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Prefiguring Issues of SMEs Readiness in Malaysia as the Future of Industry 4.0 Unfolds

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Abstract

The topic of Industry 4.0 in regard to small and medium-sized enterprises (SMEs hereafter) have been exponentially debated among scholars up to this date. Industry 4.0 technology offers competitive tools to firms that help facilitate corporate resilience and cope with expiry business models. The ideology particularly dominates on automation in manufacturing that imperative for national economy awakening. In light of the modern state, technological business orientation must be meticulously deliberated, replacing the traditional one. SMEs in Malaysia are seen as not receptive when it comes to aligning businesses with coherent technology advancement. The issues on Industry 4.0 readiness among Malaysian SMEs have been listed by the Ministry of Trade and Industry in their report. Growing evidence shows high-tech technology has a positive relationship with organization performance. Thus, the pitfalls inhibit the development should be obliterated to achieve the idealism country we espouse.

Keywords: Industry 4.0, Readiness, SMEs, Digitalization, Malaysia.

Introduction

The latest technological advancement that put together computers and automation to work in a distinctive way is called The Fourth Industrial Revolution or Industry 4.0 (naming convention per se). It is the convergence of many significant technologies, ready to transform various industries. Whilst digitalization is characterized as reconstructing of the business operation, including consumer management, goods and services and transaction in digital world. Industry 4.0 has greatly impacted global economy, resulting in progression of several countries' development.

As technology keeps advancing at an accelerated rate, SMEs need to diligently work on restoration plans to mobilize Industry 4.0 technology under uncertain economic realm. In this progressive and dynamics business landscape, SMEs should acknowledge the importance of jumping into Industry 4.0 bandwagon rather than retaining themselves in old-fashioned business practices. Existing literatures have widely discussed on perks brought by this

megatrend. Therefore, it is integral for SMEs to take advantage of the possibilities emerging from Industry 4.0 as their business will benefit greatly. Jesus & Lima (2020) believed organization will be able to compete intensely with the high-tech technology and connectivity services of the Industry 4.0.

Industry 4.0 in Malaysian SMEs

For the past few years, Malaysia is undeniably taking significant steps improving its domestic market environment for SMEs. The National eCommerce Strategic Roadmap, Digital Free Trade Zone, SME Masterplan (2012-2020), National Entrepreneurship Framework (NEF) and Shared Prosperity Vision 2030 are among few programmes executed by the government in supporting SMEs to endeavour their business domestically and globally. The transition driven by digitization 4.0 paves the way for renewable resource transformation and contributes to sustainable nation growth.

SMEs have started out as one of the country's biggest contributors, responsible for over one-third of Malaysia's economy, consequently being a substantive focus of the government. In line with the presence of Industry 4.0, Malaysian government has intensely stepping up SMEs competitiveness with intensification efforts by introducing several blueprints and incentives in the form of financial integrate with technological support to encourage SMEs expanding their market and economic growth. For example, the government already proposed SME Masterplan 2.0 (2021-2030) that will be focusing on stimulating SMEs endeavour in an internationalized and digital marketplace. The Masterplan also underscore on orientating business strategy of SMEs to adapt with the digitalization of Industry 4.0.

In Asia, the definition of SMEs varies over one country to another as it is defined based on some criteria. A revised classification of small and medium-sized businesses has been done but the criteria for number of employees and sales turnover are remained even the threshold has been raised to;

- (i) Manufacturing sector: Sales turnover not surpassing RM50 million or full-time employees not surpassing 200 people;
- (ii) Services and other sectors: Sales turnover not surpassing RM20 million or full-time employees not surpassing 75 people (SME Corporation Malaysia, 2018).

Detailed definition of SMEs is shown in Table 1.

Table 1
SME Definition in Malaysia

Size	Micro		Small		Medium	
	Sales Turnover	Employees	Sales Turnover	Employees	Sales Turnover	Employees
Manufacturing			RM300,000	5 to < 75 employees	RM15 million	75 to ≤ 200 employees
	<RM300,000	< 5 employees	to < 15 million		to ≤ 50 million	
Services & other sectors			RM300,000	5 to < 30 employees	RM3 million	30 to ≤ 75 employees
			to < 3 million		to ≤ 20 million	

Source: SME Corporation Malaysia (2018)

SMEs in Association of Southeast Asian Nations (ASEAN) countries — Singapore, Brunei, Malaysia, Thailand, Philippines, Indonesia, Vietnam, Laos, Cambodia, Myanmar are representing around 97%-99% from the whole business community (Asian Development Bank, 2018). For the record, in Malaysia alone 98.5% of business establishments are made up of SMEs cut across all sized and sectors recorded up to 38.9% contribution to Malaysia's GDP in 2019 compared to 38.3% in 2018, as well as growth in gross in exports increased to 17.9% in 2019 compared to 17.3% in 2018 and lastly a growing in employment rate from 48% in 2018 to 48.4% in 2019 (SME Corporation Malaysia, 2020). Figure 1 illustrates the GDP performance of SMEs in Malaysia.

Figure 1: SME Performance in 2019

SME GDP	SME Exports	SME Employment
RM552.3 bil [38.9% share]	RM176.3 bil [17.9% share]	7.3 mil workers [48.4% share]*
<i>(2018: RM522.1 bil)</i> <i>[38.3% share]</i>	<i>(2018: RM171.8 bil)</i> <i>[17.3% share]</i>	<i>(2018: 7.1 mil workers)</i> <i>[48.0% share]*</i>

* revised methodology

Source: Department of Statistics, Malaysia (2020)

SME Corporation Malaysia (2017) projected all SMEs in the country to implement digitalization business activities within five years relative to current performance. Malaysian SMEs however seem hesitant in taking the plunge although larger firms are promptly prepared for the efficiency gains from the sophisticated technologies of Industry 4.0 (Ministry of Trade and Industry, 2018). Radzi & Wahab (2017) concluded in their study that due to technology incompetence among Malaysian SMEs, it caused them to produce low performance in business.

The implementation and integration of Industry 4.0 technologies seem to be particularly difficult for SMEs to incorporate (Issa, Hatiboglu, Bildstein, & Bauernhansl, 2018; Muller 2019). Most scholars firmly believed Industry 4.0 are deliberated for multi-national enterprises (MNEs) or larger organizations (Mittal, Khan, Romero & Wuest, 2018). Stenfort, Rajkumar & Madsen (2017) highlighted there has been a study found that SMEs tend to be not capable of perceiving Industry 4.0 compared to bigger businesses, which is supported by Matt & Raunch (2020) as they opined the smaller the SMEs, the harder to exploit the benefits available. Large companies on the other hand, often accommodate with appropriate number of resources, finest facility and maintain high degree of specialisation. Therefore, the transition process would be less complicated.

Issues on SMEs Readiness

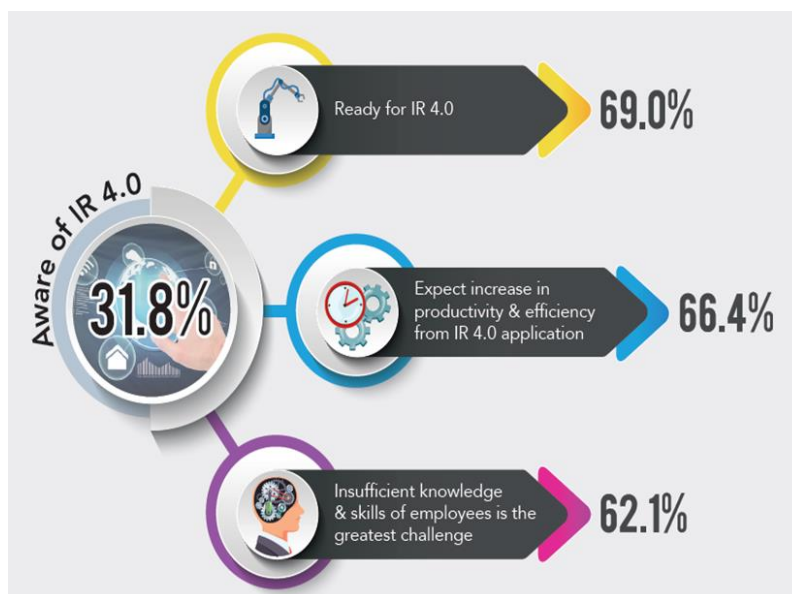
Ministry of Trade and Industry (2018) in their report has stressed on the challenges and issues faced by SMEs before decided on harnessing Industry 4.0 in their business operations. Among the pitfalls identified are the level of awareness, innovation management, the digital readiness and connectivity, the enhancement of skill needed, expensive cost of start-up and best practices understanding.

Awareness Level

According to Abdullah, Abdullah & Salleh (2017), the Malaysian government have not done enough in advocating the importance of Industry 4.0 in the mainstream, hence we have yet to see the acceptance by the people on a grander scale. The researchers also pointed out that there is no doubt a greater awareness among people with critical consciousness of media and information and communication technology are noticed but their participation in the transformation is yet to be determined. SME Corporation Malaysia has conducted a survey called The Third Quarter 2017 (3Q 2017) involving 1469 respondents focusing on the awareness and readiness status of Industry 4.0.

According to this survey, it shows that only 31.8% of the respondents are aware on the presence of Industry 4.0, 69% are ready to embrace it, 66.4% are expecting a growth in productivity and efficiency from industry application while 62.1% agreed that limited knowledge and skills of employees is the biggest challenge (SME Corporation Malaysia, 2017). Figure 2 illustrated the results of the survey. The awareness level towards Industry 4.0 in this country is still insufficient to compare with SMEs in developed countries. Even the business owners are cautious on the comforting prospects, yet they brush aside the idealism due to various barriers and deficiency of resources and work skills.

Figure 2: Awareness of Industry 4.0



Source: SME Annual Report (2017/2018)

Innovation Management

Innovation has always been a prominent catalyst for any organization to assimilate automation orientation ingrained in Industry 4.0 to stay competitive and relevant. An organization might find the difficulty in sustaining its creativity and competitive advantage without a solid innovative culture nurtured among its workers. Innovation is crucial in any organization to cope with changes that occur at any time. The management of innovation can be defined as the process of organizing idea before it can be developed into the form of products or services, and then promoting them across stages of the production of new products or services before eventually selling them (Kowang et. al, 2019). Over the years, the

performance of Malaysian SMEs has been severely affected in local and foreign markets due to the failure of instilling and practising open innovation systems (Hameed, Basheer, Iqbal, Anwar & Ahmad, 2018). Malaysia is ranked at 72nd in term of business innovation according to report of global innovation index.

Digital Readiness and Connectivity

The key to opening up potential of the digital economics is to ensure Malaysia's digital infrastructure provides an all-round, secure and ultra-fast broadband internet service. The Malaysian Manufacturers Federation (FMM) states that small companies struggle to navigate their way around innovations that ideal for their needs. "Malaysia's manufacturing readiness to embrace Industry 4.0 depends upon multiple variables, including the nature of the organization, its goods and services, and its business model. While Industry 4.0 is now being adopted by most international and larger corporations, most SMEs are yet still thoroughly scrutinizing and recognizing any of the Industry 4.0 practices that could be adopted in their operations." (Lee, 2018).

ICT acceptance is determined by the scale and business operation of the company. Socio-Economic Research Centre (2017) in their survey found that there is minimal usage of specialised ICT applications in Malaysia with just 16% of respondents stated that they are actually utilising e-commerce, while 11% said their companies would still be functioning even without the implementation of e-business.

Skill of Enhancement

A shortage in human capital is Malaysia's greatest hurdle to engage digital economic growth (World Bank Group, 2018). A limitation of digital literacy has been debated by many literatures as a primary obstacle to economic reforms. The education system and workforce training initiatives in Malaysia do not yet prepare adequate qualified employees to fulfil the growing demands of the digital economy. A study by Fetterman, Cavalcante, Almeida & Tortorella (2018) also agreed demand for highly skilled labour has been one of the biggest challenges in implementing Industry 4.0 technologies in developing countries.

Up to this date, the industries of Malaysia are overly reliant on semi- and low-skilled employees and foreign labour (Ministry of Economic Affairs, 2018). The share of semi-skilled workers is the highest which made up of 62.3%, followed by high-skilled workers which is only 24.4% (consist of people who are working in managerial, professional or technical roles) and 13.3% low-skilled workers (Department of Statistics Malaysia, 2020). Asian Productivity Organization (2019) in their report highlighted that Malaysian SMEs would choose to minimize their expenses by employing additional cheap workers to do basic tasks such as packaging rather than taking the risk to invest in the realm of advanced technology.

High Cost of Investment

The access to investments and the return upon investment are strongly important to all type of businesses. SMEs are commonly owned by an individual with various obstacles are associated within the bound of small-scale operations. Industry 4.0 requires an upgrade in current system installation and in some cases, involve a whole new set-up of IT system. However, the cost is a crucial consideration to reckon with to SMEs in deciding whether to upgrade the current IT infrastructure or to build and implement the new one. Developing countries cannot afford to focus on marketing parts like developed countries did when it

comes to digitalization because their main focus in most cases is financial goals (Bogoviz, Osipov, Chistyakova, & Borisov, 2019).

Owners agreed that emerging technology requires more money and they may not have enough budget to make drastically improvements due to their strict budget dilemma (Harik, Hachem, Medini & Bernard 2015). The expensive high technology-based and neglect of its return are the main reason rendering small businesses from being persuaded. One of the main reasons impeding business growth in Malaysia is the access to capital (World Bank Group, 2018). According to the World Bank Enterprise Survey, about half of firms in Malaysia voted access to capital as a moderate to very severe problem, on which the amount surpassing 35%.

Best Practices Understanding

Ministry of International Trade and Industry (2018) in their report proposed the definition of best practices in this context as centralized knowledge systems that are readily available to grasp best practises and applicable implementations. Apparently, success stories of local companies implementing Industry 4.0 are minimal. The best practices should not only by advocating on the awareness by government, whose job is also to establish programmes and provide financial incentives to alleviate SMEs burden, but also to organizations to become self-reliance in utilizing diverse range of resources and discerning over opportunities created for them.

Conclusion

Looking at the current scenario, it can be concluded that SMEs in Malaysia are not ready for the implementation of Industry 4.0 despite various incentives and support provided by the government. Low level of awareness towards Industry 4.0 among SMEs, absence of innovation engagement in most small organizations, shortage of high-skill workers, limited resources and insufficient funding for advance technology are among the challenges restraining SMEs from enforcing the forthcoming technology as envisioned by the Malaysian government. In current dynamic and demanding market, SMEs should work on their ways in overcoming the challenges in order for them to sustain their businesses. The more prepared an organization is, the greater the use of technology is deemed to be important to its industry. It requires a sustained endeavour, consistent and persistent educative act. At the end of the day, their survival depends on their ability adapting to modern technologies. The economic effects of the unforeseen Covid-19 pandemic and the introduction of the Movement Control Order (MCO) will certainly impact SMEs performance in 2020. Department of Statistics Malaysia (2020) has predicted a negative contribution from all sectors to the growth of country GDP in 2020 plus gross exports also has been affected badly.

Recommendations

To overcome the issues aforementioned, SMEs must build digital skills and create the required digital confidence which plays an important role in harness customer value and retain competitive advantage in the market. Not only that, SMEs presuppose to evolve and transform their existing market activities, build skills and constantly update to emerging technologies (Nguyen & Luu, 2020). This in return, would offer strategic advantage needed to succeed in changing business environment. SMEs in Malaysia must change and embrace Industry 4.0 to sustain their future production competitiveness. Or else, their global competitiveness may be jeopardised.

Besides, it is suggested that formulating a better policy and regulations may increase the participation of SMEs towards Industry 4.0. This will result to SMEs producing better quality of products and services to compete in the market. The policy also should be reviewed and modified accordingly from time to time. Policymakers play a critical role in determining the execution of the blueprints and ensure appropriate technologies are in place to allow the industry step ahead through digitalization. In order to alleviate SMEs burden during the pandemic of Covid-19, The Malaysia Digital Economy Corporation (2020), a body established by the government as one of the digital strategies, provided SMEs with various digital solutions.

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