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Factors Influencing the Implementation of Green Manufacturing Practices among Malaysian Manufacturers

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Abstract
Purpose: The purpose of this study is to provide preliminary findings on factors, namely business environment factors, organizational factors, and individual factors influencing the implementation of GMP among Malaysian manufacturers.
Design/methodology/approach: This study uses a quantitative method. The initial stage of data collection was carried out from April until the May 2021. Questionnaire items were validated by three panel of experts from three different public universities before the survey was sent to the respondents. More than 100 e-mails have been sent to the factory managers and at least 30 of them responded to the survey and this was enough to conduct initial data analysis using SPSS version 26.
Findings: The results showed that three main factors have been significantly influencing the implementation of GMP, where law enforcement becomes the most influential factor, followed by competitive edge, and proactive communication.
Research limitations/implications: The time duration for data collection depends on the respondents' availability to provide their feedback. Hence, the data collected took quite longer time to be collected and analyzed.
Practical implications: One of the practical implications is manufacturers should consistently discuss about responsibility towards sustainability among them instead of too much focus on making profits.
Originality/value: This study presents preliminary findings in five manufacturing sectors. To fill the gap, this study focuses on three industrial states in Malaysia, which has been assumed to contribute to environmental problems, namely Selangor, Johor, and Penang.

Keywords: Business environment factors, Organizational factors, Individual factors, Green Manufacturing Practices (GMP)

Introduction

Currently, the industrial sector is growing rapidly around the world. This is due to the advancement of technology in producing goods and services according to the changing consumer needs (Biernacki, 2015). This development contributes to the economic development of a country in terms of finance, socio-economic, and institutional needs (Biernacki, 2015; Bishop et al., 1984; Wang, 2016). However, these developments also provide problems with the prosperity of the earth, especially the environment. Natural resources are exploited resulting in increased carbon footprint, and this leads to escalating environmental problems which tamper with the overall ecology system including human quality of living (Ekins et al., 2019). As a result, green practices started to gain worldwide attention in order to provide better opportunities for people in terms of employment, enterprises, and a decent livelihood (Altenburg et al., 2017).

In Malaysia, the implementation of green practices has attracted the government to protect the environment for the benefit of future generations. Political relationships among countries such as the Association of South-East Asian (ASEAN) and Asia-Pacific Economic Cooperation (APEC), became the backbone of the country to implement green practices as well as the Sustainable Development Goals empowered by The United Nation to overcome the environmental issues (Mokthsim and Salleh, 2014; The Economic Planning Unit, 2017). Therefore, the manufacturing sector has become a priority for Malaysia to undertake proactive efforts in green practices.

The change in the country's revolution has made the manufacturing sector a major economic sector for Malaysia as this sector is expected to increase its contribution to the economy by 54% amounting to MYR 392 billion in 2025 (Leong, 2018). Thus, this makes Malaysia a rapid growing trade country, as well as making the country an industrialized nation. The added value in the manufacturing sector is projected to increase the global competitiveness level as well as improve the country's productivity in various matters, including employment (Leong, 2018; OECD, 2019). In 2019, the manufacturing sector contributed 2.9% increase in sales volume, with more than MYR 70.8 billion obtained through various productivity, from transportation to food and beverages (Department of Statistics Malaysia, 2019b).

Green Manufacturing is a term used as a method to overcome environmental problems, especially the disposal and carbon emission generated due to uncontrolled production activities. This method is considered more organized in assisting the manufacturing sector on the implementation of more efficient and effective green practices (Ghazilla et al., 2015; Ruslan et al., 2014; Yacob et al., 2018). Among the examples of Green Manufacturing Practices are such as the reduction of fuel consumption that is not beneficial to the environment, a reduction in excessive energy consumption, more organized disposal systems, more environmental-friendly work training, and recycled materials, and this practice aims to overcome environmental problems especially pollution (Ghazilla et al., 2015; Yong et al., 2019).

Globally, Malaysia's commitment to green practices is still considered moderate, especially among the manufacturing companies (Aziz et al., 2018; Hami et al., 2018). International reports announced that Malaysia is still unable to match the nearest neighbouring countries especially Singapore in green practice (MIT Technology Review, 2021). This may happen due to limitations such as lack of resources either in finances or talents in GMP implementation (M. Abdullah et al., 2016; Aziz et al., 2018). The owner's manufacturing company intention is also a priority in this case, in addition to the geographical differences (Ghazilla et al., 2015). Analysing the factors influencing manufacturing companies to implement green manufacturing

practices need to be re-viewed so that these factors can be highlighted to empower green practices globally for the following years.

Based on our observations in previous studies, there are various factors identified in influencing manufacturers' GMP implementation. However, none of those studies focused on industrial states in Malaysia. Hence, the identified factors might have brought unspecified views for manufacturers specifically in three industrial states, namely Selangor, Johor, and Penang, which become a prior location in this study as these industrial states often involved in high environmental problems (Chin et al., 2019; Organisation for Economic Co-operation and Development, 2011). To verify these factors, only top influential factors are chosen and grouped into three main factors which are; business environment, organization, and individuals as indicators in influencing GMP implementation in the three chosen industrial states. For preliminary findings, we have analysed the opinions of 30 factory managers based on the data from the returned, completed surveys in order to identify the factors influencing the GMP implementation of the manufacturing sector. SPSS version 26 has been used for data analysis and interpretation.
Therefore, this study aims to identify factors influencing the implementation of green manufacturing practices among Malaysian manufacturers, specifically in Selangor, Johor, and Penang. The study hopes that the objective can be achieved and provided answers to the research question of what factor has significantly influenced the implementation of green manufacturing practices among manufacturers specifically in Selangor, Johor, and Penang?

Literature Review

Green Manufacturing Practices (GMP)

Green manufacturing practices is considered a form of endless change (Habidin et al., 2015). It is a method applied by manufacturing companies in particular, to overcome environmental problems, while increasing productivity well (Hami et al., 2018; Ruslan et al., 2014; Yaacob et al., 2018). In other words, the production process does not produce a sense that can pollute the environment. Through this method, companies in the manufacturing sector are able to enhance the effectiveness of production in various ways, such as reducing energy consumption, water, material costs through recycling process, and occupational safety expenditure and improving the company's image reputation. This is parallel with the justification provided by previous studies (Abdul-Rashid et al., 2017; Ghazilla et al., 2015; Ho et al., 2017; Mohd Fuzi et al., 2019; Mokhtar et al., 2016).

Manufacturing Sector

The manufacturing sector is a key economic sector that helps Malaysia in economic development. This sector covers various fields, such as chemical, petroleum, plastics, food and beverages, and more (Department of Statistics Malaysia, 2019a). This sector is measured by size, capital, and full-time employees and it is divided into several major categories of small, medium, and large manufacturing sectors. This definition can be viewed on the Federation of Malaysian Manufacturers Directory, '*Malaysian Industries, 47th Edition, 2016*' and it is illustrated in table 1 below.

Table 1: Manufacturing Sector Definition, According to Federation of Malaysian Manufacturers

Category	Small	Medium	Large
Capital	Companies that have issued capital of MYR 2.5million and below		Companies that have issued capital more than MYR2.5 million

Employee size	Less than 75 employees	Between 75 to 200 employees	More than 200 employees

Table 1 shows that manufacturing sector of small and medium enterprises shared similar number of capital issued, which is from MYR 2.5 million and below but each enterprise has different employee sizes. Meanwhile, larger enterprises have issued number of capital more than MYR 2.5 million and its employee size is twice larger than small and medium enterprises.

Hypothesis Development

Factors Influencing Malaysian Manufacturers to Implement GMP

Based on our observation from previous studies, three major factors influencing Malaysian manufacturers towards GMP were identified. We have categorized these factors into three major building blocks; 1) business environment factors, 2) organisational factors, and 3) individual factors where this study developed a research framework (see figure 1). A detailed description of these factors is presented as follows:

1. Business environment factors

The business environment is among the most important elements in influencing manufacturing companies in GMP implementation. A previous study defines the business environment as anything that affects the company in deciding to improve business performance in the market (Eruemegbe, 2015). In this regard, we find that there are three important dimensions that are a priority in the business environment, namely Competitive Edge, Law Enforcement, and Technology Advancement.

Competition is a way of dealing with their competitors in various matters in the market, from the production of quality products to opportunities that exist to improve the company's performance (Ceglinski, 2016). Manufacturing companies who are willing to change their business activities to green practice will obtain various benefits, among them the company's image reputation becomes more respected by competitors and consumers, so companies are able to maintain their performance for a long term (Abdul-Rashid et al., 2017; Hami et al., 2018). Additionally, manufacturing companies with ISO 14001 are able to cope with pressure from competitors in the market and are able to expand their business to a better market (Abdul-Rashid et al., 2017; Ghadge et al., 2017; Ho et al., 2017; Yaacob et al., 2018).

Bansal & Roth (2000) defines law enforcement as a well-established rules to make companies carry business activities without any violation of the prescribed regulations. For example, environmental regulations are prioritized in this regard to educate manufacturing companies in carrying out business activities that protect the environment, while generating profits from the business (Ho et al., 2017; Mohd Fuzi et al., 2019). Law enforcement addresses environmental issues generated from industrial activities, which not only poses risks to the environment but also human (Ali et al., 2019; Roni et al., 2017).

The use of technology in the manufacturing sector is important to help process raw materials become more efficient. Green technology is a priority in the manufacturing sector to reduce environmental pollution problems and the use of this technology is also prioritized in The National Key Economic Area (NKEA) to encourage manufacturing companies to implement green technology in their business (Musa & Mohamad, 2018). The benefits of the use of green technology can produce cleaner production, in addition to improving production quality (Nor Aziati et al., 2016). In addition, it also meets consumer demand for eco-friendly goods in the market (H. Abdullah et al., 2017; Mohd Fuzi et al., 2019). In short, the use of technology such as green technology helps manufacturing companies increase their competitiveness levels in the market as well as expand business into wider market opportunities (Ghazilla et al., 2015; Hami et al., 2018; Tran & Herzig, 2020).

2. Organisational factors

Organization factors also affect manufacturing companies in the implementation of GMP. Organization Factors are characterized as *'Organization Capital Resources*' in helping companies implement new strategies such as GMP (Nee, 2011). In this case, it involves the employees' needs, leadership support, and essentially fairness in employment (Hale, 2016; Sun & Bunchapattanasakda, 2019). Based on our observations, there are two key dimensions in GMP implementation among manufacturing companies which are; green skilled employees and proactive communications.

Skills and knowledge that employees have can help manufacturing companies improve production quality, while reducing the negative effects on the environment (Malik et al., 2020), increase the level of competitiveness of the company in competing with other companies in the market as the *'Knowledge-Based Resources*' owned by the company through skilled and knowledgeable workforce which may assist the companies in dominating competition as well as increase the survival of the company in the long run (Roni et al., 2017; Solesvik, 2018). Knowledgeable and skilled workforce in green manufacturing practices can be obtained by recruiting employees with green practices expertise or train existing employees (Barzegar et al., 2018; Jia et al., 2018; Malik et al., 2020; Zhang et al., 2019) with the help of governmental bodies such as Department of Occupational Safety and Health (DOE) (Hamid et al., 2019).

Spreading new visions with the initial intention for GMP implementation requires proactive communication. Proactive communications should occur among employees and leaders within the organization so that organizational goals towards green can be achieved well (Low et al., 2015). Proactively-communicated new visions can enhance employees' deeper understanding of the purpose of green practices implementation. Two-way interactions are encouraged so that the opinions or ideas of both leaders and workers can be highlighted (Anonymous, 2015; Rounaghi, 2019) and acknowledging employees' opinions increase employee commitment to participate in change (Alsaad, 2016; Juan et al., 2018; Low et al., 2015). The use of language is important in order to not demotivate employees during new vision delivery (Berger, 2014; Mayfield & Mayfield, 2016). Consistent communications enhance information flows of new vision for GMP, and this can enhance the focus of employees in achieving new green goals more effectively and efficiently (M. Abdullah et al., 2016; Ghazilla et al., 2015; Juan et al., 2018; Nudzor & Ansah, 2017; Radzi & Othman, 2016).

3. Individual factors

Individual factors are one of the factors affecting manufacturing companies in implementing GMP. This factor is seen to be relevant to green practices as employees with an environmental value are more concerned with ethical discretion in carrying out a business operation within the organization (Bansal & Roth, 2000; Malik et al., 2020). Their perceptions and behaviours to environmental protection are an important factor in influencing the organization to implement green practices such as Green Manufacturing Practices (M. Abdullah et al., 2016; Ghazali Hassan et al., 2015; Hami et al., 2018; Low et al., 2015).

Employee perception exists from the sharing of ideas or knowledge they have pertaining green practices (Low et al., 2015; Zhang et al., 2019). Emphasizing opinions or ideas from employees is an investment that should be a pillar to an effective GMP implementation as the knowledge and innovative ideas from employees indicate their level of readiness for a positive change (Altaf et al., 2019; Izuchukwu et al., 2014). Encouragement from leaders helps employees share innovative ideas in implementing GMP because their trust and confidence are very important in ensuring that the green concept can be accomplished well (Altaf et al., 2019; Low et al., 2015), for instance in the case acknowledging employees' views on the change implementation of 3R strategy to 6R (Reduce, Reuse, Recycle, Remanufacture, Recover, and Redesign)(Hami et al., 2016, 2018). When employee perceptions are neglected, this could result in low

employee commitment on the implementation of GMP. In this case, every employee's opinion from each level is very important and should be addressed by the leaders(Hami et al., 2018; Low et al., 2015).

As a major source in implementing new changes, employees' attitudes and behaviour are considered to have influenced GMP implementation well. Employee's attitude or behaviour is influenced by a working culture, size, or leadership style (Čudanov et al., 2019). The previous studies have proven that the implementation of GMP was influenced by the attitude of employees who are environmentally aware, such as turning off lights if a room space was not used or using a recycled paper for documentation purposes (Robertson & Barling, 2013; Vinojini & Arulrajah, 2017). Employees with positive attitudes and environmentally conscious are human accelerators in efficient GMP implementation as they feel connected with the green strategy undertaken by the company (Afsar et al., 2018; Sharma, 2014). In addition, through attitudes or behaviours, leaders can identify whether their employees are risk takers or not, in relation to ensure their commitment to the implementation of green practices such as green manufacturing practices (Lanang et al., 2018).

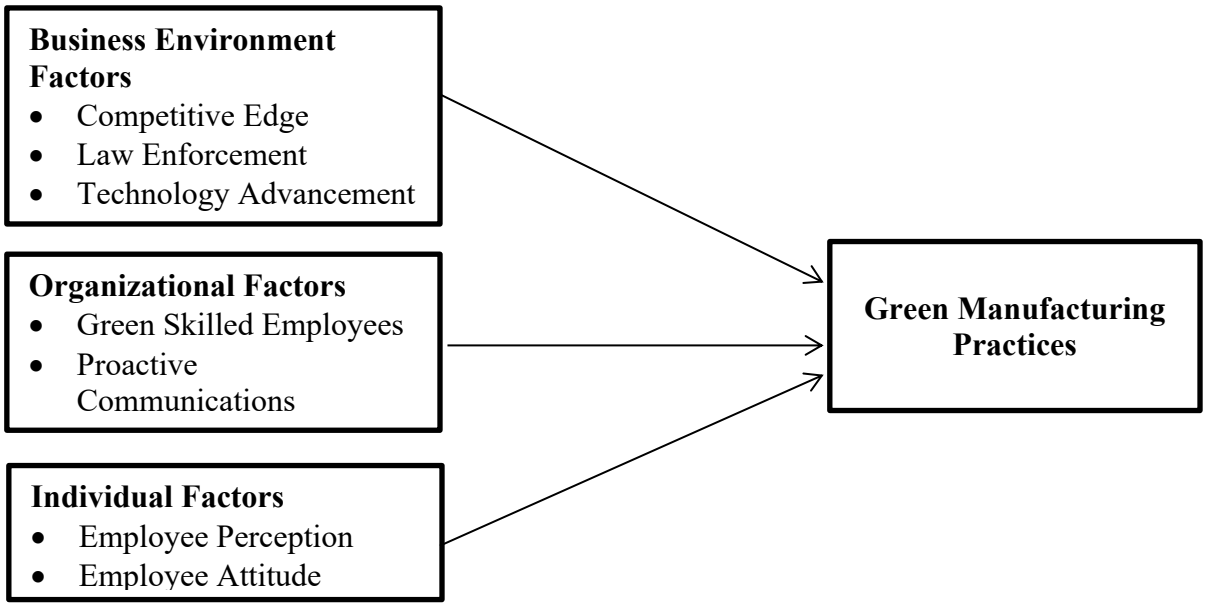

Figure 1: Research Model of the Study

Methods

The initial stage of data collection for the purpose of the pilot study was carried out from April until the May 2021. Factory managers are selected to answer the questionnaire for pilot study because these respondents deal with operational activities that require their knowledge and skills to monitor and implement green manufacturing practices (GMP) (Hami et al., 2018). Before the survey was sent to the factory managers, validation of items from experts was undertaken. The questionnaire items of all variables were derived and modified from several sources of literature and the sources can be viewed in table 2. Upon amendment completion, more than 100 e-mails have been sent to selected respondents for data collection. Google form has been used as a medium for respondents to provide answers to the questions related to our studies. The use of e-mail as medium is time saving. However, getting a good response from respondents requires patience and time as well. To ensure that respondents receive emails, we do follow-ups. A total of 30 respondents responded to the survey and this was enough to conduct data analysis (Mishra et al., 2019; Mukherjee, 2020) using SPSS version 26. Since this

study is still on-going, the results presented in this paper are merely preliminary outcomes extracted from the first round of data collection.

Table 2: Sources of All Variables' Items

Variables	Sources
Business environment factors • Competitive edge • Law enforcement • Technology advancement	• (Abdul-Rashid et al., 2017; Ghazilla et al., 2015) • (Ho et al., 2017) • (Nor Aziati et al., 2016)
Organizational factors • Green skilled employees • Proactive communications	• (Malik et al., 2020) • (Berger, 2014; Low et al., 2015)
Individual factors • Employee perception • Employee attitude	• (Low et al., 2015; Zhang et al., 2019) • (Afsar et al., 2018; Robertson & Barling, 2013)
Green manufacturing practices (GMP)	(Aziz et al., 2018; Hami et al., 2018; Malik et al., 2020; Yaacob et al., 2018)

Findings

In this section, the preliminary results are presented based on the responses of 30 respondents who have participated in this study, which is the results of factors that influence the implementation of GMP among Malaysian manufacturers. These results can be viewed in Table 3, where its mean scores and ranks are also presented. The style of the table was adopted from Ghazilla et al (2015) and Ikonne & Fajonyomi (2019).

Table 3: Factors that Influence the Implementation of GMP Among Manufacturing Companies in Malaysia

No	Factors	Mean	Rank
Business Environment			
Competitive Edge			
1	Business activities turned to GMP due to business pressure in the market	3.10	20
2	Attain more new market opportunities through GMP	3.90	12
3	'Green Manufacturing' image offers better company reputation	4.27	3
Law Enforcement			
4	Environmental laws are compulsory to be followed	4.53	2
5	Complying with environmental laws avoid to be penalized in court	4.67	1
6	Complying with environmental laws increases company's consciousness towards the environment	4.23	5
Technology advancement			
7	Adopting green technologies reduce manufacturing costs	4.23	5
8	Green technologies increases company's environmental-friendly production	4.17	7

9	Investment in green technologies improves company's innovation opportunities, mainly R&D	3.93	11
	Average Mean	**4.11**	
Organisational			
Green Skilled Employees			
10	Hiring certified person with environmental skills and knowledge is easier to implement GMP	3.77	13
11	Hiring certified person with environmental skills and knowledge must undergo extensive selection and recruitment with certified association such as DOSH or DOE	3.77	13
12	Periodic training programs with certified association such as DOSH enhance employees' skills and knowledge towards GMP	4.17	7
Proactive Communications			
13	A well-informed new vision of green makes the GMP easier to be implemented	4.10	9
14	Face-to-face communication enhances the understanding of employees towards new vision of GMP	4.27	3
15	A consistent delivery of information about GMP improves the acceptance of employees at all level	4.17	7
	Average Mean	**4.04**	
Individual			
Employee Perception			
16	Employees' passion towards the environment encouraged the company to implement GMP	3.50	19
17	The willingness of sharing knowledge and ideas encouraged the company to implement GMP	3.63	18
18	The involvement of employees' opinions and ideas is helpful in implementing GMP effectively	4.10	9
Employee Attitude			
19	Employees' environmental behaviours encouraged the company to implement GMP	3.70	15
20	Employees' environmental voluntary action changed the company's perspectives towards the environment	3.70	15
21	Encouraging other colleagues to concern about the environment changed the company's business operation to GMP	3.67	17
	Average Mean	**3.72**	

Note: Decision Rule if mean (X) is ≤1.49 very low, 1.5-2.49 is low, 2.5-3.49 is moderate, 3.5-4.49 is high, and 4.5-5 is very high (Ikonne & Fajonyomi, 2019)

Discussion and Conclusion

Discussion of the Preliminary Findings

Based on Table 3, several items were identified as factors influencing the implementation of GMP among Malaysian manufacturers specifically in Selangor, Johor, and Penang. The means for all items are considered from moderate to high influence, according to (Ikonne & Fajonyomi, 2019). Seven categories are presented in the table, business environment factors comprise of three categories, while organisational factors and individual factors comprise of two categories each.

Table 3 shows that manufacturing managers have listed out the factors that influence their companies to implement GMP in Malaysia. Our preliminary results revealed that some items are highly influential and some are just moderately influential. Items with very high influence are complying with the enforced laws to get away from punishment (X= 4.67) and considering it is compulsory for any manufacturers to comply with environment laws (X = 4.53). Meanwhile, items with the mean score between 3.5 to 4.49 are considered to have a high influence on the implementation of GMP such as green image for better reputation for the company, using face-to-face communication to enhance the understandings of employees towards GMP, complying with the enforced laws enhance company's consciousness towards the environmental protection, adopting green technologies could minimize manufacturing costs and help them to increase a better productivity and more (see Table 3). From the study, only one item is considered to be moderately influential on the implementation of GMP, that is business pressure turned manufacturers' business activities into GMP in the marketplace (X= 3.10).

From the results of the mean score, we can see that environmental laws have a very high significant influence on the implementation of GMP among Malaysian manufacturers. This results are consistent with the study of Olusegun, Hasbullah, & Nordin (2014), Nordin, Hasbullah, & Hassan (2015), and Ho et al (2017), where environmental regulations have pressured the manufacturing companies to implement an effective GMP in order to protect the environment. Meanwhile, improving the image or reputation of the company through GMP is consistent with the study of Ghazilla et al (2015) and Ho et al (2017) and having face-to-face communication to enhance the understandings of employees towards GMP is consistent with the study of Low et al (2015) and Nordin et al (2015), where it indicates that managers are always available to communicate with employees regarding the new vision of GMP as a part of showing their support or commitment to their subordinates in an organisation.

In general, the implementation of GMP is not only influenced by economic perspectives that we can see from the dimensions of competitive edge and technology advancement, where manufacturers implemented GMP to reduce manufacturing costs, build an appropriate image, and obtain better opportunities to expand their businesses but they are also concerned about environmental aspects which is evident through adopting green technologies to minimize environmental problems such as pollution, and the use of hazardous chemicals. In addition, manufacturers also are influenced by social responsibilities such as protecting the environment by following rules and regulations imposed by the government, and improving health and safety protection for community and employees. Therefore, this preliminary results indicate that economic, environmental, and social aspects have influenced the implementation of GMP among Malaysian manufacturers, which is consistent with the results of the study of Olusegun et al (2014), Ghazali Hassan et al (2015), Nordin et al (2015), Abdul-Rashid et al (2017) Aziz et al (2018) and Hami et al (2018).

Even though our preliminary results are quite encouraging and convincing, the final round of data collection will be carrying on so that the total views of the respondents can be maximized. We believe that our findings will be convincing and significant in enhancing manufacturing companies' commitment towards green practices, particularly green manufacturing practices once all relevant factors are clearly confirmed.

Conclusion

In this study, the preliminary results of factors influencing the implementation of GMP among Malaysian manufacturers were presented. The results suggested that environmental rules and regulation are the major influence among Malaysian manufacturers to implement GMP, followed by corporate green image for a better reputation, and effective communication between leaders and employees through face-to-face method. These preliminary findings

propounded that green manufacturing practices have received attention from manufacturing companies in Malaysia, however GMP is implemented at certain level for some factors. More attention should be prioritized by manufacturing companies in order to successfully implement GMP in Malaysia, especially individual factors, as this factor can be a major support for better implementation of GMP in the future (Hami et al., 2018).

Theoretical Contributions

Beckhard and Harris' Change Equation is adopted to elucidate the GMP implementation as a new change. Basically, this theory measures the effectiveness of change via an equation that is formulated as C = DxVxF > R. The equation refers to C as *change*, D is *dissatisfaction with the current state*, V is *vision*, F is *the first step*, and R represent *resistance to change* (Cady et al., 2014; Čudanov et al., 2019). This equation justifies that employee resistance on change is indicated if one of the components of the equation is weak. The nature of change equation is derived from three determined principals, namely change traits factors, organizational environment factors, and personal factors (Čudanov et al., 2019). Hence, this study uses the principals and equation of this change in relation to the independent variables identified in this study.

The preliminary results indicated that all factors are influential in helping Malaysian manufacturers to implement GMP. Although business pressure seems to be ranked lower among all items, it is still considered influential. In this case, the implications of the theoretical perspectives can be viewed as follows;

i. Manufacturing leaders realized the importance of employee involvement in every aspect of change process as an effort to minimize employee frustrations that could dampen the intention of the company to implement an effective GMP. None of the factors reveal any missing point indicating resistance among employees towards the implementation of GMP. This because the mean score for every item of each factor is between moderate to highly influence.
ii. The influence of environmental laws or being competitive in the market in order to sustain their business reputation has encouraged the manufacturers to implement effective GMP. The manufacturing leaders realized that factors of change traits play the most important influence in making new business decisions, converting the business activities from conventional to eco-friendly activities.
iii. The new vision of green concept has been delivered clearly to employees in the organization, increasing employee awareness of GMP implementation. In other words, communication between leaders and employees are effectively developed during the implementation process.
iv. The manufacturing companies need to ensure that every element of change equation is not weak in order to avoid employee resistance to change, such as green manufacturing practices. Furthermore, Malaysian manufacturers should ensure that the factors affecting them to implement GMP are in line with the elements of the change equation and hence, they are able to assess which factors contribute to the improvements of success in change implementation.

Practical and Social Implications

Based on the preliminary findings, the practical implications of the implementation of GMP implemented by manufacturing companies in Malaysia can be considered as follows;

i. Environmental rules and regulations should be done in a coordinated uniform manner in order to ensure it is compulsory for manufacturing companies. The environmental

policies imposed by the government should also be improved in terms of the constitutional requirement so that manufacturing companies are conscious about the importance of environmental protection (Ho et al., 2017).

ii. Consistently spreading out the benefits of having certified with ISO 14001 by the government bodies. By doing so, manufacturers will be aware of the importance of having certified with this certification due to the benefits provided as it could generate important changes to the organisational development, particularly in developing a better sustainability performance (Ho et al., 2017; Nee, 2011; Nordin et al., 2015).

iii. In order to improve commitment among manufacturing companies to GMP, the government and financial institution should provide more funds with less strict requirements in order to facilitate change implementation and increase collaborated efforts towards GMP (Aziz et al., 2018).

iv. Manufacturers should be consistently discussing about the global responsibility and consciousness towards sustainability as an area to move forward on green practices. This particular discussion is not only being discussed within the organisation but it should be comprehensively discussed among manufacturers themselves to make better decisions on this matter, not only focusing on its impacts on selling price that could move them away from this practice. In other words, not being too profit-oriented (Aziz et al., 2018).

v. In order to remain competitive, manufacturers should utilize their intellectual capabilities to enable effective implementation of GMP. Manufacturing companies should properly strategize their employees' capabilities to enhance the effectiveness of GMP, which it is useful and beneficial for their sustainability performance (Ghazali Hassan et al., 2015; Hami et al., 2018; Malik et al., 2020; Salisu & Abu Bakar, 2019).

Limitations and Suggestions for Future Research

Although the preliminary results presented in this paper are convincing, this is just an overview on the factors influencing the implementation of GMP among manufacturing companies in Malaysia. We are still carrying out the other round of data collection in order to get full detailed information on the views from the manufacturing managers pertaining the implementation of GMP in Malaysia. We believed that some detailed insights from the respondents will provide solid factors that can be used to verify this study and to be used it in the future studies. In other words, detailed views will give different implications towards factors that influence manufacturing companies to implement GMP in Malaysia. In addition, we hope that obtaining responses from the respondents, particularly factory managers will not be restricting the process of data collection, especially in obtaining managers' feedback. Using digital platforms such as e-mails might save time but the tendency of respondents to ignore or overlook the survey is high. Hence, follow-up is needed to ensure that they are aware of the survey emailed to them.

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