PERCEPTION ON THE INNOVATIVE CHARACTERISTICS OF SMALL AND MEDIUM ENTERPRISES (SMES) MANUFACTURING FIRMS IN PENINSULAR MALAYSIA

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ABSTRACT

The main purpose of the paper is to attempt to explore the perception on the innovative characteristics of SMEs manufacturing firms based on three dimensions of a business: strategy, process and ways of working (culture). A survey of 60 Peninsular Malaysia-based manufacturing SMEs was conducted. In this study, a definition of innovation was established based on past studies and a systematic approach to measure company innovativeness was adopted. Ten indicators were used to measure company innovativeness. The top 20 per cent firms were compared with bottom 80 per cent firms in terms of product innovation management, process and work organisation. Means of responses were compared for two sets of companies. T-tests were performed to draw some conclusions on the results. The results showed that the characteristics of more innovative SMEs manufacturing firms are perceived to be different in 10 variables as compared to the less innovative SMEs manufacturing firms. Among the variables that vary are: use of CAD, use of CAM, employee suggestion scheme, commitment to innovation, provided training for managers.

Keywords: Small and medium enterprises, Manufacturing

1.0 INTRODUCTION

One of the major issues for most SMEs that are in existence for some years is how to survive by maintaining or increasing market share through innovation. The advantages or disadvantages to a manufacturing company, in general, in focusing on single or tightly-related portfolio of products or, of diversifying have been addressed by a number of authors (Porter, 1980; Kanter, 1989). However, as for small and medium-sized enterprises (SMEs), there is often little choice. Many will have entered the market as single product or technology-led companies without the finance to broaden their product range even if this were considered strategically desirable (Storey, 1982).

Therefore, there is tendency that such SMEs are particularly vulnerable to competition from organisations both within and outside the sector that propose alternatives to the product, raw materials/components and the manufacturing process or work organisation.

Past studies have discovered key characteristics of large innovating firms (Pettigrew, 1985; Pavitt, 1991; DTI/CBI, 1993/1994), but little research has been done on innovation in SME manufacturing single products. This is in spite of in Malaysia, like any other countries, the small and medium-sized enterprises (SMEs) are also recognized as being one of the principal driving forces in economic development. SMEs in Malaysia stimulate private ownership and entrepreneurial skills. Besides, those SMEs are also flexible and can adapt quickly to changing market demand and supply situations. In due process, those SMEs generate employment, help diversify economic activity and make a significant contribution to exports and trade.

Therefore, SMEs are undeniably are very important to the economy of the country. Therefore, it is very vital not only to ensure long term survival of SMEs but also to encourage the emergence of new SMEs in particular relating to manufacturing industries because at the present moment SMEs made up of more than 90 percent of the total manufacturing firms in Malaysian manufacturing sector (National Productivity Corporation, 2001).

Hense, innovation is fundamental to SMEs in order for them to survive and maintain their competitiveness in the market place. They cannot afford to often invest in new technologies and equipment, providing world-class skills and training to their workforce and winning new markets like their larger manufacturing companies counterparts. Nevertheless, studies by Mosey et al. (2002) and Mosey (2005) showed that a small number of SMEs manufacturing firms in Britain survived and thrived through the release of innovative new products.

Therefore, issues of innovation by SMEs are very important to be given due attention. Issues of innovation management in terms of new product development, process innovation (referring to investments in systems/technology and people), culture (or organisational values) and new ways of working has been addressed by Laforet & Tann (2006). This paper is not trying to address the same issues. Instead, this paper only attempted to explore the perception on the characteristics of innovative SMEs manufacturing firms in Peninsular Malaysia in particular.

2.0 LITERATURE REVIEW

Study by Brown (1998) stated that there are three research streams in SME innovation research which are: the economic-oriented, organisation-oriented and the project-oriented streams. It is found that studies from the economics-oriented stream that small businesses are an important driving force for innovation. In addition, they can be as innovative as larger enterprises.

As for research from the organisation-oriented stream, it listed a number of factors that small business owners could use to enhance company performance through methods such as networking, making use of regional centres, careful planning and developing strategies that suits their businesses.

In the same manner, these studies prescribed how SMEs could manage innovation effectively and efficiently and that is through optimising organisational structure. It is suggested by the project-oriented stream that customers were important sources of SMEs innovation. Brown (1998) went on further to comment that innovation studies in SMEs had a large diversity of focuses and much remained unknown about the ingredients for successful innovation in the small business sector.

It is also revealed in Hisrich and Drnovsek (2002) that innovation studies in SMEs covered a wide range of issues such as barriers to innovation, regional variations in the level of innovation activities, types and typologies of innovative SMEs. In addition, Hisrich and Drnovsek (2002) further added these studies were predominantly normative and directed to practitioners or policy makers.

In addition to Brown, Hisrich and Drnovsek's reviews of literature, literature review by Laroret & Tann (2006) revealed that innovation research in SMEs centred round entrepreneurship and innovation (Goldsmith and Kerr, 1991; Ramachandran and Ramnarayan, 1993; Lipparini and Sobrero, 1994; Georgellis et al., 2000; Beaver and Prince, 2002; Gray, 2002; Mambula and Sawyer, 2004), diffusion and innovation (Rothwell and Zegveld,1986; Nooteboom, 1994), regional variations (White et al., 1988), market types (Sebora et al., 1994) as mentioned above, as well as innovation management and the mismanagement of innovation in medium-sized firms (Webb, 1992). Specifically in innovation management studies, the focus is always on hi-tech small firms (Oakey et al.,1988; Boag and Rinholm, 1989; Storey,1994; Raffa and Zollo,1994; Reid and Garnsey,1996; Birchall et al.,1996; Motwani et al.,1999) and examined in terms of process innovation (Livesay et al., 1989; Birchall et al., 1996; Barnett and Storey, 2000) and new product development (Mosey et al., 2002; Mosey, 2005).

There are also a number of recent studies that also looked at a few of contributing factors which might lead to an increase in company innovative performance such as benchmarking, networking (Mitra, 2000; Terziovski, 2003; Massa and Testa, 2004), R&D (Raymond and St-Pierre, 2004) and organisational learning. At the corporate level, corporate entrepreneurship (Zhara et al., 2000) embodying a company's innovation and venturing was found to influence company performance. The same goes to strategic orientation and competitive structure (Salavou et al., 2004) in which a company operates was found to have effects on company innovative performance.

As mentioned above, innovation studies in SMEs are diverse. The literature review also showed research in this area is fragmented in so far as innovation management is concerned, new product development and process innovation were often explored in isolation and, the research normally was often done through field studies, questionnaire surveys or case studies focusing on a small sample of companies.

Based on the literature review, it is found that past literature had identified several aspects of what was considered as critical success factors for innovative strategy in SMEs (Dogson and Rothwell, 1991; Bowen and Ricketts, 1992) and effective strategic formulation in successful small hi-tech firms (Oakey and Cooper, 1991). The success factors highlighted in these

studies among others were: (1) promoting a corporate culture, (2) creating structure reflecting in the effective use of systems, and (3) technology and investors in people (IIP) (or also known as process innovation), analysing competitors, developing co-operations and partnerships similar to the networking concept.

Heunks (1998) also found, as part of the theme of promoting an innovative culture, successful SMEs associated with committed leaders with vision, enthusiasm, future-oriented exploit external opportunities for inward investment and information gathering. Motwani et al. (1999) also prescribed that leaders must show active strategic commitment to research and technological change. The entire of the above themes such as fostering a creative environment, the right leadership in addition, listen to new ideas, top management play multiple roles, the right organisational systems are also found to be relevant in current literature (Blumentritt, 2004; Mambula and Sawyer, 2004).

The extent to which small businesses innovate successfully is also shown in other studies that it would depend on their capacity to plan ahead, to have a clear strategy and to manage strategically which is reflected in companies being market-oriented and willing to learn as well as to innovate and take risks (Georgellis et al., 2000; Beaver and Prince, 2002; Salavou et al., 2004). The finding on risk-taking was also confirmed by a study conducted among American SMEs (Blumentritt, 2004), showing that the most innovative firms were competitively aggressive and willing to take on greater degrees of risk.

With regard to process innovation, current literature suggested innovation was part of a long-term organisational evolution, customer relationships were important to long-term sourcing both financial and knowledge terms, while human resource development issues were necessary in order to underpin the two elements mentioned above (Barnett and Storey, 2000). Under the same note, past literature also always hypothesised that SME did not innovate in formally recognised ways and that they made much more extensive use of external linkages (Barnett and Storey (2000) citing Hoffman et al. (1998).

Also another finding by Barnett and Storey (2000) related to this theme was companies emphasized process innovation as much as product innovation. This was further supported by Georgellis et al. (2000) who showed that the degree of innovation in processes closely associated with degree of innovation in new products and services. This finding seemed to contrast with tendency in literature to emphasize either process improvement or new product development. For instance, Blumentritt (2004) found that US SMEs pursued process innovation more than developing new products found that SMEs spent more time developing new ways of producing products or services and new ways of delivering them to customers.

Some studies focusing on new product development suggest that product innovation activities are the cornerstone of better-performed companies and, those with aggressive growth ambitions (Mosey et al., 2002; Mosey, 2005). Mosey (2005) further suggested that manufacturing SMEs by repeatedly introducing innovative new products opens up new market niches, which is essential to their survival.

Innovation literature also places great importance on company learning, benchmarking, training and networking. For example, highly innovative firms were found to place great emphasis on employee development training through industrial education of young people in the locality through modern apprenticeships, student placement and school visits which is a clear contrast with SMEs in general (Barnett and Storey, 2000). Regarding benchmarking, a recent study found that this enables a company to compare its practices and performances with others as well as to acquire external explicit and tacit

knowledge, which may lead to improvements and innovations (Massa and Testa, 2004). Other researches also showed that SMEs were better able to innovate when they were part of clusters (Mitra, 2000), i.e. networking. Additionally, a study conducted among Australian manufacturing SMEs suggested that small manufacturing companies was more likely to improve their chances of achieving business excellence through networking than without (Terziovski, 2003).

Moreover, size, age and flatter hierarchies were found to have effects on company innovativeness. White et al. (1988) for example, suggested that the smallest firms (< 20 employees) had the benefit of individualism, the larger firms (> 50 employees) the benefit of more resources and systems, while the intermediate group (20-49 employees) lacked the best of either world. Ettlie and Rubenstein (1987) also suggested the type of innovation that moderated the size relationship. They further stated for radical innovations may require additional funds for technical work, capital investment for plant and equipment, marketing and promotions. Larger size may be a key enabling condition because of access to key resources and addressing these key issues. Whereas Rothwell and Zegveld (1986) contrasted firm size and innovation across several industries and concluded that the issue of innovation by firm size was not to do with the question of "big" or "small" firms, but with other factors such as different phases in the industry cycle that would vary with technology, markets and government policy.

Little was explored in the literature to determine whether age of the company or how established the company is would have an impact on a company's innovativeness, as far as age is concerned. But, Reid and Garnsey (1996) in their study on small hi-tech companies asserted that companies spent the first ten years to contract out and began a programme of product innovation later. This suggests that age may have an impact on company innovativeness. Flatter structure or hierarchies were also suggested to be the norm in successful SMEs (Heunks, 1998; Motwani et al., 1999; Chandler et al., 2000; Georgellis et al., 2000; Beaver and Prince, 2002).

In conclusion as what works in one organisation does not necessarily apply to another and managerial practices vary from one socio-economic culture to another (Leseure, 2000) . As previously highlighted, this sector is an important one to the Malaysian economy and specific strategies are required for SMEs manufacturing firms in order to assist these companies face future business challenges.

As a result, the main objective of this research is to investigate perception on the innovative characteristics of SMEs manufacturing firms, using a systematic approach to measuring company innovativeness – based on the United Kingdom's 1993/1994 DTI (Department of Trade & Investment) / CBI (Confederation of British Industry) report.

3.0 METHODOLOGY

A mail survey was conducted randomly among chief executives (CEOs)/owners of 500 Small and Medium Enterprises (SMEs) manufacturing firms located in Peninsular Malaysia. The list of companies was obtained from the 2007 Federation of Malaysian Manufacturers (FFM) Directory of Malaysian Manufacturers. Of the 500 questionnaires mailed, a total of 66 were returned giving a response rate of 10 per cent, six were non-usable. Based on our working definition of innovation as "seeking new or better products, processes and/or work methods" (Laforet & Tann, 2006), CEOs/owners were asked questions about their perception on the company's innovative characteristics which include three dimensions, as discussed and

extracted from the literature review: (1) strategic orientation (e.g. benchmarking, networking); (2) process innovation (e.g. new product development, systems and technology); and, (3) culture and ways of working. As for strategic orientation, respondents companies' objectives and their publicity materials were reviewed. As for dimensions of process innovation and culture and ways of working, 1-5 Likert scales were used to measure respondents' perception i.e. to vary from very low importance to very high importance perceptions, of variables as listed in Table 5 and Table 6 below.

The responses were entered into a SPSS database and analysed using both descriptive statistics and inferential statistics to generate hypotheses and validate the results observed.

Table 1: Employees demographic

No.of employees	%
5-10	1.6
11-20	5.0
21-50	11.7
51-100	20.0
101-150	16.7
151-200	18.3
> 200	26.7

Table 2: Sectors demographic

Sector	%
Pulp paper/paper production/publishing/printing	3.3
Electrical/optical equipment	1.7
Food products/beverages	1.7
Wood/wood products	5.0
Chemicals/chemical products/manmade fibre	3.3
Rubber/plastic products	11.8
Machinery/equipment	18.3
Transport equipment	20.0
Furniture	18.3
Basic metals/fabricated metal products	8.3
Textile/textile products	3.3
Other non-metal mineral products	5.0

Criteria used to measure the level of innovativeness of a company are listed as in Table 3 below:

Table 3: Measure of the level of innovativeness

(1) number of new product ideas a company had in last five years;
(2) number of new product(s) launched in last five years;
(3) number of product (s) improvement introduced in last five years;

(4) innovation prize(s);
(5) when the newest product introduced;
(6) the percentage of sales from this product;
(7) extent to which major customers provide specification for new product(s);
(8) level of investment in systems and technology for office;
(9) level of investment in systems and technology for shop floor; and
(10) new or improved ways of working in last five years.

Those ten indicators derived mainly from referencing the United Kingdom's 1993/1994 DTI (Department of Trade & Investment) / CBI (Confederation of British Industry) report.

Then, the same methodology as Laforet & Tann (2006) is adopted where top 20 per cent companies, which scored high on the ten criteria above, were compared with the bottom 80 per cent companies, which scored low on the same criteria. The former companies would be referred as "more innovative" companies, the latter as "less innovative" companies. The grouping is such that because, like (Laforet & Tann, 2006) it is found that none of the companies surveyed were consistently innovative over the ten indicators above (Table 3). Some led on certain innovations and followed on others and this is not unusual.

T-tests were then performed to determine whether any significant difference exists between means of responses from more and less innovative companies on a number of independent variables based on the three dimensions as mentioned above i.e. company's strategic orientation (e.g. networking); process innovation (e.g. new product development systems and technology); and, culture and ways of working. .

4.0 FINDINGS

Characteristics differentiating between more and less innovative companies

The results of the survey showed more and less innovative companies broadly have perceived differences in strategic orientation, process and culture.

Strategic orientation.

The findings showed (refer Table 4 below) in more innovative companies, innovation was goal-oriented. It featured in the company's objectives and in the company's publicity materials. This finding confirms the DTI/CBI (1993/1994) report and broadly consistent with a number of past and recent studies (Pettigrew, 1985; Pavitt, 1991; Georgellis et al., 2000; Salavou et al., 2004; Laforet & Tann, 2006).

Table 4: Tendency towards goal orientation

	Number of companies		
	More emphasize of innovation towards goal-orientation	Less emphasize of innovation towards goal-orientation	Total
More innovative	11	1	12

companies			
Less innovative companies	6	42	48
Total	17	43	60

Process innovation.

The results showed more innovative companies have a better systems and technology in place than less innovative companies. With regard to computer-aided design (CAD) and computer-aided manufacturing (CAM) processes, more innovative companies perceived that the uses of CAD (M = 4.67, SD = 0.49, n = 12) and CAM (M = 4.50, SD = 0.52, n = 12) as at the high level of importance than less innovative companies where the use of CAD (M = 1.79, SD = 0.65, n = 48) and CAM (M= 1.79, SD = 0.82, n = 42) are perceived to be of low importance (Table 7 shows a significant difference between more and less innovative companies on these two variables based on t-test conducted).

Table 5: Mean and Standard Deviation of Process Innovation Perception

		Process innovation					
		Overall		More Innovative		Less Innovative	
		Mean	SD	Mean	SD	Mean	SD
1	use of CAD	2.37	1.31	4.67	0.49	1.79	0.65
2	use of CAM	2.33	1.34	4.50	0.52	1.79	0.82
3	employee suggestion scheme	3.12	1.11	4.58	0.52	2.75	0.89
4	new ideas for products and processes evaluated by team members	2.48	1.20	4.42	0.52	2.00	0.74
5	criteria for evaluating new product projects are known by everyone	2.65	1.27	4.67	0.49	2.15	0.83
6	Time	4.48	0.50	4.67	0.49	4.44	0.50
7	money	4.45	0.59	4.50	0.52	4.44	0.62
8	Knowledge	4.62	0.59	4.58	0.52	4.63	0.61
9	market demand	4.07	1.26	1.83	0.72	4.63	0.53

Part of process innovation identified in literature on large firms and the Dogson and Rothwell (1991) report includes the organisation for new product development, such as the use of an employee suggestion scheme, new ideas for products and processes evaluated by team members and the criteria for evaluating new product projects are known by everyone in the company. Similarly, Mosey et al. (2002) raised the issue of cross-company communication of decisions and plans in successful SMEs manufacturing firms. The results showed that more innovative companies perceived that employee suggestion scheme to be of high

importance (M=4.58, SD = 0.52, N = 12), a new product development team taking the lead in implementing new product projects also is perceived to be of high importance (M = 4.42, SD = 0.52, N = 12) as well as the criteria for evaluating new product projects were known by everyone in the company (M = 4.67, SD = 0.49, N = 12).

Consistent with Laforet and Tann (2006), in this study, more innovative companies also differed from less innovative companies in terms of the CEO/owner's background and their perception of barriers to innovation. The results showed in more innovative companies, the CEO/owner's background were in sales/management accounting/self-employed as opposed to a background in engineering. More innovative companies also perceived time (M = 4.67, Sd = 0.49, N = 12), money (M = 4.50, SD = 0.52, N = 12) and knowledge (M = 4.58, SD = 0.52, N = 12) as barriers to innovation, while less innovative companies perceived time (M = 4.44, SD = 0.50, N = 48), money (M = 4.44, SD = 0.62, N = 48) , knowledge (M = 4.63, SD = 0.61, N = 48) and market demand (M= 4.63, SD = 0.53, N = 48) as barriers to innovation.

Culture and ways of working.

The results showed more innovative companies had higher commitment (M = 4.67, Sd = 0.49, N =12) to innovation than in less innovative companies (M = 1.90, Sd = 0.56, N = 48). In more innovative companies, the CEO/owner perceived themselves as to be more involved in developing new products, processes and ways of working than in less innovative companies. (Table 6 shows a significant difference between more and less innovative companies on these variables). This finding is consistent with the DTI/CBI (1993/1994) report based on a survey of manufacturing companies of various sizes – which prescribed best companies as "having a clear sense of mission and purpose and strongly committing to innovation" and "the CEO shows a strong personal commitment to innovation" (Pavitt, 1991; Heunks, 1998).

Table 6: Mean and Standard Deviation of Culture and Ways of Working Perception

Culture and ways of working

		Overall		More Innovative		Less Innovative	
		Mean	SD	Mean	SD	Mean	SD
10	commitment to innovation	2.45	1.24	4.67	0.49	1.90	0.56
11	empowering their employees	2.38	1.33	4.58	0.52	1.83	0.78
12	studied the marketplace regularly	3.02	1.26	4.75	0.45	2.58	0.99
13	provided training for managers	2.63	1.30	4.67	0.49	2.13	0.87

The findings also showed more innovative companies perceived that it is highly important for them in empowering their employees(M = 4.58, SD = 0.52, N = 12) , studied the marketplace regularly (M = 4.75, SD = 0.45, N = 12) and provided training more for their managers (M = 4.67, SD = 0.49, N = 12) than in less innovative companies. (Table 6 shows a significant difference between more and less innovative companies on variable "studying the market" and on variable "studying competitors" and in terms of training respectively). These findings also confirm with the literature (Barnett and Storey, 2000; Chandler et al., 2000; Georgellis et al., 2000; Beaver and Prince, 2002; Salavou et al., 2004).

Table 7 : Comparison of Mean of More Innovative and Less Innovative SMEs Manufacturing Firms – the significance level of the t-value

Factors	Sig. t-value	α=0.05
use of CAD	0.000	p < .05
use of CAM	0.000	p < .05
employee suggestion scheme	0.000	p < .05
new ideas for products and processes evaluated by team members	0.000	p < .05
criteria for evaluating new product projects are known by everyone	0.000	p < .05
Time	0.161	p > .05
money	0.748	p > .05
Knowledge	0.827	p > .05
market demand	0.000	p < .05
commitment to innovation	0.000	p < .05
empowering their employees	0.000	p < .05
studied the marketplace regularly	0.000	p < .05
provided training for managers	0.000	p < .05

5.0 DISCUSSION

As for demographic factors, based on the sample of this study (n = 60), our findings did not show any relationship regarding sector, size and age nor company structure with company innovativeness. However, we found the CEO/owner's background was a determinant of company innovativeness. The results obtained from the data analysis revealed, that in more innovative companies, the CEO/owner's background was in either in management accounting, sales and/or self-employed; while the CEO with an engineering background was found more widespread in both more and less innovative companies.

The findings showed as for strategic orientation, in more innovative companies, innovation was goal oriented and part of the company objectives. This seems consistent with literature highlighting the importance of company strategic orientation, including market orientation and organisational learning which was shown to increase company innovative performance (Salavou et al., 2004).

The findings showed that a good level of training was found in more innovative companies. However, training was more limited in less innovative SMMEs, perceived to be not important (M=2.13, SD = 0.87, N = 48) compared to more innovative companies which perceived it to be og high importance (M = 4.67, SD = 0.49, N = 12). This seems to be consistent with the literature (Scott et al., 1996), suggesting small manufacturing companies had a shortage of skills and technology.

The findings suggest the drivers of innovation in small manufacturing firms in this

study are: company strategic orientation, process innovation including leadership factor and culture. Based on the drivers, it is found that there is perception that SMEs manufacturing firms' main drawbacks are lack of knowledge and skills, networking, and training due to perhaps lack of financial resources. With regard to skills, Scott et al. (1996) reported that SMMEs' lack of suitability skilled or trained personnel to be a major business problem in the third quarter of 1988.

Individual acquired expertise in SMMEs was largely one of informal and intuitive incrementally (Laforet & Tann, 2006). They also suggested that SMMEs did not exploit recruitment to the same degree as larger firms. SMMEs tend not to recruit from higher education sector because of financial reason. As such, graduate and postgraduate were perceived as more expensive to hire.

Scott et al. (1996) also found that SMEs manufacturing firms preferred to external recruitment of experienced staff than training staff internally. Training was usually ad hoc. This also underlines SMEs manufacturing firms' poor attitude to learning. Scott et al. (1996) also suggested that many SMEs often relied on their own experiential know-how, and trained up their own operative and intermediate level skills.

Similarly to Scott et al.'s study, this study highlights the problems of knowledge, training, networking and employees' contribution to new ideas, which are embedded in innovative activities of companies, are problematic to SMEs, as demonstrated by the perception of the CEO/owner's as respondents to this study.

6.0 CONCLUSIONS

While networking problem can be countered by companies through engaging themselves more in networking activities, however, the problems of training, attracting and retaining good workers are more long-term and more difficult to address for a small company that lacks financial resources. Yet investments in skills and people remain essential for any future businesses and unless these problems and above are addressed, not only SMMEs would be able to move on to be truly innovative and competitive in the marketplace but also, this might further contribute to their decline.

Government aid is paramount in this case, for instance it can assist SMEs in several ways such as through collaborative training programmes, R&D programmes among government-funded research centres, universities for specific sectors of the manufacturing industry. Encourage networking, promote growth ambitions in small companies and encourage new product development by making them aware that it is a risky option to continue with their existing products/customers regardless of market changes. Provide specialist advice for sector specific within the manufacturing industry. Provide more financial and tax incentives or relief to help with lack of financial resources in small companies.

In conclusion, this research had examined innovation management for a specific industry i.e. the manufacturing industry of SMEs only. This is for two reasons: one, there has been a criticism (Leseure, 2000) that the growing literature addressing innovation management in SMEs without focusing on any particular industry, consequently the advice for these companies were too general and therefore, not sufficient in terms of assisting the particular sector. Two, the reason for this research to concentrate on the manufacturing industry was due to its standing and importance in the Malaysian economy, its complexity and problems. The research had also addressed a definition of innovation as per Laforet & Tann (2006) as it is a systematic approach to measuring company innovativeness based on the DTI/CBI report was

adopted.

The contributions of this study have been: contribution to the understanding of the manufacturing industry and broadly to perception on the innovation in SMEs. In future similar to Laforet & Tann (2006), it is recommended that this research needs to be complemented by qualitative more detailed research aiming to provide an insight into companies' innovative behaviour, to address issues such as whether innovation is associated with cost reduction, profit, turnover, or return on investment and whether it is associated with growth or recession as company history, how they start up and how they aim to continue. As well as to focus on a specific or the particular sector(s) within the manufacturing industry in order that more specialised advice can be given to those that are in need.

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