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BOOSTING INNOVATION PERFORMANCE THROUGH
INNOVATION STRATEGY AND GOVERNMENT SUPPORT IN
MANUFACTURING SMEs

Haniruzila Hanifah (a)*, Hasliza Abdul Halim (b), Noor Hazlina Ahmad (c)
*Corresponding author

- (a) Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia, haniruzila@usm.my
(b) School of Management, Universiti Sains Malaysia, Penang, Malaysia, hasliza@usm.my
(c) School of Management, Universiti Sains Malaysia, Penang, Malaysia, hazlina@usm.my

Abstract

This study aims at examining the importance of innovation strategy and innovation performance to the growth of manufacturing SMEs in Malaysia to be ready for Industrial Revolution 4.0 adoption. It also aims to examine the role of government support on an innovation strategy that drives innovation performance. A total of 168 responses were obtained, and Smart-PLS was used for data analysis. The finding indicates that government support has a significant impact on innovation strategy. Besides, innovation strategy mediates the relationship between government support and innovation performance. This study makes both theoretical and practical contributions, especially in identifying the significant role of manufacturing SMEs in creating an innovation strategy. Besides, it explained government support as an essential role in strengthening the innovation strategy to improve innovation performance. The findings of the study will provide great help to entrepreneurs in formulating innovation strategy in manufacturing SMEs. Therefore, it is hoped that this study will generate interest among researchers to reach more conclusive evidence about the practice of innovation strategy among Malaysian SMEs.

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1. Introduction

“Leading Businesses for Sustainable Future” therefore, Malaysian government planning for strong, resilient and sustainable Malaysian economy. The Eleventh Malaysia Plan is an initiative by the Malaysian Government’s five-year development plan towards the realizing the goal for Vision 2020. There are several strategies were formulated to further accelerate the economic growth and nourish the economy by enhancing activities and delivering high value products (Eleventh Malaysian Plan, 2015). Thus, the focus area for the Eleventh Malaysia plan is on the innovative strategies to outgrowth economic growth such as intensifying innovation activities and developing competitive cities and regional economic corridors as well as encouraging their technological adoption (Prajogo & Ahmed, 2006).

According to 11th Malaysia Plan, 98.5% business establishments in Malaysia are Small Medium and Enterprises (SMEs). Here’s why SME matters? SMEs are the backbone of the economy and expected to be strengthened to increase their share in terms of Gross Domestic Product (GDP) and exports (SME Masterplan, 2020). The government has urged SMEs to embrace research and development, technology and explore new growth areas in the digital economy in the fourth industrial revolution (IR 4.0) for more sustainable growth (Bahrin et al., 2016). For Malaysia to become a developed nation, Prime Minister Tun Dr Mahathir Mohamed said the IR4.0 is a crucial step to leap forward, especially for the manufacturing industry, of which the SME manufacturing sector’s contribution to the GDP is targeted to increase to 7.0% by 2020 from the current 5.9% (The Sun, 2019).

Manufacturers and service providers in these sub-sectors have greater potentials and capabilities to diversify their products and services towards more complex and higher value projects, resulting in a higher economic return to the GDP (Kowang et al., 2019). Therefore, innovation is said to be essential in promoting opportunities for growth of business and markets (Prajogo et al., 2007). In order to formulate a successful organization, innovation along with efficiency and effectiveness of the idea is essential to enhance organisation performance (Halim et al., 2014). Therefore, innovation is important for Malaysia as it is as it provides the basis for the agility and adaptability of SMEs to meet the challenges of IR4.0. According to Hanifah et al. (2019), SMEs are encouraged to keep themselves aligned to the SME Development Framework outlined in order to move towards an innovation led economy, in line with achieving vision 2020. It was found that SMEs who were more innovative are able to spiral up the ladder faster as compared to non-innovative SMEs (Hashim & Abdullah, 2000). Hence, SMEs need to arm themselves to be more competitive in order to improve their innovative strategy.

In order to boost SME GDP growth to reach 41% by 2020 and become innovation-led economy. The Government of Malaysia plays an important role, such as promoting more high-growth SMEs with appropriate incentives; introducing growth-enhancing initiatives, and strengthen uptake (SME Masterplan, 2020). Assistant Governor Adnan Zaylani Mohamad Zahid said SMEs are an important financial institutions customer segment and account for 87 percent of company financing. In addition, as part of the policy, Tekun Nasional and SME Corp, with some undergoing the Professional Training and Education for Growing Entrepreneurs (Protege) program and organized a readiness evaluation program to further assist SMEs in measuring their gaps and readiness to guide their adoption of Industry 4.0 technologies (Ismail & Othman, 2014). It is expected that with the better understanding on the resources, both the government agencies and organisation can formulate an excellent strategy to enhance the innovative capability and

enhance innovative performance. In this respect, manufacturing SMEs in Malaysia can be the leading businesses for sustainable future (Doh & Kim, 2014).

2. Problem Statement

Malaysia aspires to attain the developed nation status by year 2020 as envisioned by our Prime Minister. To achieve the high income nation status, Malaysia must be able to progress along the value-chain to be more competitive amongst other high income nations. According to the ETP, in order to achieve Vision 2020, manufacturing sectors will need to contribute to the economic growth and the Malaysian Government will act as a catalyst in policymaking and high-impact funding. However, Manufacturing SMEs make up only 5.9 % of the total SMEs in Malaysia as resources are limited making it difficult for them to get involved in R&D let alone acquiring new and advanced technologies. Despite numerous studies done on the SMEs in Malaysia and the influence of technology, it was reported that Malaysian SMEs are unable to handle the internal barriers such as the lack of innovation amongst employees (Anuar & Mohd Yusuff, 2011). Hanifah et al. (2017) stated that Malaysian SMEs unskilled in handling their source and capability hence the manufacturing sector owners are unable to act and operate innovatively to meet the IR4.0.

Thus, it is recommended that the Malaysian government involve more and put in place initiatives that will help to promote SMEs in order to achieve their maximum level of innovation success, which will greatly contribute to Malaysia's economic growth (Prajogo et al., 2007). It is important to have innovation strategy in manufacturing where innovation strategy will lead decisions on how to use resources to meet the innovation goals of a business and thereby deliver value and create competitive advantage. However, despite numerous studies done across innovation performance, little research has been done to address innovation strategy in SMEs manufacturing in Malaysia to support IR4.0 (Aziz, 2018). As an engine room for development, the manufacturing sector has the potential to generate employment and in turn contribute to the country's GDP through tapping on the natural resources and skilled labor that the country possesses. Therefore, SMEs manufacturing firms become an obvious sector where the contribution of resources and innovation strategy on innovation performance can be explored (Bakan & Yildiz, 2009).

3. Research Questions

It is expected that with the influence of government support and innovation strategy would facilitate to enhance innovation performance of the Manufacturing SMEs in Malaysia. In this respect, this study proposed a framework which would unleash the elusive for the innovative performance of Manufacturing SMEs in IR4.0. Therefore, research question for this study are:

- What is the relationship between government support and innovation strategy in Manufacturing SMEs?
- What is the relationship between innovation strategy and innovation performance in Manufacturing SMEs?
- Do innovation strategies mediate the relationship between government support and innovation performance in Manufacturing SMEs?

4. Purpose of the Study

The resource-based view theory (RBV) theorizes that resource is the primary determinant of the competitive advantage that encapsulates the company's innovation. In his research, Barney (1991) stated that the resources of a company are deemed vital and should have four key attributes (valuable, unique, inimitable and non- substitutable) to create and sustain competitive advantage. The use of organisational resources and capabilities is the basis for the development and exploitation of the innovation-related activities of the company (Kostopoulos et al., 2002). It was subsequently proposed that by evaluating the company's capital, this would lead to understandings that vary from traditional perspectives and lead to innovative strategies to be implemented (Wernerfelt, 1984). Government support in this sense of the study has been viewed as the strategic resources of the company that ensure rapid progress and ultimately lead to innovative performance. Government support is a valuable resource in the form of financing or programs for any given organisation. With the presence of financial aid, it is found that businesses will improve their ability to participate in innovative activities (Lee et al., 2001) meanwhile a lack financial resource may restrict the level of innovation (Helfat, 1997). Having said that, government support as the primary strategic resource contributes to firm implementation of strategic action in the form of an innovation strategy gaining competitive edge by improving the performance of new product development.

There is a scarcity of research investigating the mediating effect of innovation strategy towards the innovation performance of Manufacturing SMEs in Malaysia. There are many studies that incorporates the direct relationship between innovation strategies influencing innovation performance. Therefore, innovation strategy as a mediator is deemed to be a more precise effort concerning the effectiveness of innovative performance amongst manufacturing SMEs which will contribute both theoretically and empirically. Thus, this study will attempt to provide a greater understanding of the mediating effect of innovation strategy and innovative performance.

According to the 11th Malaysia Plan, 90.1% of SMEs are in the services sector meanwhile only 5.9% is involved in the manufacturing sector (SME Masterplan, 2020). It is evident that there is lack of manufacturing SMEs involvement in Malaysia compared to the services sector (Brancati, 2015). This study will aim to enrich the literature on manufacturing SMEs in Malaysia especially on the factors that influences the performance of SMEs. Government bodied and agencies will benefit from this study to improve their efforts in enhancing the performance of manufacturing SMEs in Malaysia. However, studies on influencing factors towards innovation performance among Manufacturing SMEs are particularly few in numbers in Malaysia. Lastly, this study aims to investigate possible factors that could explain the innovation performance among manufacturing SMEs in Malaysia. Several studies have also been done on the role of innovation strategy on performance of companies, but few researches have studied the mediating effect of innovation strategy on government support and performance towards IR4.0 in Malaysia. This study will also aim to capture the scarcity of literature on the role of manager and entrepreneurs in building an innovation strategy that would support the performance of firm. Taking into consideration, this study is intended to fill the gap in the body of knowledge in the influence of innovation strategy on innovation performance amongst Manufacturing SMEs. Therefore, the study intends to capture the effect of government support in promoting innovation strategy, which in turns effects the innovation performance, the following theoretical framework is proposed as shown in Figure 01.

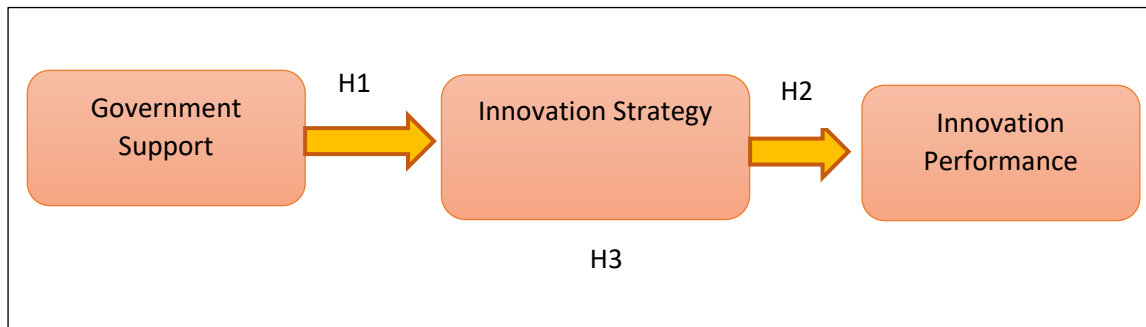


Figure 01. Conceptual Framework

5. Research Methods

This study applies a quantitative survey methodology using self-administered survey questionnaires to obtain data from the sample of Manufacturing SMEs in Malaysia. The population of this study is all manufacturing SMEs operating in Malaysia, listed in the 2018 directory of the Federation of Malaysian Manufacturers (FMM). The FMM Directory is the official directory of almost all active manufacturing firms in Malaysia and more than 2600 manufacturing firms registered as FMM members. This study selected top management (manager and above) and purposive sampling technique was used in selecting the respondents. The target respondent for this study was based on the following criteria:

- Three (3) catalytic subsectors namely Chemical, Electrical & Engineering and Machinery & Equipment industries; and two subsectors of high potential growth namely Aerospace and Medical Devices have been identified in the 11th MP to drive the growth of the manufacturing sector.
- The business must be a manufacturing company in Malaysia more than 5 years
- The business must have less than 200 full-time employees and sales turnover not exceeding RM50 million

5.1. Data collection

In this study, to accurately address the research question, a structured set of questionnaires were used to obtain relevant data. The questionnaire was sent to managers in charge of business units such as the general manager or the owner of manufacturing SMEs via e-mail, post or directed to them. The total sample size is 89 based on G*Power with 0.15 effect size and 0.95 power (Cohen, 1988). Hence, questionnaires were sent to collect data that is equal to the minimum sample size number and slightly larger. Out of 500 surveys, 180 responses (response rate = 40%) were returned, 12 were discarded due to incomplete data, resulting in 168 usable questionnaires.

5.2. Measurement

Research instrument was built on the basis of the scales or validated measures used in the previous studies. The measurement items for government support was adopted from Fakhrol and Wan Norhayate (2011). Innovation Strategy was measured using 21 items adapted from Mamun (2017). Moreover, innovation performance was measured using three items which were adopted from Scuotto et al. (2017).

The respondents are asked to evaluate their perception of innovation performance on the manufacturing SMEs in Malaysia using the Likert scale (from strongly disagree to strongly agree). The survey has been kept short removing similar unnecessary items and ensuring that the wording is straightforward. A questionnaire draft was developed and pre-tested with two professors and four industry experts who specialize in this field.

The data was analyzed using version 3.2 of the SmartPLS software, a structural equation modeling software of the second generation that can be used to model latent variables with negligible requirements (Ringle et al., 2015). Partial Least Square (PLS) path modeling analysis, which is a Structural Equation Modeling (SEM) method, which was therefore used in this study.

6. Findings

6.1. Measurement Model

The convergent validity and discriminant validity were used to examine the measurement model. As suggested by Sarstedt et al. (2014), factor loading, average variance extract (AVE) and composite reliability are to be considered in determining convergent validity. The results showed that all the items loading were higher than 0.5, the AVEs were higher than 0.5, and also the CR were above 0.7. (Table 1).

This study used HTMT technique by Henseler et al. (2015) in assessing discriminant validity. As shown in Table 1, all the values are lower than the required threshold of HTMT.85 (Kline, 2011) and HTMT.90 (Gold et al., 2001), this indicates that discriminant validity has been ascertained.

Table 01. Convergent Validity and HTMT

Construct	AVE	CR	1	2	3
1.Government Support	0.826	0.971			
2.Innovation Strategy	0.899	0.973	0.301		
3.Innovation Performance	0.751	0.955	0.676	0.566	

6.2. Structural Model

The data was analysed by using the partial least squares - structural equation modelling (PLS-SEM) technique applying SmartPLS software version 3.2.8 (Ringle et al., 2015). The relationships among variables and the result of the findings are interpreted in Table 02. The findings of this study indicated that government support has a positive and significant effect on innovation strategy (H1, $\beta = 0.327$ $t = 3.047$). Moreover, innovation strategy has a positive and significant effect on innovation performance (H2, $\beta = 0.294$, $t = 5.073$). Besides, the results in table 2 shows that, government support on innovation performance were significantly mediated by innovation startegy (H3, $\beta = 0.096$ $t = 2.470$). As a result, Hypothesis hypotheses are all supported.

Table 02. Summary of Structural model

Hypothesis	Relationship	Std Beta	Std. Error	t-value	Supported	LL	UL
H1	GS→ Inno.strategy	0.327	0.107	3.047**	Yes		
H2	Inno. strategy→IP	0.294	0.297	5.073**	Yes		
H3	GS→ Inno.strategy→IP	0.096	0.096	2.470*	Yes	0.040	0.164

Note: **P<0.01, *P<0.05

GS= Government Support, Inno.Strategy= Innovation Culture, IP= Innovation Performance

6.3. Discussion

As many SMEs produce almost identical goods and services, competition is considered a factor of productivity across the economy-wide efficiency. The findings of this research have demonstrated the value of the innovation strategy for the manufacturing SMEs in Malaysia. The findings were also confirmed by earlier studies that acknowledged innovation in the current hyper-competitive environment as an important strategic concern. Ultimately, Malaysian manufacturing SMEs seeking product innovation and process innovation claimed that their innovation performance would be improved by these strategies.

The first hypothesis was designed to test the impact of government support towards the innovation strategy across the study's sample. This study consistent with Brancati (2015), posited that government support is the predictor of firm performance. A comprehensive government approach and support such as loans, business facilities, rules and regulation, provide a conducive entrepreneurial environment and managerial training programs would be definitely a key condition for innovative entrepreneurship. The study also deduced that government support had significant positive effects between R&D activities and innovation performance among SMEs. Thus, these forms of support mechanism appeared to strengthen the product and process innovation of manufacturing SMEs where they can prepare for IR 4.0.

The result of the H2 pointed out that strategy is the key determinant in innovation firms. Hereby, innovation strategy is the search for new and better products, services, and management processes. Entrepreneurs are constantly looking out for new and creative solutions and being the first to introduce new products to the market. Based on Musa et al. (2016), innovation strategy is a leadership-induced activity as leaders should look forward to a bright future and find possibilities as well as support the development of creative activities. The findings demonstrated the important role of product and process innovation, which reflects the directions of SMEs and the acceptance of competitive challenges by collecting, disseminating and reacting to market information, together with their ability to provide superior value to customers and the methods activities and decision-making styles aimed at the tendency of companies to exploit new opportunities in IR 4.0 (Umrani & Johl, 2018). Thus, manufacturing SMEs are engaged with the improvement and modification of existing products and process where these require creativity strategy.

The prediction of the third hypothesis was innovation strategies mediates the relationship between government support and innovation performance of Malaysian manufacturing SMEs. This study showed that manufacturing SMEs rely on their access to vital resources such as finance, support for training, technology, managerial skills to help entrepreneurs to transform their firms into more productive and innovative organizations. This suggests that, if support from the government towards entrepreneurs is high,

the norms of organizations member to be creative is high, this would result in higher innovation performance.

7. Conclusion

The findings provide insightful theoretical implications. This study provides a better understanding of the role RBV in explaining innovation performance by examining the impact of resources and strategy among manufacturing SMEs. Apparently, nearly none of the studies that apply this theory to examine the concept of innovation that is crucial for innovation in manufacturing SMEs (Zulkifli-Muhammad et al., 2009). Through the lens of these theory, this study explored how manufacturing SMEs manage their capital and strategy to gain a competitive advantage by having differentiated products and services for niche markets. In other words, innovation performance (competitive advantage) can be enhanced through the abilities of resources and the processes of an innovation strategy on an ongoing basis (Teece, 1998). In this sense, this study overcomes the limitations by effectively integrating these theories in order to enable a more comprehensive view of how the resources of manufacturing SMEs can be capitalized by later applying innovation strategies to improve the performance of innovation in preparation for IR 4.0.

Furthermore, this study's major implication for practitioners and researchers is that not all SMEs have access to innovation at all times, but only those SMEs with the right internal features. This is because owners of SMEs can experience difficulties in identifying strategies for innovation and understanding the correct methods of producing real innovation. The challenges aren't innovation failures, but they are due to a lack of awareness of the challenging conditions required to implement product strategy and innovation processes.

In this respect, owners/managers need to come up with an innovative strategy for their organisation which particularly move Malaysia into an IR 4.0. Moreover, owners / managers must be more creative and use their organizational capital more efficiently. This is because in order to compete with large organisations and succeed by being innovative and creative, manufacturing SMEs need to continuously acquire information, skills and knowledge of effective strategies. Government support; innovation strategies (products and process innovation) are relevant examples of internal conditions needed by manufacturing SMEs in inculcating innovation in driving innovation performance. It is supported by Lin and Chen (2007), managers should consider each factor simultaneously rather than be isolated factors towards innovation. This will encourage managers to avoid concentrating on leadership, culture, and policy qualities that are not directly related to innovation achievement.

However, the main limitation of this study is its dependence on the single respondent (owners / managers of SMEs). In a number of ways, this research can be extended. Future research work on innovation strategy and innovation performance should be encouraged to cross-validate the findings of this study, and to determine the generalizability of the results by collecting data from employees and the organization's owner / manager to verify and validate the results. To conclude, it is believed that insights from the study will broaden knowledge on innovation performance and contribute to existing literature on the subject. Comprehension and understanding of the value of internal factors to innovation strategy where it contributes to innovation performance is crucial for entrepreneurs in manufacturing SMEs. Moreover, this study impresses the value of innovation strategy and its relationship to innovative performance in

improving the nation's economy as well as IR4.0 on both policy makers and practitioners. The study paves the way for further studies on how manufacturing SMEs understand innovation performance.

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