of other kinds of activity in a organisation. For this reason for these two different reasons so it is important to give particular attention IT within the limits of efforts on counteraction of global warming to warming and other problems of environment.

The investigation is focused on the readiness of the manufacturing industry in Malaysia to convert from traditional methods to modern methods. This innovation can have a positive effect because it can reduce waste and increase productivity in the organization. In addition, it can provide a beneficial effect on environmental and green organizations as a culture.

In this study, the researchers also found that (Information Technology) IT literacy has been fully utilized or not by distributing questionnaires. This can also serve as the proof of knowledge of the staff in the organization towards IT, has made communication positively or negatively. Besides, the researcher also find cost effective paperless whether innovation in the long term or not.

Therefore, understanding how innovation implementation among employees and management in the organisation are important element in developing a systematic solution to maintain competitiveness in modern era.



### **1.3 Research Questions**

In this study, researchers wanted to investigate how innovation and green organizations, in particular the management system and information technology (IT) that can be implemented in the manufacturing industry and organizational best way possible.

1. What are the factors that contribute to green organisation performance based on state?
2. What are the main factors that contribute to green organisation performance based on state?

### **1.4 Research Objectives**

Manufacturing industry in Malaysia does have advantage like resource that own by large company. The issue contribute to this research to identify which way to innovation and green organisation an effective model of organisation to manage that concern by manufacturing industry today. The research to needs various dimension of objectives statement as show on below:

1. To examine the factors that contribute to green organisation performance based on state.
2. To determine the main factor that contribute to green organisation performance based on state.

### **1.5 Scope and Limitations of the research**

The organization research gives to focus at manufacturing industry in several places in Malaysia. The target respondent for this research is managers or worker in organisation. This is the best way to obtain effective data from manager level and staff. Research also focuses on the organisation of industry which the scale can determine on the innovation can to implementation and definition of green organisation in industry.

But some constraint may happen like lack of the cooperation between respondent and also the time problem. The geographical factors also contribute to the limitation of the study where other of country is not involved in his research. Researcher has to finish this proposal research within 6 weeks because for the beginning, researcher has to send out this research to Research Methodology's Lecturer. With only 6 weeks of duration plus the lack of experience of doing the research, the researcher tends to take a longer time to gathering the information, reading the other researcher's journal and many more.

The second limitation is the researcher have to faces is lack of experience. Researcher has to faces this limitation when gathering the data because this is the very first time researcher doing this research. For the beginning, researcher does not know even how to choose a good journal and after getting encouragement from researcher's supervisor, researcher can handle these limitations.

The third limitation is the researcher also assumed issues that all respondents provided honest answer. It is because the answer give very important in help to easy researcher to survey problem in Malaysia involve innovation and green technology. When the answer we get no honest a variety problem it exists.

## **1.6 Importance of the research**

This research is important for the better understandings of innovation and green organisation in Malaysia because this research is conduct in local area. Study the theory of green organisation could be different in scope of reality in industry because this theory could not effective in business world especially manufacturing. Today, manufacturing industry still to using way of traditional in system and some changes on the innovation and green organisation concept could happen may also change the way of awareness the green organisation management among manufacturing industry in Malaysia to make the industry to carry out improvements to the environment and other.

This research finding can of this study may trigger further research to make improvements to the organization in reducing pollution or waste in the industry. Through innovation and green organisation can help improve the productivity and competitiveness involve of the environment. It is very nice to Malaysia free from pollution. New finding on this research could useful to many organizations. It can be useful if this research can provide information to solve the innovation and green organisation issue on the manufacturing industry where this research is still can be use or continued on future research.

### **1.7 Summary**

This chapter is about the innovation and green organisation in the context of manufacturing industry. In the introduction briefly explains the definition of innovation and green organisation in manufacturing industry from various expert opinions. This chapter also describes the objective of the research as well as the research question of the study.

The scope and limitation of thus research explain in this chapter to provide direction for the further process of the research. The importance of research was explained in order to recognize the pattern of the practise of green innovation among manufacturing industry in Malaysia in organisation aspect.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Definition of innovation

Innovation consists of the generation of the new idea and implementation into a new product, process, or service, leading to the dynamic growth of the national economy and increase of employment as well as to creation of pure profit for innovative business enterprise. Innovation is process in decision-making and ranging from the phase of generation of a new idea to its implementation phase. New ideas refer to perception of new customer need or new way to produce. Through the implementation process the new idea is developed and commercialized into the marketable product or new process with become reduces cost and increased productivity. According to Mulgan and Albury (2003), Successful innovation is the creation and implementation of new processes, products, services and methods of delivery which result in significant improvement in outcomes efficiency, effectiveness or quality.

Innovation includes both major and minor changes. Extremely major change is radical innovation, although it is interpreted as “radical” in a technological sense. And a cumulative series of minor changes is called an incremental innovation. According to Abrenathy (1978) Innovations include radical product innovation and incremental process innovation. An industry radical innovation is the prevalent of innovation but it has little if any economic impact, because product design is still the market is uncertain.

The effect of incremental innovation through minor technological change seems to have a much more important economic impact in securing competitive advantage. Through the two pattern can to the maximization of product performance, improvement of the production process for the cost minimization, increase of productivity and quality.

In business innovation as something that is a new or significantly improved, done by an enterprise to create added value either directly for the enterprise or directly for it customer Business council of Australia (1993). Innovation is a something that adds value. In general, innovation is only regarded to have occurred if it has been implemented or commercialised in some way. According to Hauschildt and Saloma (2007), the invention of new products or processes is not normally considered innovation until it has been productively incorporated into the enterprise's activities. This means that innovative activity is not something that can occur separate from the firm's core activities rather it must involve the coordination of various inventive learning and implementation skills.

The innovative activity requires substantial effort form all elements of a firm. Moreover, innovative firms are likely to have the characteristics that allow innovation to occur consistently through time. The effectively innovating firms are those with strategies, values, organisational forms and practices which are conducive to consistent innovation and continuous improvement.

Innovation is way of making and doing thing can arise from the use of new combination of tangible and intangible inputs. Innovation is that the product or process must be introduced into the market place so that consumer or other firms can benefits. This distinguishes an innovation from an invention or discovery. An invention or discovery enhances the stock of knowledge. According to Hauschildt and Salomo (2007), Innovation occurs at the point of bringing to the commercial market new products and processes arising from application of both existing and new knowledge.

According to Nelson (1993), innovation is a process that transforms ideas into outputs, which increase customer value. In management of the innovation process, destroying poor ideas often is as important as nurturing good ones, in this way scarce

resources can be released and good ideas spotlighted. Every good idea usually replaces an older established one. The goal of every organization is the successful development of good idea.

Furthermore, this definition encompasses both technological and non-technological innovation, as technological innovation is only a special type of innovation that involves technologies. According to Roger.M (1998), this simple definition can universally applied to all types of innovation as from the most tangible ones based on technologies such as nuclear fission and semiconductors, products such as automobiles and computer, services such as financial, management practices such as standardization and statistical quality control and so on.

Innovation is the important of study for number of different disciplines, including economics, business, science and sociology. Despite the fact that innovation has been studied in variety of disciplines the term is often poorly understand and can be sometimes confused with related term such as change, invention, design and creativity. The term creativity is used extensively and among other contributions, the ideas concerning the creative class by Florida (2002) have become key issue of dynamic regional development all over the globe. According to Roger.M (1998), innovation that fits the ideas and concepts used in is making changes to something established by introducing something new.

## **2.2 Definition of green organisation performance**

Organisation is social unit of people that is structured and managed to meet a need or to pursue collective goals. All organisations have a management structure that determines relationships between the different activities and the member and authority to carry out different tasks. Organisations are open system affect and affected by their environment. All the technology or process innovation activities that maintain, improve the environment quality that contribute to environment improvement, clean production and sustainable development. The green organisation that is used in various aspects of

products, processes, services, and so on. In this way can bring manufacturing to a higher level and is environmentally friendly. According to Chen et al., (2006), green organisation is defined as hardware or software innovation that is related to green products or processes, including the innovation in technologies that are involved in energy-saving, pollution-prevention, waste recycling, green product design or corporate competitive management. Green organisation is a way to implement, identify and monitor new ideas that have a positive impact on the environment and enhance the competitiveness of the company.

An organisation is a network of planned relationships within a system for engaging with tasks. These is relationship not only include those between people but between all resources (technology, money, energy and so on) within a system. Organisation provides the blueprint to the people to relate to one another and to other resources, in order to engage in activities that contribute towards affective performance of tasks. The tasks are designed in such a way that together they contribute towards the fulfilment of the system long term objectives as well as short term goals.

Green organisation is the application of the environment to conserve the natural environment and well utilise the natural resources in order to minimize and reduces the negative impacts of organisation. Through green organisation as techniques for generating energy, waste reduction in the organisation especially using the information technology. Green organisation can help to increase an efficient and decrease of risk in company. Green organisation refer the products, equipment or systems which the criteria is minimizes a condition of the environment, low greenhouse gas (GHG) emission is safe and promote healthy and improved environment for all of life, and increase the quality in organisation (Definition of green technology by KeTTHA, 2010).

Through green organisation as an alternative technology a better increase productivity in organisation at manufacturing industry. This alternatives technologies that created be more environmentally friendly and not harmful to people.

At the organizational performance level, introducing the concept of sustainability into organisational thinking has implications for business strategy, which, in turn, affects

how green performance. Sustainability can mean many different things to organizations. Indeed, many organizations do not distinguish between environment and sustainability while other organizations equate sustainability with economic sustainability, that is, with consistent levels of economic growth (Bansal, 2002).

Strategically, organizations can see sustainability as a compliance issue (something that has to be done because it is law), a cost to be minimized (something to spend the minimum amount on) or an opportunity for competitive advantage (something that leads to opportunities). There is some evidence that organizations follow an evolutionary path in their attitudes and behaviours from compliance to competitive advantage Florida (1996) a path that mirrors their responses to environmental management issues.

### **2.3 Definition of innovation and green organisation performance**

Green organisation and innovation (GI) is more becoming increasingly important for companies to raise their environmental awareness because more and more international customers and buyers are requiring their suppliers to produce products that do not contain hazardous and toxic substances Chiou et al., (2011). Green organisation and innovation is not included understanding the environmental claims, but also the needs of customers in the receiving environment-friendly products, actions of competitors and other factors that may be considered in product or process innovation, especially the organization. According to Nunes and Bennett (2010), implementation of green organisation and innovation refers to the development of the idea in the market and finally, monitoring is the activity that should feedback the company about its GI in order to enhance the learning of innovating in sustainable way.

The innovation and green organisation concept of information technology is very suitable for use in manufacturing industries. According to S Murugesan's definition there are three main areas to be focused, when studying, practising, designing and