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The Level of Innovation Towards SME Manufacturing Industries in Johor

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Abstract: The presence of this Small and Medium Enterprise (SMEs) has given and opened a wide scope of job opportunities especially to low-pay rustic populaces. This is because there are numerous business opportunities in different sectors that can be explored in SMEs. However, the requirements and weaknesses looked by most SME entrepreneurs are the failure of the companies to innovate in developing product markets and fordable in methodical techniques. The purpose for this study is to recognize the level of product innovation, process innovation, position innovation and paradigm innovation also the factors that influencing the innovations in SMEs Johor. This study utilizes quantitative techniques where the questionnaires will be circulated to SMEs managers in Johor. This study will be directed utilize a simple sampling method. The information will analyze using descriptive test. From the result it showed that overall SME in Johor has adequate high level on competencies in innovation. Therefore, it can be concluded that SME in Johor are innovative enough to remain in competitive advantages.

Keywords: Innovation, Product innovation, Process innovation, Position innovation, Paradigm innovation, Small and medium enterprises (SMEs)

1. Introduction

Innovation can define as the transformation of new knowledge into new products and services. It is the ability to apply creative solutions to problems and opportunities to enhance or to enrich people's lives. Besides, innovation can be a catalyst for the growth and success of your business and help you to adapt and grow in the marketplace (Department of Industry, 2018). Being innovative does not just mean inventing, indeed innovation may change your plan of action and adapting to changes in your environment to convey better products or services. Effective development ought to be an in-assembled some part of your business strategy, where you make a culture of innovation and lead the route in creative problem solving and innovative thinking. Innovation can improve the probability of your business succeeding. Organizations that innovate make progressively effective work forms and have better profitability and performance.

The existence of Small and Medium Industries has provided job opportunities very wide especially to the rural population with low incomes. This is because there are many business opportunities in various sectors that can be explored in the SME. Malaysia and several other countries including Singapore, Indonesia and Thailand are also considered as part of developing countries that take an early initiative in promoting small and medium industries.

1.1 Research Background

According to the 2011 economic census, SMEs in Malaysia, representing 97.3% or 645,136 of the total 662,939 establishments of the whole society in this country. To achieve the government's aim to have a strong SMEs, steady and potential towards contributing to the national economy, SMEs need to know and understand as well as analyzing the theories of innovation in companies in order to compete and survive in the business world

1.2 Problem Statements

For Malaysia to move forward, it's time the innovations serve as the main booster that will propel the country's economy, particularly by developing innovation in science and technology in order to become a developed nation by the year 2020 (Economic Planning Unit, 2015). However, Malaysia society does not recognize the change and renewal of innovation.

SMEs requires not only management, but the implementation of quality management systems. SMEs need to identify priorities in terms of resource allocation to the operational aspects and design aspects that require less concern for future planning. In this case, when Datuk Seri Najib Tun Razak, a former Prime Minister attended a Chinese New Year celebration and briefing the Malaysian Innovation Agency organized by the SME Association of Malaysia, calling for the SME community that includes technology and innovation as one of the important components in their business strategy. In addition, the use of technology is very low, especially those involving sophisticated equipment and machinery and the use of technology which is reactive technology is taken to the operating efficiency and not as a strategic method.

1.3 Research Questions

This study has developed the following research question:

- (i) What is the level of product innovation in SME manufacturing industries in Johor?
- (ii) What is the level of process innovation in SME manufacturing industries in Johor?
- (iii) What is the level of position innovation in SME manufacturing industries in Johor?
- (iv) What is the level of paradigm innovation in SME manufacturing industries in Johor?

1.4 Research Objectives

From the research question, the study has constructed the following research objectives:

- (i) To identify the level of product innovation in SME manufacturing industries in Johor.
- (ii) To identify the level of process innovation in SME manufacturing industries in Johor.
- (iii) To identify the level of position innovation in SME manufacturing industries in Johor.
- (iv) To identify the level of paradigm innovation in SME manufacturing industries in Johor.

1.5 Significance of the Study

In this study, innovation is important for being one of the main strategies used in the firm to achieve competitive advantage and improve profitability in the Malaysian economy. The uses of innovation can contribute to the firm's willingness to adapt and to change internal and external environment (Hult, Hurley & Knight, 2004). Innovation is also beneficial in terms of economic, competitive advantage and positive impact on the business performance of a firm (Talke, Salamo & Kock, 2011). Thus, innovation is an important factor in describing the efficiency of business and entrepreneurial success (Alipour & Karimi, 2011).

1.6 Scope of the Study

The scope refers to the items that will be important to determine the level of product innovation, process innovation, position innovation and paradigm innovation in garments manufacturing sector in Johor SMEs. The aim of this study can be focused more precisely and orderly.

2. Literature Review

2.1 Small and Medium Enterprises (SMEs)

Today, the Small and Medium Enterprises is an organization that plays a vital role in the development and growth of the nation's economy and establishes, develops and strengthens the basic structure of national industrial development. Since 2005, a same definition approved by the National SME Development Council (MPKK) has been adopted by all ministries and agencies, financial institutions and regulators involved in SME development programs. The definitions are:

- Manufacturing industry (including based industries), manufacturing related services (MRS). Total annual sales is less than RM25 million or less than 150 full-time employees.
- Basic agriculture and services (including ICT): Annual sales total is less than RM5 millions or less than 50 full-time employees.

A business can be classified as an SME if it meets one of the two criteria: annual sales or the number of full-time employees, whichever is lower. According to the definition of Operation Size, micro enterprises across all sectors has the annual sales of less than RM300,000 or less than five full-time employees. If a business meets one of the criteria across different operating sizes, the smaller size can be apply. For example, if a firm's annual sales fall under the category of a micro enterprise but the number of employees falls under the category of a small company, then the business will be classified as a micro enterprise.

2.2 Garment manufacturing sector in SMEs

According to the 2011 Economic Census, the number of SMEs in the food and beverage sector have 5,723 establishments or 15.1% of the total SMEs while in the manufacturing sector, they have 37,861 establishments. The SMEs in the garments sector is the highest in SME manufacturing sectors.

The garment production systems are a combination of production forms, materials handling, personnel and equipment that immediate work process and produce completed garments. It is a framework that depicts how the two-dimensional texture is changed into a three-dimensional garment in a manufacturing system. The names of the production systems depend on the different elements like use of various machines to collect a garment, format of machines, total number of operators required to produce a garment and number of pieces moving in a production line during the production of garment.

Each garment production system needs a reasonable administration theory, materials handling with techniques, plant layout for garments spreading and worker training. The garment industry could join different production systems to accomplish their particular garments' production needs like using just a single production system or a mix of various production activities. Structuring production system guarantees the coordination of different production exercises. There is no specific production system that is all around acknowledged, yet there are various sorts of production system pursued by various associations as talked about in the following area.

2.3 Innovation

Innovation and creativity are two different meaning and carry their own definitions. Although the two concepts are closely related, there are differences between them (Patterson, 2004; De Jong & Den Hartog, 2010). The word innovation comes from the Latin and originally meant 'renewal'. Most people define innovation as the development of a new technology or the application of a technology to a particular use. Innovation is defined as the ability to create skills in solving problems and opportunities to enhance or enrich the quality of society.

However, the definition of innovation in the context of this study, defined by Yahya, Pervan and Xu (2013) is a firm's ability to find new and better ways of identifying, acquiring and performing tasks (for example: processes, products, services, management and administration systems, organizational structure and marketing methods) within the organization.

2.4 Dimensions of innovation

Innovation can take many forms but can be summed up in four dimensions of change which include product innovation, process innovation, position innovation and paradigm innovation. This can be categorized as 4P's of innovation. The tool enables to discover what the innovation process can improve and bring to the business. The innovation space supports the idea generation process and how it can incubate a new idea (2015). Each of the innovations have different definitions and functions whereby all the dimensions can be implemented especially in Small and Medium Enterprise (SMEs). When the firms applied one of the dimensions of innovation in their company, they can convert the business opportunities into marketable ideas (Jamaludin *et al.*, 2017). (i) Product innovation: changes in the products/services are created and delivered. (iii) Position innovation: changes in the context in which products/services are introduced. (iv) Paradigm innovation: changes in underlying mental models which become the framework of what the organization does (Department of Industry, 2018)

3. Research Methodology

Figure 1 shows the flow of the step by step in order to carry out this research as the methodology of the research.



Figure 1: A flowchart of the research methodology

3.1 Research Design

Quantitative methods were used in this study by collecting data through the distribution of questionnaires to respondents. Quantitative research is related to numerical data and accuracy (Chua, 2006). Quantitative methods are selected to ensure more reliable and accurate results. The data were analyzed using statistical analysis software, SPSS 20 for windows. The research population consisted of SMEs managers only. The total population involved in this study is 100 SME managers in Johor from sources listed by SME Corp. The sample is based on SME managers who answered the questionnaire. The sample needed is a total of 80 respondents. The random sampling method (Simple sampling) will be used in this study. It is the most appropriate method to get the data and information sources to reduce sampling error, especially the small sample size. The instrument used in this study is a set of questionnaires. According to Wiersma (1995), many of the respondents' data can be obtained in a short time and responses were more consistent by using the questionnaire.

Table 1: Survey structure

	Element	Source			
A	Respondent Demographic				
В	The level of innovations	Baregheh, A., Rowley, J., Sambrook, S., & Davies, D. (2012). Food sector SMEs and innovation types. British Food Journal, 114(11), 1640–1653. doi: 10.1108/00070701211273126			

3.2 Data Collection

Primary data are the main data of a study and derived from empirical research conducted using methods such as questionnaires. The primary data for SME innovation study in Johor is made up of information obtained from the questionnaire form. The feedback will be obtained from the respondents can be used to identify the level of product innovation, process innovation, position innovation and paradigm innovation in SMEs manufacturing sector.

Secondary data is data obtained from literature studies, primary sources, secondary sources, internet searches and library services. Primary sources are sources used to reinforce previously acquired ideas or information such as journals, articles, abstracts, reports and so on. Secondary sources are a great and fast way of finding the information because it can give you a broader picture of a problem or topic being studied. Examples of secondary sources are books and encyclopedias. Recent references have also been obtained through internet searches. In addition, library services such as recent subscriptions and online databases have also become a resource.

A pilot study is to test the reliability and validity. The aim of this pilot study was to test the understanding of respondents to the items in the questionnaire used. According to (Chua, 2006), a pilot study could help researchers identify the samples and measurements. Descriptive statistics could be the basis for any quantitative data analysis (Trochim, 2000). Descriptive analysis such as mean and standard deviation will be used to display the level of innovation in order to answer the research questions.

3.3 Data Analysis

For this research, data has been analyzed using descriptive analysis which include frequency, percentage and cumulative percentage. Meanwhile, in order to answer the research questions, mean and standard deviation is used to present the valued result.

4. Data Analysis and Results

4.1 Validity analysis and pilot test reliability

A pilot study is known as a mini study or a study of reasonableness and is an important part of a study (Chua, 2006). The purpose of this pilot test is to obtain data from experimental trials through small groups of individuals. Also, the value of the item's consistency in terms of item level, item understanding, item usability, and the item's own instructions.

Table 2 shows the result on reliability and validity test for the pilot study of 0.873. This pilot study involved 20 respondents. Through the pilot study, a sample of questions were distributed to the reference group who have the same characteristics as the real group. The sample for the pilot study were 20 managers of SMEs in Johor.

Table 2: Reliability and validity result for pilot test

Variables	Cronbach's Alpha	Number of Questions	Number of Respondents
Section B	0.873	21	20

On the other hand,

Table 3 shows the Cronbach's Alpha for the actual test reliability test was 0.751 for 35 questions. The total number of respondents involved was 80 respondents. This means that the reliability of this research instrument is good.

Table 3: Reality and validity test for actual research

Variables	Cronbach's Alpha	Number of Questions	Number of Respondents
Section B	0.751	35	80

4.2 Descriptive analysis on demography

4.2.1 Demography analysis

Table 4 shows the results of cross tabulation for demography analysis. Out of 80 questionnaires distributed, there are higher number of male respondents that answered the questionnaire. A total of 49 male respondents which equivalent to 61.25% who answered the questionnaire while 31 respondents equivalent to 38.75% comprised female respondents. Respondents by age of five respondents ranged in age from 21 to 30 years old and equaling to 6.25%. Followed by the age group of 31 to 40 years have 17 respondents were 21.25%. Meanwhile, 31 respondents were between the ages of 41 and 50 with 38.75%. Subsequently, a total of 25 respondents were aged between 51 and 60 with 31.25% and 2 respondents were within the age of 61 with 2.5%.

The table also shows the percentage of marital status surveyed by the researcher. The majority of respondents to this questionnaire consisted of married respondents with 74 respondents and the percentage equal to 92.5%. Meanwhile, single and divorced respondents were same amount respectively and both equal to 3.75%.

The number of respondents according to the educational level of two respondents was in the same UPSR and STPM level of 2.5%. Furthermore, one respondent in the PMR level was equivalent to 1.25% followed by 35 respondents in the SPM level was equivalent to 43.75%. In addition, 14 respondents in the CERTIFICATION level were 17.5% while seven and 19 respondents were in the DIPLOMA and DEGREE levels respectively 8.75% and 23.75% respectively.

The majority of respondents doing business in the eight to three-year period, 34 respondents equaling 43%. Whereas the minority of respondents who have been in business over 20 years is one respondent and equals to 1%. Six respondents conducted business in the 20 to 15 years period with 7%. In addition, the number of respondents who did business in 15 to 10 years and less than five years was 19 and 20 respondents respectively, which was 24% and 25% respectively.

The number of respondents according to other occupations before entering the small and medium enterprises with 16 respondents with a government equivalent of 20%. Followed by 41 respondents working in private with 51%. Whereas 22 and one respondents were self-employed and did not work with any agencies together 28% and 1%, respectively.

From the table also shows the majority of respondents attended to the entrepreneurship course is 78 respondents with 97.5%. While two respondents are respondents who have never attended entrepreneurship courses and equal to 2.5%. Majority of respondents run the enterprise with joint venture, which represents 74 respondents equivalent to 92.5%. While six respondents are privately with 7.5%. The number of respondents according to the source of business start-up capital, which is 14 respondents who make their own savings as a source of business start-up capital equal to 17.5%. Followed by nine respondents using family loans for a starting capital of 11.25%. Whereas 56 and one respondents used bank loans and real estate as a source of capital for business start-ups equal to 70% and 1.25%. Table shows the highest number of respondents based on the current number of workers

which is 47 respondents representing five to 19 persons equivalent to 58.75%. Meanwhile, the current workforce is 32 respondents representing 20 to 50 people and 1 respondent representing one to four people equals 40% and 1.25%.

Table 4: Descriptive analysis for demography of the respondents

Variable	Category	Frequency	Percentage (%)	Cumulative Percentage (%)
Condon	Male	49	61.25	61.25
Gender	Female	31	38.75	100.00
	21-30	5	6.3	6.3
-	31-40	17	21.3	27.
Age	41-50	31	38.8	66.3
	51-60	25	31.3	97.5
-	61 and above	2	2.5	100.00
	Single	3	3.8	3.8
Marital status	Married	74	92.5	96.2
-	Divorced	3	3.8	100.00
	UPSR	2	2.5	2.5
-	LCE/SRP/PMR	1	1.3	3.8
-	MCE/SPM/SPM	35	43.8	47.5
Education	HSC/STPM	2	2.5	50.0
-	Certificate	14	17.5	67.5
-	Diploma	7	8.8	76.3
-	Degree	19	23.8	100.00
	Above 20 years	1	1.3	1.3
-	20-15 years	6	7.5	8.8
Years in business	15-10 years	19	23.8	32.5
	10-5 years	34	42.5	75.0
	Less than 5 years	20	25.0	100.00
Attended course on	Yes	78	97.5	97.5
entrepreneurship	No	2	2.5	100.00
	Work with government	16	20.0	20.0
Job before join in SME	Work in private company	41	51.2	71.3
•	Self-employment	22	27.5	98.8
-	None	1	1.3	100.00
TE COME	Partnership	74	92.5	92.5
Type of SME	Privates	6	7.5	100.00
	Personal saving	14	17.5	17.5
	Family loan	9	11.3	28.7
Capital resources	Bank loan	56	70.0	98.9
•	Family heritage	1	1.3	100.00
	1-4 workers	1	1.2	1.2
Number of employees	5-19 workers	47	58.8	60.0
I	20-50 workers	31	40.0	100.00

4.2.2 Descriptive analysis on level of innovation

The research questions are about the level of product innovation, process innovation, position innovation and paradigm innovation in the garments manufacturing sector in Johor SMI. Levels of

product innovation, process innovation, position and paradigm innovation are measured using mean and standard deviation

4.2.2.1 Product innovation

Table 5 shows the mean value, standard deviation and rating level of each item in the workload. The table shows that the element with the highest mean value of 4.53 is equivalent to the standard deviation of 0.527 which is to "produce a great deal of creativity and innovation in the product so that it can compete in the market" while the lowest mean is 4.35 equivalent to the standard deviation of 0.553 which is "product creation to attract customers." This means that most respondents agree that they are more satisfied with bringing more creativity and product innovation to the market than creating new products to attract customers. Looking at the overall mean value, product innovation is at a high level.

Table 5: Score mean for item in product innovation

No	Product innovation	Mean	Standard deviation	Rating level
1.	Always come up with new ideas in the production of a product.	4.41	0.54	High
2.	Product updates are made based on market demand and requirements.	4.43	0.57	High
3.	Adding value to existing products is in line with market demand.	4.44	0.57	High
4.	All changes depend on the views and comments of the users and try to improve.	4.44	0.57	High
5.	Creating new products to attract customers	6.35	0.55	High
6.	Produces a lot of creativity and innovation in the product so that it can compete in the market.	4.53	0.53	High
7.	Ensuring that the product is produces can help bring about the benefits to the company.	4.41	0.57	High
8.	Always be aware of changes in local and external markets.	4.44	0.52	High
9.	Ongoing efforts to upgrade existing products.	4.51	0.50	High

4.2.2.2 Process innovation

Table 6 shows that the element with the highest mean value of 4.31 equals the standard deviation of 0.466 which is "improvement in existing machinery and equipment" while the lowest mean value of 4.18 equals the standard deviation of 0.497 "tendency to introduce process new "This means that most respondents agree that they are more satisfied with improvements in existing machinery and equipment than the tendency to introduce new processes Looking at the average overall mean value, process innovation is at a high level.

Table 6: Score mean for process innovation

No	Process innovation	Mean	Standard deviation	Rating level
1.	A tendency to introduce new processes.	4.18	0.5	High
2.	Ability to customize production, inventory, distribution and logistics processes.	4.2	0.54	High
3.	Respond to new processes introduced by other companies.	4.25	0.57	High
4.	Improvements in existing machinery and equipment.	4.31	0.47	High

5.	Customizing the machine and producing its own processing solution.	4.30	0.51	High
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4.2.2.3 Position innovation

Table 7 shows that the element with the highest mean value is 4.30 with the standard deviation of 0.513 being "knowledge of market position" while the lowest mean value is 4.23 with the standard deviation of 0.527 "knowledge of different position segments". This means that most respondents agree that they are more satisfied with their knowledge of market position than knowledge about different segments of the customer position. Looking at the overall mean value, position innovation is at a high level.

Table 7: Score mean for position innovation

No	Position innovation	Mean	Standard deviation	Rating level
1.	Taking a product or service and offering it in a new market.	4.24	0.53	High
2.	Knowledge of different position market segments.	4.23	0.53	High
3.	Creating good positioning team.	4.27	0.50	High
4.	Knowledge of market position.	4.30	0.51	High

4.2.2.4 Paradigm innovation

Table 8 shows that the element with the highest mean value is 4.31 equivalent to the standard deviation of 0.587 that is "your company has a new or significantly improved knowledge management system for better use or better exchange of information, knowledge and skills. Good in the company." while the lowest mean value is 4.15, equivalent to the standard deviation of 0.713 which is "your company innovates with the SMI in the garments manufacturing sector." This means that most respondents agree that they are more likely to have a new or significantly improved knowledge management system for better use or better exchange of information, knowledge and skills within the enterprise rather than undertaking paradigm innovation for SMEs in the garments manufacturing sector. Looking at the overall mean value, paradigm innovation is at a high level.

Table 8: Score mean for paradigm innovation

No	Paradigm innovation	Mean	Standard deviation	Rating level
1.	Your company is having the innovation of SMEs in the garments manufacturing sector.	4.15	0.71	High
2.	Changes in business practices, workplace organizations, or external relationships that reflect the organizational methods used at the firm.	4.26	0.63	High
3.	Your company has undergone major changes to the work organization within the enterprise such as changes in management structure and integrating different departments.	4.20	0.70	High
4.	Your company has a new or significantly improved knowledge management system for better use or better exchange of information, knowledge and skills, good in the company.	4.31	0.59	High

4.23

0.49

High

4.2.2.5 Overall score mean innovation

Table 9 shows the overall min result for every innovations occurred at Johor's SME premises. The overall average is at the high level of score.

SMIE Innovation in Johor Item SD Min **Rating Level Product innovation** 4.44 0.34 High 5 4.25 High **Process innovation** 0.34 **Position innovation** 4 4.26 0.39 High

4

Table 9: Score mean for every innovation in Johor' SME

5. Discussion and Conclusion

Paradigm innovation

5.1 Discussion

The objectives of this study are to identify the level of product innovation, process innovation, position and paradigm innovation in the garments manufacturing sector in Johor SME. To determine the stage in this study, the mean score values for the levels of product innovation, process innovation, position innovation and paradigm innovation were calculated. The mean score results indicate that small and medium industries have high levels of innovation. This shows that managers are already aware with the importance of innovation in business by enhancing the development of knowledge related to innovation. Furthermore, before implementing an innovation, managers should first have the knowledge that the innovation works as planned. Furthermore, managers argue that product innovation plays a key role in improving corporate performance. This is because, according to Crawford and De Benedetto (2000) innovations are used throughout the entire operation of the company in which a new product is created and marketed including innovation in all its usability processes. Furthermore, according to Lukas and Ferrel (2000) product innovation acts as a process of applying new technology into a product so that the product has added value.

Managers at SME Johor have the opinion that process innovations need to make improvements in terms of upgrades in existing machines and equipment, customize machines and produce their own processing solutions, ability to customize production processes, inventory, distribution and logistics, response to new processes introduced by companies and a tendency to introduce new products. This is because the process innovation at SME Johor is less encouraging.

5.2 Research limitations

There are some limitations in conducting this study, the first limitation is that researchers have limited time to collect data. This is because, the researchers are having a hard time getting feedback from the respondents. In addition, some respondents took a long time to respond to the survey form. This causes the data collection process to take longer than the specified time.

5.3 Suggestions

The study was conducted in a small, medium-sized industry around Johor. Respondents are from organizational managers. As a suggestion, researchers can increase the sample size by distributing it to respondents with larger populations and samples. Researchers may conduct such studies in other areas in the future. This is because, the data available is likely to be quite different from the found in this study. Furthermore, through feedback from the respondents, researchers will discover new research

findings. In addition, increasing the number of samples can also add value and determine the reliability of the study.

5.4 Conclusion

This study aims to assess the level of product innovation, process innovation, position and paradigm innovation in the garments manufacturing sector in the SMI. The objectives of this study have been achieved. Levels of product innovation, process innovation, position innovation and paradigm innovation are at a high level.

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