

CREATIVITY FACTORS AND INNOVATION IN MANUFACTURING  
COMPANIES, JOHOR

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CREATIVITY FACTORS AND INNOVATION IN MANUFACTURING  
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## DEDICATION

*To my beloved father, mother, brother and sister...*

*Asmi bin Ali*

*Marlina binti Md Nor*

*Zool Nasri bin Asmi*

*Dalila binti Asmi*

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## ABSTRACT

Since the past decades, creative industry and innovation model have been introduced and implemented in manufacturing industry in developing our country's economy. However, the truth about the fact that innovation can affect the organizational performance has long been questioned. Therefore, there have been a substantial number of researchers that had studied the relationship between creativity and innovation with organizational performance in the industry. Although the number of studies investigating on this issue is growing, researches in determining the relationship between creativity factors and innovation moderated by environmental aspects in bringing profitable growth are very limited. This research attempted to investigate the factors that enhance the innovation in creating profitable growth among 54 manufacturing companies that act as the main key players in Iskandar Regional Development Authority (IRDA). By using quantitative methods, the survey forms were distributed randomly to the employees who are working in the executive level and above for each company. The data were analyzed with the help of Statistical Process for Social Science software. The descriptive and inferential statistical analysis was used to achieve the research objectives. There are six factors of creativity adapted from KEYS instrument found by Amabile (1996) represented in this research namely organizational encouragement, supervisory encouragement, freedom, challenging work, resources and work group support. Besides that, the environmental aspects have also been discussed as giving the moderating effect between innovation and profitable growth. The findings also revealed strong influence of supervisory encouragement, challenging work and resources on innovation. In addition, the results have also proven that there is a positive relationship between innovation and profitable growth that is mediated by competitiveness factor.

## ABSTRAK

Sejak beberapa dekad yang lalu, industri kreatif dan model inovasi telah diperkenalkan dan digunakan dalam industri pembuatan untuk membantu menaikkan ekonomi negara. Walau bagaimanapun, kesahihan berkenaan inovasi boleh memberi kesan pada prestasi organisasi masih dipersoalkan hingga kini. Oleh itu, terdapat sebilangan pengkaji telah mengkaji hubungan antara kreativiti, inovasi dan prestasi organisasi dalam industri. Walaupun bilangan kajian berkenaan isu ini meningkat, kajian dalam mengkaji hubungan antara faktor-faktor kreativiti dan inovasi dengan bantuan aspek persekitaran dalam memberi keuntungan yang berterusan masih terhad. Terdapat 54 buah syarikat pembuatan yang tersenarai dalam kawasan IRDA telah dikaji tentang faktor-faktor yang dapat meningkatkan kadar inovasi dalam menghasilkan keuntungan berterusan. Dengan menggunakan kaedah kuantitatif, borang-borang soalselidik telah diagihkan secara rawak kepada pekerja yang berjawatan eksekutif dan ke atas dalam setiap syarikat. Data-data yang diperolehi telah dianalisis dengan menggunakan perisian SPSS. Terdapat dua jenis cara iaitu deskriptif dan inferensi analisis telah digunakan dalam kajian ini untuk mencapai matlamat kajian. Enam faktor kreativiti dari 'KEYS instrument' yang ditemui oleh Amabile (1996) telah digunakan dalam kajian ini; galakkan dari organisasi, galakkan ketua, kebebasan, cabaran tugas, sumber-sumber dan sokongan dalam kumpulan. Selain itu, aspek-aspek persekitaran yang membantu syarikat dalam memperolehi keuntungan dari inovasi juga telah dikaji. Hasil dari kajian ini membuktikan tiga dari enam faktor iaitu galakkan ketua, cabaran tugas dan sumber-sumber telah memberi impak yang besar kepada inovasi. Bukan itu sahaja, keputusan juga menunjukkan terdapat hubungan yang positif antara inovasi dengan keuntungan yang berterusan, di mana faktor persaingan telah memberi kesan pada hubungan tersebut.

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**LIST OF TERMINOLOGY**

GDP	-	Gross Domestic Product
R&D	-	Research and Development
EU	-	European Union
OECD	-	Organization for Economic Cooperation and Development
IPR	-	Intellectual Property Right
PCT	-	Patent Cooperation Treaty
MDI	-	Malaysia Design Innovation Centre
GERD	-	Gross Expenditure Resource and Development
IM	-	Iskandar Malaysia
SJER	-	South Johor Economic Region
IDR	-	Iskandar Development Region
MNCs	-	Multinational Companies Enterprise
SMEs	-	Small and Medium
PMSI	-	Programme Medicalization System Information
AAGR	-	Average Annual Growth Rate
E&E	-	Electrical and Electronics
IRDA	-	Iskandar Regional Development Authority
DCP	-	Comprehensive Development Plan
SPSS	-	Statistical Package for Social Science
ANOVA	-	Analysis of Variance
ANCOVA	-	Analysis of Covariance
STV	-	Subjects to Variables

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction

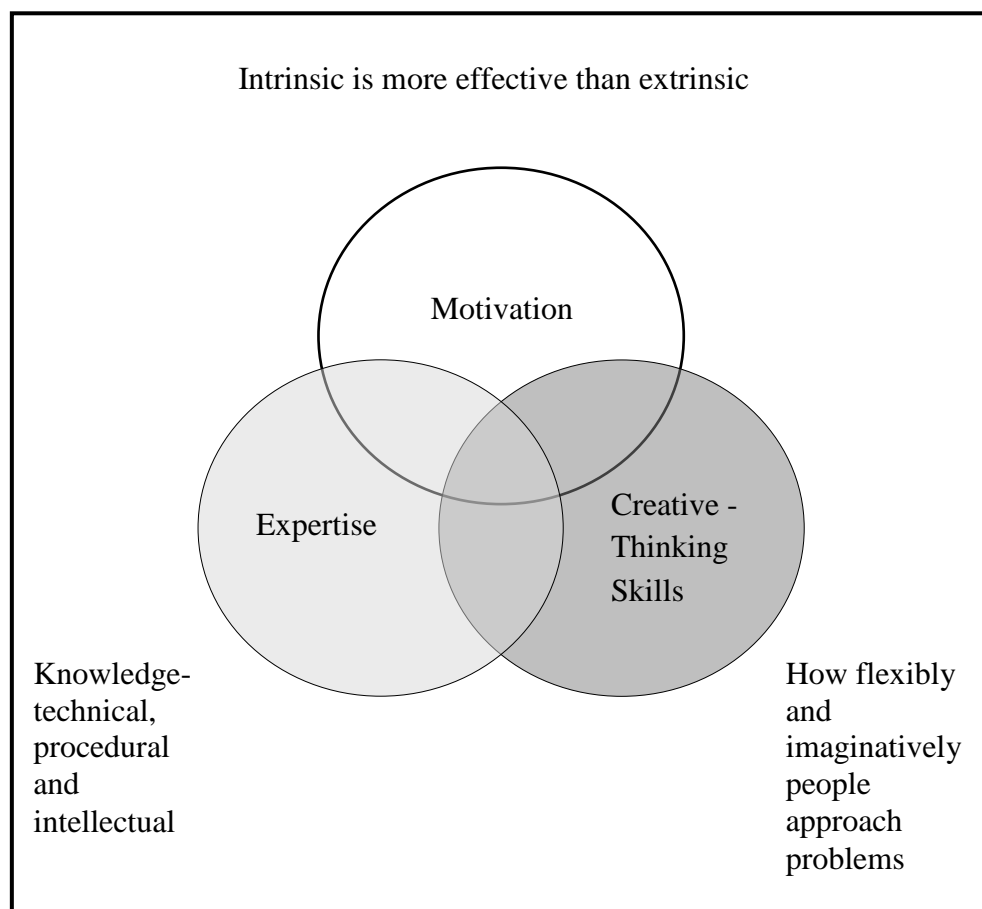
Today, a number of organizations are facing the greatest pressure in competing to create either products, services or processes that are newer and better. According to DeGraff and Lawrence (2002), in order to stay competitive, organizations must satisfy customers' current demands by having technological change and continuity of effective innovations. The latter can be successful if organizations use creativity as a starting-point in creating and developing new ideas (Coade, 1997). As affirmed by Serrat (2009), creativity plays an important role in an innovation process. This statement is also supported by Hubner (2009):

*“Creativity can be regarded as the ultimate source of innovation-that is turning creative ideas into products and services. In this sense creativity is always involved when innovation leads to economic results. ”*

For centuries, business would succeed in the market domain if the organizations are being more concerned about the importance of creating new products in which creativity plays the main role (DeGraff and Lawrence, 2002). As supported by Florida (2002), being economically creative is more important in facing the changes of modern economy.

Moreover, with creativity, innovation of product and process can be developed successfully, which then would be regarded as a market value creator (Coade, 1997; Serrat, 2009). This statement proves that, good ideas with successful implementation of innovations will give value to the organizations especially in financial terms. Hence, without suitable techniques in implementing creative ideas, innovations cannot be done successfully. According to Tong (2000), creative ideas will be useless without good implementation.

**Figure 1.1:** Three Components of Creativity



Source: Adams (2005)

There are many ways to generate creativity in an organization. Based on Figure 1.1, Adams (2005) concluded that there are three components that will enhance creativity in organizations. The first component is motivation; intrinsic and extrinsic motivations. Intrinsic motivation comes from employees' interest and enjoyment of doing their work. Examples of extrinsic motivation include money,

recognition, coercion, and others. Furthermore, Adams also added that intrinsic is more effective than extrinsic motivation, as when employees did their work because of interest, the result is better than when they are forced into doing it. The next component involves knowledge-technical, in which procedural and intellectual will also help in developing creative ideas among employees.

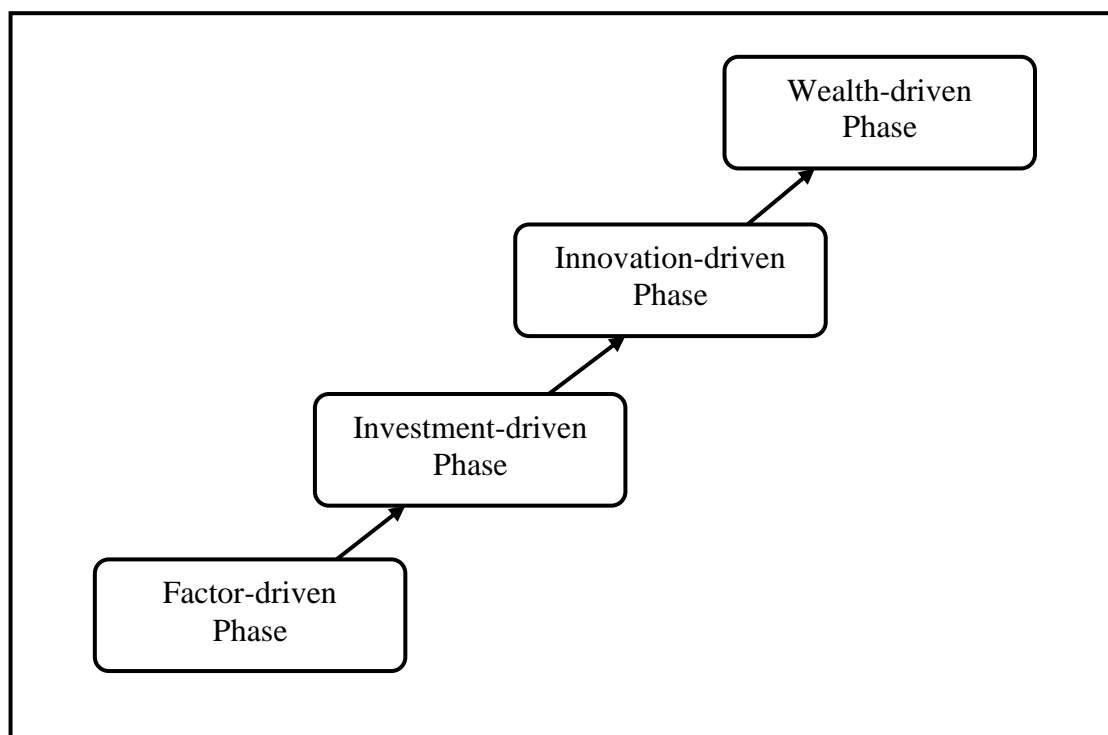
In the current economy, organizations must be able to handle problems occurring in their organizations with creative-thinking skills. Similarly, these components have been proposed by other researchers like McLean (2005), Von Stamm (2008) and KEA European Affairs (2009). After all, with the fast market and technology changes, there is a continual pressure to develop new products, processes and services more rapidly, which would require workers to be more innovative (Brynjolfsson and Schrage, 2009). According to Drucker (2002) successful innovations can only be achieved if there are opportunities to innovate.

There have been many studies carried out by previous researchers, like Freeman (1990); Cohen (1995); Fanfani and Lagnevik (1995); Vaz *et al.* (2004); Kleinknecht and Mohnen (2001); Avermaete (2003); Bigliardi and Dormio (2009) and Aida and Seng (2011) which have focused on determinants or elements of innovation. Their main focus was to investigate on how innovations have occurred in the organizations studied. They have also discussed on the opportunities to initiate innovations. Besides that, other researchers like Oldham and Cummings (1996); Martin (2002); Martins and Terblanche (2003) and Naranjo-Valencia *et al.* (2011) had studied on the organizational culture that stimulates creativity and innovation. Organizational culture is one of the determinants of innovations in organizations. According to Tushman and O'Reilly (1997), shared values, beliefs and behavior expected of members of an organization are the parts of organizational culture. These researches have shown that the culture of organization helps to generate creativity and produce successful innovation.

Based on these previous studies and findings, it can be concluded that creativity will help organizations to know better in how and when to act with opportunities to create innovations. Organizations successful in innovations can

create and expand the markets and will also potentially be more profitable (Abraham and Knight, 2001). This has been proven by Chaney *et al.* (1991), with their finding showing that from year 1975 until 1984, new products introduced in the Wall Street Journal gave a higher return to shareholders (exceeded \$115.7 million). According to Linder (2006), there were several studies conducted on various types of industries which show that effective innovation gives a good impact to shareholders' total returns and leads to higher performance. As explained by Porter (1998) in Porter's four phase model of national competitive development, innovation will lead to wealth creation, as shown in Figure 1.2. The first three phases are factor-driven, investment-driven and innovation-driven which are shown as the rising of economy. The last phase is for providing an understanding of the development or decline of the economy.

**Figure 1.2:** Porter's Four-Phase Model of National Competitive Development



Source: Porter's (1998)

As reviewed from this model, it is shown that national competitive development starts with the need for survival in the current economy. There were several studies carried out to determine the factors that drive competitive

development as shown in Table 1.1. In the second phase, competitive development is investment-driven, which includes the planning to innovate, cost, current economy and others. According to KEA European Affairs (2006), if it is possible to increase the research and development (R&D) investment level to at least three percent of GDP, organisations will be able to produce effective innovations. In the next phase, organizations will have to market the products and services innovations. Lastly, these previous processes will reflect the final stage i.e. whether the innovations have achieved the organizations' goal or not.

**Table 1.1:** Factor-Driven to Competitive Development

Researchers	Factor-driven to Competitive Development
Windrum and Koch (2008)	Resources, competition, the social and societal factors and measurement and transparency of output and innovation
Von Stamm (2008)	Competitive pressure and a concern of how to develop the business, the most effective conditions to access new markets, to respond to increased consumers awareness
Andriopoulos and Dawson (2009)	Technology, more unpredictable and demanding customers, global competition, knowledge, change, higher employee expectations and the importance and dominance of design.

Sources: Windrum and Koch (2008), Von Stamm (2008) and Andriopoulos and Dawson (2009)

### 1.1.1 Global Context of Creativity and Innovation

Years after the Second World War, innovation-industrial policies have been implemented in the developed countries such as United States (US), United Kingdom (UK), Japan, France, Germany, Netherlands, Canada, and Sweden (Goh, 2005). This innovation-driven policy is identified by European Union (EU) as the top macro-

economic strategy for industrial development. It thus shows that innovations had become an important tool in organizations since a long time ago. However, successful innovations are impossible to be achieved without implementation of creative industries concept among organizations (Potts, 2009). This is because creative industries provide services such as creative workers as one of the inputs into the innovation process.

As referred by the British Council (2011), creative industries concept is the tool for having a creative economy. An intellectual property that is produced by individual's creativity, skill and talent in creating wealth and jobs will help to develop creative industries concept among organizations. According to Zhang *et al.* (2011), United Kingdom (UK) is the first country using the concept of creative industries. Previously, the manufacturing sector had given many negative impacts to an economy such as serious pollutions, waste of energies and others. As such, the UK had come out with creative and innovative solutions by finding a new economic growth that has more benefits in the long term. This creative industry idea has also been implemented by other manufacturers in order to remain being competitive with each other. Until now, it is heartening to note that the number of manufacturers using the idea of creative industry keeps on increasing.

In a differing thought with that of the United States, creative industries depend very much on culture and innovations in the technology field in which they have become the most systematic industries that is able to generate more profits. Currently, the US is focusing on how to have economic growth for profitable means rather than to solve current problems. Meanwhile other countries such as Germany, already has a good economy based on superior technological development of cultural creative industries such as media, film and television. All of these three countries are members of the Organization for Economic Cooperation and Development (OECD). It was established in 1961 after Canada and the US joined the Organization for European Economic Cooperation (OEEC) in signing the new OECD convention (OECD, 2011). The mission of OECD is to promote policies that will help to improve the economic and social well-being of people all over the world. Currently, there are 34 countries in the OECD.

However, there are also other countries such as China and India that have been cooperating with OECD. In year 2007, OECD has strengthened their cooperation with these non member economies and it has given numerous benefits to China. This country has the largest advertising industry market and thereby can achieve more than RMB 18 billion annually using creativity and innovative ideas through this industry.

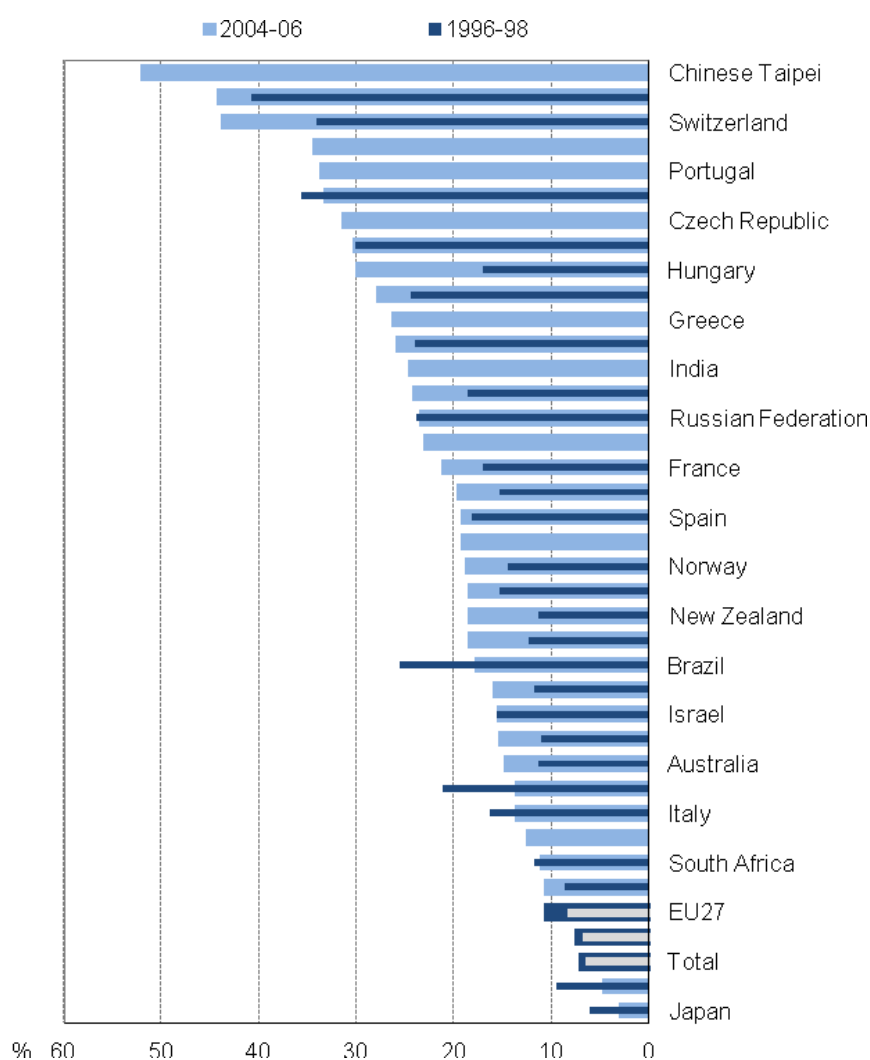
Research on India's innovation done by Dutz (2007), has shown that India needs to improve the potential of innovation for its sustainable growth and in reducing poverty. This shows that innovation is the best way to facilitate organizations in increasing their productivity, profit and competitiveness. Currently, India has been able to apply innovation in certain economic areas such as export-oriented, skill-intensive manufacturing and services. In year 2004 until now, with innovation application in India, the real GDP has grown by over eight percent a year. This therefore shows that, their current economic growth is improving and will keep on growing in the future.

Real GDP is an adjustment of total output of products and services based on price changes (OECD, 2011). Normally, OECD members use real GDP as a means to compare each others' economic growth. Since 2007, Slovak Republic had scored the highest rate of real GDP for two years whereas in 2009, Poland led. However, in 2009 most of these countries had scored a negative value of real GDP because of the world economic crisis impact.

The OECD consists of 34 developed countries working together to address economic, social and environmental challenges of globalisation. Since the 1990s, most OECD countries invest more in knowledge rather than in machinery and equipment. For intellectual assets, human capital, research development (R&D) and capacity to conduct and patent valuations are still rapidly increasing because these are the key to value creation. For example, the investment in R&D will be associated with high rates of return.

Nowadays, governments are also focusing more on intellectual property rights (IPR) laws and practice. There are more organizations applying for IPR to have a high return on the investment in creations. In view of that, the number of patent applications has increased rapidly over the past two decades. Figure 1.3 shows that most of the countries have an increasing number of patent applications, especially Chinese Taipei, with about 50 percent increment in year 2004 until 2006. Besides that, in 2004 other countries like Poland, Portugal, Czech Republic, Greece, India and others have also been applying for IPR.

**Figure 1.3:** PCT Patent Applications with Co-Inventors Located Abroad



Source: OECD (2009)



### **1.1.2 A Malaysian Context of Creativity and Innovation**

According to the Global Competitiveness Report 2011-2012 published by World Economic Forum, Malaysia is ranked 21<sup>st</sup> with 5.08 score. However, in the previous Report (2010-2011), Malaysia was ranked 26<sup>th</sup> and had scored only 5.00. This therefore shows that currently, Malaysian performance seems to be better compared to the previous years. As for the rankings, Switzerland is still at the top, holding the highest score for innovation of 5.74 both in the current and previous years with no changes in the score value. Although Malaysia had made an improvement in the Global Competitive Ranking; this does not mean that it can be satisfied with the current economy. As we know, there are numerous organizations attempting to make sure that their products or services can take the lead from the others and dominate the economy.

The Malaysian government has put many initiatives to help manufacturing companies to keep being competitive globally. In 2008, Yayasan Inovasi Malaysia (YIM) has been established to develop creativity and innovation in industries. It helps in motivating Malaysian citizens and funding the innovation activities that are able to improve Malaysian economy. Besides that, Malaysia Productivity Corporation (MPC) has also organized Innovative and Creative Circle (ICC) convention annually. This convention helps to provide a platform for the industries to learn best practices of other circles as well as to exchange ideas and knowledge on ICC activities. Another initiative is collaboration between Malaysian government with private sector to drive creativity and innovation to advance business; they have developed Malaysia Design Innovation Centre (MDI). In 2004, MDI had recognized 37 companies as the receivers of the National Creativity and Innovation Award. The award is to motivate organizations to be more innovative and seize the opportunities to create wealth. Based on the Malaysia Tenth Plan 2011-2015 organizations can create wealth by increasing their productivity. It can be achieved by increasing the level of input from its human capital, through the implementation of new technologies and development of entrepreneurship to drive innovation and creativity.

According to the EU economy, the gross expenditure on R&D (GERD) should achieve three percent of EU GDP in order to have effective innovations and earn an annual market value of Euro 500 billion. Unfortunately, in the year 2008 Malaysia's GERD had only achieved 0.82 percent of GDP and declined to 0.79 percent of GDP in 2010. Hence, Malaysia has put its target to increase its GERD to one percent of GDP by year 2015. To achieve this, Malaysia has started to shape a supportive ecosystem for innovation, creating innovation opportunities, putting in place innovation enablers and funding for innovation.

Currently, Malaysia has focused more on funding the manufacturing sector for its innovation. This is because, the manufacturing sector has contributed the most to the real GDP growth in Malaysia, as depicted in Table 1.2. For example, in 2006, the manufacturing sector had achieved 7.1 of real GDP growth, after services sector, which had represented 7.3 of the real GDP growth. However, in 2010, the manufacturing sector had reached 11.4 of real GDP growth which is the highest rate in Malaysia. This is a major improvement compared to the real GDP growth for 2007 to 2009 which had dropped significantly.

**Table 1.2:** Real GDP Growth by Sectors in Malaysia

	2006	2007	2008	2009	2010
Agriculture	5.4	1.3	4.3	0.4	1.7
Mining	-2.7	2.0	-2.4	-3.8	0.2
Manufacturing	7.1	2.8	1.3	-9.4	11.4
Construction	-0.5	7.3	4.2	5.8	5.2
Services	7.3	10.2	7.4	2.6	6.8

Source: Wan Suhaimie (2010)

## 1.2 Statement of the Problems

Successful innovation can help organizations to keep their competitiveness and give them benefits in terms of sales growth (Bhattacharyya, 2007). As acknowledged by Mc Adam and McClelland (2000), new products that meet customers' needs will give more profit to the organizations when compared with the competitors. According to Milton (2002), an innovation survey on UK's manufacturing and service companies found that manufacturing companies producing new products which have existed for less than five years, have generated more than 75 percent of their total revenue. Besides that, this survey had also found that those companies which have produced more of innovative products or services have earned more profits. 75 percent of profit was generated from at least six types of new products or services per annum that need to be developed.

As stated by Mathernova (2009), the capacity to create successful innovative products and services developed from creative ideas is important for regional development of European Union. This is because through this development process, the EU has face global financial markets and unpredictability of the changing dynamics as it moves into a new decade. He added, there are four major challenges faced by Europe which can only be met by creative and innovative thinking. First challenge is globalisation, which is due to many events that are changing rapidly in the world. Consequently, advancement of technology will keep on moving forward and this makes innovation and creative ideas more valid than ever. Same goes with others challenges; demographic change caused by changes in the structure of society, a change in the world's climate and limited supply of energy sources due to insecure, untenable and competitive causes.

However, the challenges in business will also cause failure in developing any types of innovation. The Malaysian companies cannot excuse themselves from facing this innovation failure. According to the survey conducted by Ministry of Science, Technology and Environment in 2003, there are nine relevant obstacles that cause failure of innovation which include cost of innovation, economic risks, lack of sources of finance, lack of information on markets, lack of information on

technology, lack of skilled personnel, lack of customers' response, legislation and regulation and organizational rigidities. This shows that, failures take place during the innovation process itself, giving impacts to the organization, nation and society. The Malaysian Government had taken several initiatives to overcome these problems. As recorded in Budget 2010, it was announced that the government will give fund on selected innovation activities and also integrate R&D activities with patents, copyrights and trademarks registration to ensure the processes are implemented more effectively. Besides that, there will be tax deduction on expenses incurred in the registration of patents and trademarks for small and medium enterprises. The government also provided a budget in upgrading polytechnics, community colleges and will develop industrial training programmes as a measure to enhance the skills of workforce to fit in the current market demand.

According to Shiang and Nagaraj (2007), organizations still have to creatively innovate their product to fit customers' current demand even if the product had achieved a great target in the past. Consequently, organization might face difficulties in the innovation process or worse, failure in innovations which would affect the organization's profit. Therefore, management should encourage their teams to work on innovations even when they have already faced failures. According to Oliver (2009), organizations should inspire their employees to be more creative and hire new employees with high creativity. Many previous studies have also shown that organizations need to motivate and encourage employees to perform creatively like Eisenberger and Rhoades (2001), Fairbank and Williams (2001) and Baer *et al.* (2003).

In context of Malaysia, 2009 was the worst year when Malaysia had faced a global crisis. Malaysia's exports had decreased to 23.4 percent and the Industrial Production Index declined to 12.7 percent (Economic Report, 2010). However, in 2010, the economy in Malaysia has started to recover with the help of creativity and innovation activities. About two to three percent of economy has expanded and one of the major sectors that contributed was manufacturing. In addition, the country had also succeeded in transforming the economy from agriculture to industrial based years after the recovery. Currently Malaysia is implementing new type of economic

model which involves creativity and innovation plans. There are many approaches that can be undertaken by the government to transform Malaysia's economy such as industrial innovation, innovation process, innovation in public and private sector and many others.

The Malaysian government has also started to implement several plans to transform Malaysia's economic to a high-income economy. As referred to Shaik Roslina and Norazlina (2011), Malaysian Government has included a plan in the 10<sup>th</sup> Malaysia Plan (2011-2015) to have New Economic Model (NEM) and Economic Transformation Programmes (ETP) to help in transformation of Malaysia's economy. The ETP has recorded RM170.28 billion in investment, RM220.15 billion in gross national income (GNI) and created 362,396 jobs. This economic transformation process needs creativity and innovation as their main tools to success. As supported by Bessant and Venables (2008), innovations can create value to organizations in terms of financial wealth and also in social value. This means that, great innovations will generate good response from customers of new products or services, increase sales, stimulate higher profit for organizations and give good impact to social and nation.

Implementation of the 10<sup>th</sup> Malaysia Plan has urged Malaysia to be more innovative in competing with other countries especially in manufacturing sector. Malaysian government has also even taken several initiatives to help in developing more of innovations in this sector. Therefore, it is imperative for manufacturing companies to have better understanding about the factors that influence enhancement of creativity in order to produce great innovation. Without these factors, companies will fail to communicate the importance of being creative and innovative to the employees and fail to determine the employees' needs throughout this innovation process. These failures might affect the company's profit and it is then difficult for the company to sustain in the future. In order to avoid these problems, a research is highly in need to determine the factors of creativity that help to create great innovations and clearly define moderating factors that affect the profitable growth.

Based on the reviewed problem, this research is proposing a framework model based on creativity factors in enhancing innovation that can improve profitable growth. In brief, this framework consists of independent (creativity factors), dependent (innovation) and moderating (environment aspects) variables. This research is focused to answer the research questions listed in the next section.

### **1.3 Research Questions**

With regards to the research problems, three research questions have been structured as follows:

- i. Is there any relationship between organizational encouragement, supervisory encouragement, freedom, challenging work, resources and work group support with innovation as perceived by executives in manufacturing companies in Iskandar Malaysia region?;
- ii. Is there any relationship between innovation with profit, market share, sales growth and operation efficiency as perceived by executives in manufacturing companies in Iskandar Malaysia region?; and
- iii. Is there any effect of dynamism and competitiveness in the relationship between innovations and profitable growth as perceived by executives in manufacturing companies in Iskandar Malaysia region?

### **1.4 Purposes of the Research**

The purpose of this study is to show the relationship between creativity factors and innovation in manufacturing companies located in Iskandar Malaysia region. The major part of the study is to determine the perception of the effect of

innovation on profitable growth. Besides that, this research will be able to determine whether or not the environmental aspects will affect the relationship of innovation and profitable growth.

## **1.5 Objectives of the Research**

Based on the purposes of this research, the outlines of the research objectives are as follows:

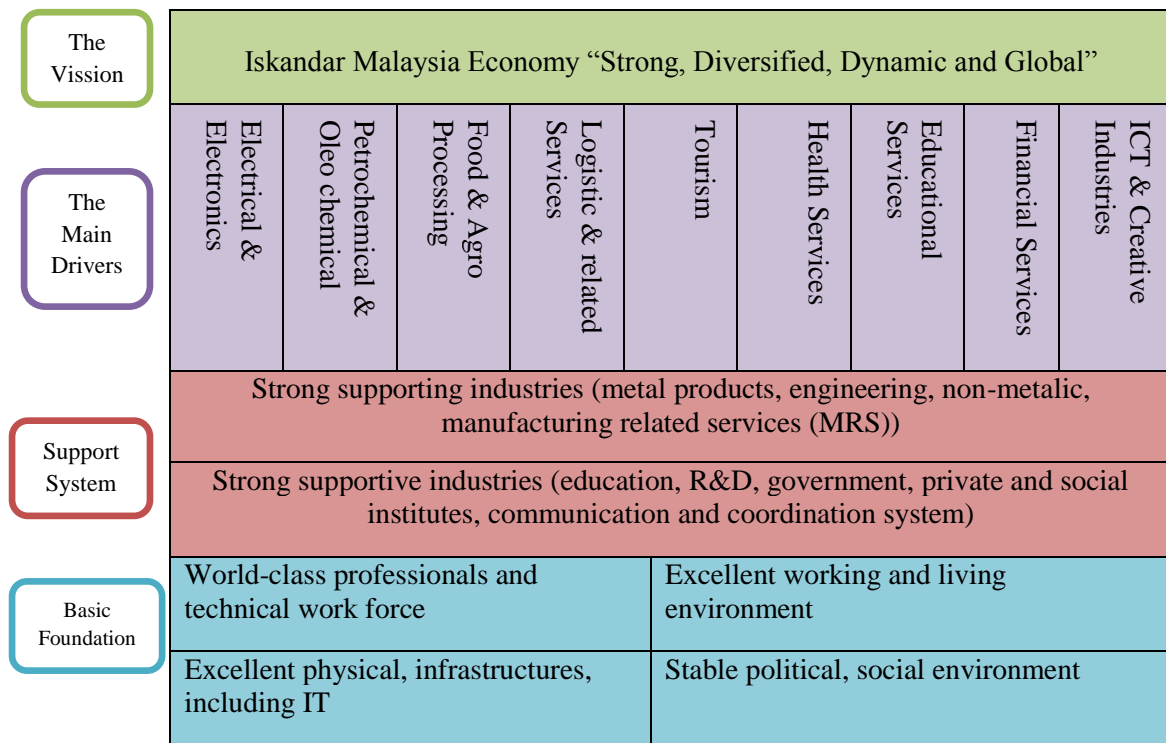
- i. To determine the relationship between creativity factors and innovation as perceived by executives in manufacturing companies in Iskandar Malaysia region;
- ii. To determine the relationship between innovation and profitable growth as perceived by executives in manufacturing companies in Iskandar Malaysia region; and
- iii. To identify the effects of environmental aspects in the relationship between innovation and profitable growth as perceived by executives in manufacturing companies in Iskandar Malaysia region.

## **1.6 Scope of the Research**

This research enlightens on the creativity and innovation in manufacturing companies. According to Deloitte (2004), manufacturers are the major drivers for economic growth, influenced by their launching of new products and services. Manufacturing companies within the Iskandar Regional Development Authority (IRDA) in the southern part of Johor was selected for this research because of their contributions to the country's economic growth. The manufacturing companies include electrical and electronics, petro chemical and oleo chemical, and food and

agro processing companies. They are also Iskandar Malaysia’s main economic drivers, as shown in Figure 1.4.

**Figure 1.4: Industry Clusters of Iskandar Malaysia**



Source: Iskandar Malaysia (2011)

Currently, Iskandar Malaysia contributes approximately 70 percent of the total GDP of Johor. In 2011, the federal government has allocated RM945 million for the economic growth corridor in Johor. It is used for the innovative activities that have been planned for all types of industries in Iskandar Malaysia region.

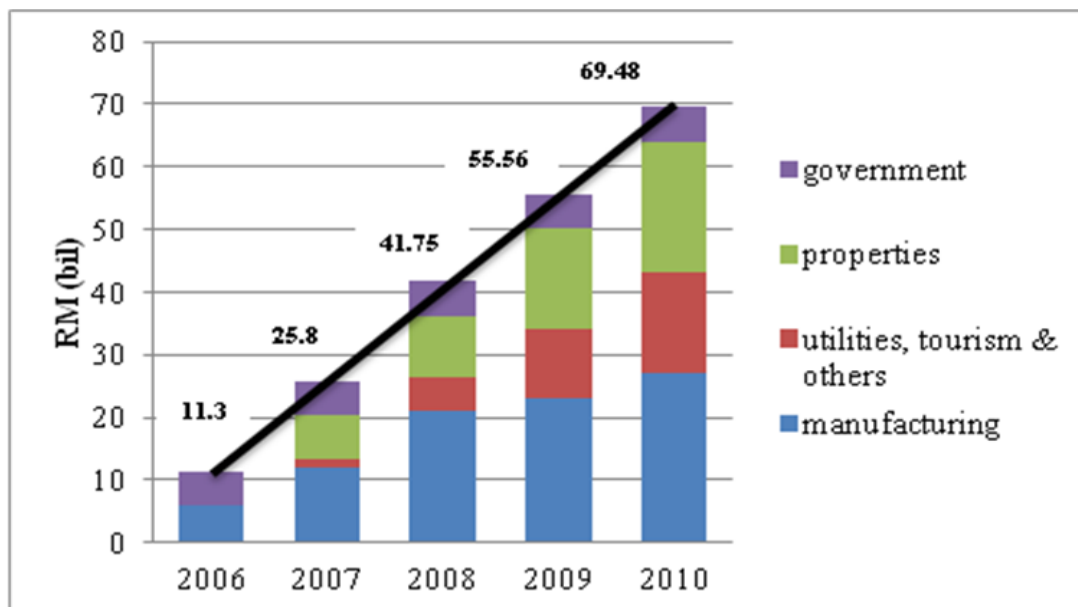
Furthermore, Iskandar Malaysia has recorded RM77.82 billion to date, as a total cumulative committed investment from various economic sectors since 2006 to 2011 (Tenth Malaysia Plan 2011-2015). As shown in Figure 1.5, for every year, the manufacturing sector has recorded the highest amount of cumulative committed investment. This thus proves that the manufacturing sector in Iskandar Malaysia region has highest budget compared to others sectors in achieving innovation plans. The Economic Transformation Programme (ETP) projects currently managed by Iskandar Malaysia will help in generating RM25.57 billion for the country’s gross



national income (GNI) and create 68,000 job opportunities by 2020 (Iskandar Malaysia, 2012).

The Iskandar Malaysia areas that are involved in manufacturing activities include Johor Bahru City Centre, Tebrau, Nusajaya, Pasir Gudang, Skudai, Pontian, Senai-Kulai and Port of Tanjung Pelepas. A total of 54 manufacturing companies are acting as key players of economic activities in South Johor Economic Region (SJER) or commonly known as the Iskandar Development Region (IDR). All of the selected companies were given a set of questionnaires in order to obtain the data to achieve all of the research objectives.

**Figure 1.5:** Cumulative Committed Investment (RM billion) in Iskandar Malaysia (till end 2010)



Source: Iskandar Malaysia (2011)

## 1.7 Limitations of the Research

There are several limitations that can be identified in this research. Firstly, the result from this research may not represent the manufacturing companies in general. This is because the research has covered only the manufacturing companies

under IRDA, Johor. As such, the generated data might not be suitable to be used to represent manufacturing companies in other regions or countries. Secondly, since the research conducted has been focusing on the employees of manufacturing companies, the outcome of the research might not be applicable to other sectors, unless they fit the same criteria as respondents of this research.

Another limitation is the issue on companies' privacy of information as this will give some difficulties for this research to have sufficient data from all the selected companies. Most of these manufacturing companies have implemented information security control called Information Security Management (ISM). In addition, International Organization for Standardization (ISO 27001) is also in place which is published to have the management system intended to bring information security under the management control.

## **1.8 Significance of the Research**

This research is significant in terms of two perspectives; to serve as an academic literature for the field of study and as a reference for the manufacturing companies in Iskandar Malaysia areas.

### **1.8.1 Academic Literature**

From this perspective, findings from this research will provide additional information for other researches and assist in enhancing knowledge on the topic discussed. It is hoped that the findings do not only contribute to the literature on the subject of innovation but also have potential in providing some information for future research activities in other areas. It is also aspired that the results from this study can also be used in comparing with other types of manufacturing companies in different areas. Besides, this research is also able to determine the relationship

between innovation and profitable growth for manufacturing companies. However, it is worth noting that due to the fact that there are only a few previous researches carried out to determine this relationship, the findings might be slightly different. As such, this research will assist others to analyse further and stimulate ideas for future beneficial researches. In fact, researches regarding this matter are still lacking. In the long run, this research might also serve as a part of periodically and continuously evaluations and reviews series.

### **1.8.2 Manufacturing Companies**

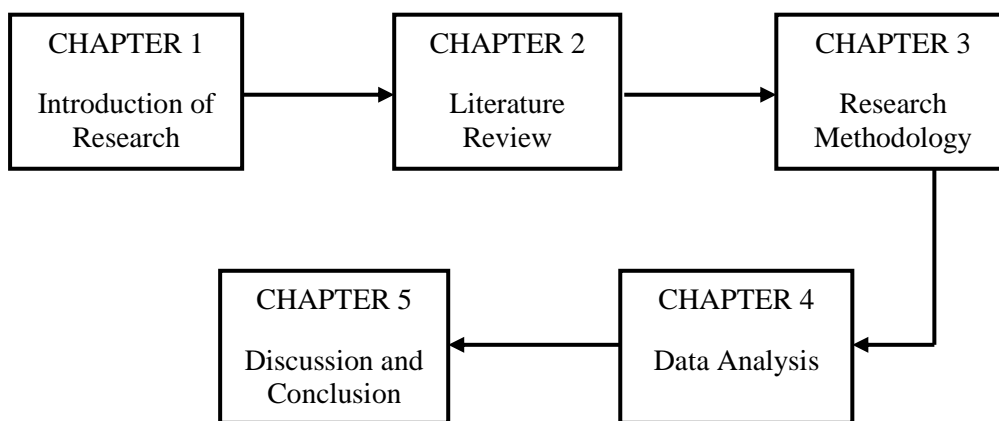
In another perspective, this research is significant as a reference among manufacturing companies. However, due to the restricted geographical areas selected as the samples, this research can only be referred by manufacturing companies in the same areas or those that have similar characteristics. This research will also help manufacturing companies to be aware about the importance of being creative and innovative in the workplace. The research outcome will also assist the manufacturing companies in finding the suitable factors of creativity in enhancing innovation. From this, knowledge on the relationship between creativity factors and innovation can be delivered. Finally, manufacturing companies can also inspire their employees to understand the fact that being creative and having innovation can bring profits to the company.

## **1.9 Structure of the Report**

There are five chapters included in this thesis, as presented in Figure 1.6. Chapter one covers the introduction of creativity, innovation and organizational profitable growth. Besides that, the background of the topic both globally and in context of Malaysia, is also detailed out. The chapter also contains the statement of problem, research objectives, scope of the research, and limitations of the research and significance of the research.

In chapter two, literature review and previous detailed studies on the topic, are presented which are relevant to the conceptualization of creativity, innovation and organizational profitable growth. The depth of review includes some definition, formula, argument, analysis and relationship with this research topic to assist in the development of the questionnaire. This chapter also discusses on previous researches on innovation carried out locally and internationally. The conceptual framework is proposed at the end of the chapter.

**Figure 1.6:** Structure of the Report



In chapter three, the research methodology is presented in detail, including the method of data collection and technique of data analysis. This research includes both primary and secondary data. For primary data, questionnaires were used as quantitative analysis. Differently, the secondary data include previous literatures, reports, newspapers and others.

Chapter four provides a detailed analysis of the results from the survey. The employees of the manufacturing companies were required to fill up the survey to identify and measure their level of creativity and innovation. Thus, by using quantitative analysis technique, the analysis was carried out by using SPSS software. In the final chapter, the findings of data analysis are summarised and corresponded to each research objective. This chapter also highlights the main conclusion and recommends the future improvements that can be implemented for the problems identified.

## **1.10 Conclusion**

In conclusion, this chapter has provided the basic understanding of creativity and innovation in organizations. This chapter also serves as a guideline for the entire following research activities. The next chapter will present reviews on previous literature, providing an overview of previous studies and theories which are relevant to the research.

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