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The Appropriate Strategies for Exporting Malaysian Manufacturing Small and Medium Enterprises for Corporate Sustainability in the Context of 4.0 Industrial Revolution

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Abstract:

Small and Medium Enterprises (SMEs) are the backbone of the Malaysian economy. Hence, SMEs must continue to contribute to the growth and development of the country. SMEs no longer can sustain domestic trade, and moving to the global market requires SMEs to be competitive. To seek competitive advantage, SMEs must take the opportunities of IR 4.0 technology and adopt appropriate strategies to enhance manufacturing processes and elevate productivity as well as participate in new export markets for corporate sustainability.

Methodology

A mixed method methodology was used for this research. The data collection tools were literature review, personal interviews, and web survey with 105 participants. A five-point Likert scale was adopted to indicate the respondent's degree of agreement or disagreement.

Results

Adopting IR 4.0, SMEs will be recognized globally and provides opportunities to compete and participate in the global value chain. However, SMEs face several barriers when adopting IR 4.0 technology including lack of financial support, technological knowledge, R&D related training, expert support, and absence of a global mind-set.

Conclusion and Recommendations

The findings revealed that IR 4.0 will create extensive opportunities for Malaysian exporting manufacturing SMEs to innovate and reduce business costs by identifying the best solutions to solve business problems. IR 4.0 has become an enabler to increase productivity and compete with other large economies in the value chain. Malaysian manufacturing SMEs must leverage and maximize the benefits of IR 4.0 to secure new export opportunities from domestic to global markets.

Keywords: *IR 4.0, corporate sustainability, competitive advantage, export performance, global value chain*

1. Introduction

Small and Medium Enterprises (SMEs) are the drivers of the Malaysian economic transformation since the 1990s and played a key role in economic development, social uplifting, and political stability (Ahmad & Seet, 2009; Razak, 2011). The nation to become a fully developed country by the year 2020 is highly reliant on the achievements of SMEs (Omar, Arokiasamy & Ismail, 2009).

SMEs have to be more efficient as they can no longer use traditional methods of reaching out to the market and lift the economy up the value chain. Therefore, investment incentives to attract large companies such as Fortune 500 and global unicorns in the high-tech manufacturing sectors can accelerate growth by contributing innovation, strategic alliances, and technology and knowledge transfers that can increase the competitiveness of the Malaysian SMEs (Liew, 2019).

However, embracing IR 4.0 technologies such as cloud services and the internet of things as a transformation enabler to improve business productivity and efficiency is very low among SMEs (SME Corp & Huawei Technologies, 2018). The rising cost of engaging in business activities is of primary concern of the manufacturing SMEs due to the majority of the establishments are labour intensive; therefore, SMEs have been urged to adopt technology to reduce labour cost as well as relying highly on foreign workers (SME Annual Report, 2017). There are only 10% to 15% of Malaysian SMEs who have been trading with tier one MNCs that have taken the initiative of IR 4.0 adoption (Tech Wire Asia, 2019).

While, Malaysia has been well-positioned to benefit from the future of IR 4.0 (Kearney, 2018) but, employee's skill acquisition for IR 4.0 among Malaysian SMEs is at level 1 or beginner stage, and nevertheless, employees have the skills however they lack knowledge in areas related to IR 4.0 (Hamidi et al, 2018). This paper emphasizes the appropriate strategies and readiness of Malaysian manufacturing SMEs to successfully adopt and take advantage of the benefits emerging from the IR 4.0 technologies for corporate sustainability.

2. Literature Review

The reviewed literature related to i) the role of SMEs in the Malaysian economy, ii) The internationalization and participation of Malaysian manufacturing SMEs in the global supply chain and iii) The challenges faced by the Malaysian SMEs.

2.1. The Role of SMEs in the Malaysian Economy

SMEs play a major role and the importance to the economy depends on the ability to generate employment, promoting innovation, create competition, and generating economic wealth (Bannock, 1981).

Over the years, the Malaysian economy has been on an upward trajectory based on the performance of SMEs. SMEs registered a growth of 6.2% in 2018 (2017:7.1%) slightly above the long-term average growth of 6.0% (2001-2017) and the growth continued to outperform overall Malaysia's GDP which registered at 4.7% in 2018 (2017:5.7%) (DOSM, 2019). SMEs' contribution to the country's GDP rose to 38.3% (RM521.7 billion) in 2018 from 37.8% (RM491.2 billion) in 2017 compared to the country's total GDP of RM1.36 trillion during the year (DOSM, 2019). The SME Masterplan aims to raise the GDP contribution to 42% by 2020 (SME Masterplan, 2012). SMEs provide 5.7 million jobs to 70% of the Malaysian workforce (DOSM, 2019).

The manufacturing sector is made of 49,101 establishments of the total SMEs in Malaysia (SME Economic Census, 2017). The manufacturing SMEs makes up 42.1% of employment compared to 57.9% of employment by large firms (DOSM, 2017). The manufacturing SMEs are dependent on 74% Malaysian and a small number of 26% of the non-Malaysian workforce (Labour Force Statistics, 2016).

The Malaysian government's continuous support to uplift the export performance of SMEs can be seen through various policies implemented (Abdullah & Zain, 2011). The SME Masterplan for the period of 2012-2020 is targeted to raise the contribution of SMEs to the economy by 2020 in respect of the GDP from 32% in 2010 to 41%, employment from 59% in 2020 to 62%, and exports from 19% in 2010 to 25% by 2020 (SME Master Plan, 2012). SMEs will be categorized as an enabler of growth by providing support to large firms but a driver to economic growth and to accomplish these, SMEs must upgrade from a low-cost to a high-value approach to seek competitive advantage (SME Master Plan, 2012). Malaysia's integration with the global production network involves the upgrading of SMEs from second- and third-tier suppliers to first-tier suppliers who serve directly to the large firms and multinational companies in the global value chain (SME Masterplan, 2012). This integration will require the SMEs to comply with environmentally- and socially- friendly practices of the global supply chain (Anderson & Skjoett-Larsen, 2009).

The SME Corporation through SME Integrated Plan of Action (SMEPIA) was designed to facilitate coordination of policies, implementation of development programs and monitor as well as evaluate the performance and achievements of SMEs. These are in-line with the SME Masterplan to introduce the outcome-based approach which ensures effective decisions are prioritized based on quantitative assessment. As part of the SME development plan entrusted to elevate SMEs performance, much focus has been targeted to acquire alternative financial assistance besides relying only on traditional bank financing facilities, unlimited access to information for competitive advantage, digitization, entrepreneurship development, and support for start-ups (SME Masterplan, 2012).

The manufacturing SMEs are considering various government initiatives to penetrate from domestic to international markets as currently the majority of the SMEs are engaged in local businesses. Through government initiatives, SMEs can expand, automate, export, and establish more startups.

2.2. The Internationalization and Participation of Malaysian Manufacturing SMEs in the Global Supply Chain

Since 1980, SMEs started to trade internationally to attain the same benefits that MNCs had been achieving through international businesses that include sales growth, competitive advantage, and strengthening their capabilities (Wilson, 2007). The enabling factors for Malaysian SMEs to gain into international markets are through the development of information technology and the removal of international trade restrictions (Abdullah et al., 2011).

Malaysia has been categorized as one of the most open economies of the world, with a trade to GDP ratio of 130% over a period from 2014 to 2018 compared to other developing countries in East Asia and the Pacific (EPU, 2016). Malaysia with a relatively small population of 32 million, limits the size of the domestic market, therefore firms have to exploit international markets to increase export performance to accomplish sustainability (EPU, 2016).

The SME Masterplan emphasizes internationalization in the exports, by leveraging the Asian Economic Community (AEC), Free Trade Agreement (FTAs), the Trans-Pacific Partnership Agreement (TPPA) which opens new doors for the market opportunity (SME Annual Report, 2015/16), encouraging smart partnership between SMEs and MNCs to venture into frontier products and gain access to export markets (EPU, 2006). Malaysia has implemented seven bilateral FTAs and six regional FTAs (MITI Report, 2018).

In 2018, Malaysia's SMEs exports grew by 3.4% to RM171.9 billion as compared to 7.2% in 2017 amounting to RM166.2 billion (DOSM, 2019). The manufacturing SMEs accounted for 5.1% of Malaysia's GDP and 48.3 % of the total SMEs exports in 2018. The largest contributors were beverages & tobacco, chemicals, manufactured goods, and miscellaneous manufactured articles. The principal export destinations were Singapore (18.6%), China (8.9%), and the United States (7.8%) (DOSM, 2019).

In 2010, ASEAN and China established the ASEAN-China Free Trade Area (ACAFTA) to create the world's largest free-trade zone with the focus of increasing trade and investment flows between the ASEAN countries and China (MITI, 2009). These create the opportunity for the participation of Malaysian Manufacturing SMEs in the global value chain. In the 'One Belt, One Road' (OBOR) initiative, Malaysia will benefit from the orderly free-flow of economic factors and efficient allocation of resources while considering market integration and the creation of regional economic cooperation with

countries along the proposed routes (Hongkong Trade Development Council, 2019). The BRI initiative is projected to contribute to the region's GDP growth by 80% by 2050 (Lau,2017).

At presently, many firms have begun to identify that competition arise between supply chains network rather individual firms (Li et al., 2005;Koh et al., 2007) and SCM is one of the effective tools used to secure competitive advantage (Li et al., 2005; Ketchen et al,2008).The Third Industrial Masterplan for the period of 2006-2020 highlights SMEs towards economic integration regionally and globally to improve the country's competitiveness and to position Malaysia as a major manufacturing hub and service provider in the global supply chain (MITI, 2006).

An average of 20% of the total products and services were sold abroad and mostly were first-time exporters (SME Annual Report, 2017). SMEs should continue to intensify their export market by introducing new products, diversifying into new markets, building networking with people in the targeted export market as well as product customization to meet market standards and regulations (SME Corp. Malaysia, 2017). SMEs can achieve these by formulating a more competitive strategy that aims to provide the firm with a strong competitive advantage that is not possible to replicate by competitors (Heywood & Kenley, 2007) and enables a firm to be an industry leader as well as embracing new technologies for manufacturing products that are market-driven (Hamel &Prahalad, 1994).

2.3. The Challenges Faced by the Malaysian SMEs

Supply chain integration has been recognized widely by many established firms globally but yet to be exploited by Malaysian SMEs (Sayuti, 2007). The majority of the SMEs in Malaysia are insufficient knowledge of practicing effective SCM concepts (UPS, 2008; Rahman et al., 2011). One of the solutions to address global challenges is to emphasize collaboration (Lee et al, 2019) and SCM prioritizes exploring and measuring collaboration attributes, processes and performance benefited from such efforts are mostly focusing in foreign countries (Mohammad, 2012). SMEs face tremendous pressure, therefore to enhance competitiveness is through networking and forming strategic alliances (Saleh &Ndubisi, 2006).

The rationale for Malaysian firms to invest in the overseas market varies (Tham, 2006; Zain &Eng, 2006)and the key motivating factors for firms are to expand and find new markets for growth (Ragayah, 1999). Several reasons impacting the push and pull factors including market comprising of market-seeking, asset-seeking, resource-seeking motives (Nachum&Zaheer, 2005). Trading in the international market is challenging, therefore to sustain global competition, the Malaysian manufacturing SMEs must be proactive to transform their operation based on the pull factors of advances in technology, increased productivity, and linkages (Salazer et al.,2011). The important pull factor for manufacturing SMEs is through trade liberalization, lower transaction costs, lower labour cost, and increased revenues. The push factor has resulted from the limited size and the intense foreign competition threats in the domestic market.

The challenges encountered by the Malaysian SMEs comprise issues relating to the adoption of innovation and technology, financing, legal and regulation, quality of the human capital, market, and infrastructure (SME Corporation, 2012). Policies that facilitate participation in the global value chain have weaknesses such as multiplicity of objectives, poor coordination, and weak evaluation (Asian Development Bank, 2009). Malaysian SMEs are facing threats from other low-cost production countries like Laos, Myanmar, Cambodia, and Vietnam as many MNCs are taking advantage by moving their operations to these locations to benefit from labour costs.

In Malaysia, most of the SMEs are either at the level of Industry 2.0 and 3.0 (Malay Mail,2019). The ICT adoption rate within SMEs in Malaysia is at 20% and most manufacturing firms apply less than 50% of automation (Abdul Yatid,2019). Malaysian SMEs have to embrace IR 4.0 technologies and development capabilities for competing with larger firms (Jacobs,2017). SMEs face problems of talent management, culture, lack of awareness, and education (Abdul Yatid, 2019). Malaysian SMEs must take opportunities to adopt smart industrial technologies to be more competitive to be integrated and recognized by many established firms globally (Sayuti, 2007).

2.4. Pertinent Prior Research

Much prior studies have been conducted on the Malaysian manufacturing SMEs to expand exports from domestic to the global market as well as barriers they face from various directions. Studies found that SMEs are challenged by financial and non-financial constraints besides management skills (Salikin, Wahab& Muhammad, 2014) as well as trading of products and services that hinders SMEs' success and growth as well as contribution to the national economy (Scheers, 2001; Arasti et al., 2014)

Findings by Tan (2008) revealed that Manufacturing SMEs experienced difficulties in competing in economic circumstances. And, this requires them to obtain adequate global business skills, mastering languages, moving up the value chain, enhance management practices that allow the business success of manufacturing SMEs who would then venture into the global market.

Prior research has suggested that there is the enormous economic potential of IR4.0 but, SMEs remain relatively unaware to deal with the disruptions, be more resilient, and embrace the rate of changes as an opportunity especially transforming into more advanced manufacturing processes (The &Kee, 2019).

Literature has shown that the Malaysian SMEs have a great failure and low survival rate (Chong, 2012) and ICT had a positive impact on business performance besides human resource and market orientation (Abdullah and Rosli,2015). Lack of knowledge to locate foreign opportunities and promising markets is perceived to be a major barrier in exporting SMEs in developing countries (Agyei-Mensah, 2010). SMEs must adopt appropriate competitive strategies to be able to survive the competition in the global market place (Rosli, 2012).

Findings from Ridzwan, Ab Rahman, Nik Muhammad, (2017) states that identifying the abilities of young entrepreneurs to utilize resources leading to the development of new tools to improve innovations and tools for government to develop new policies to support economic growth and sustainability. The reasons for internationalization, the mode of entry used, and the reason for non-internationalization among firms have no international activities (Abdullah and Zain, 2011).

The development of entrepreneurship emphasizing technology in most of the new entrepreneurial businesses (Abdullah and Muhammed, 2005). The choice of the business strategy of focus, differentiation, and niche have a favourable impact on financial performances (Hashim, 2000). Family ownership structure and performance of the manufacturing SMEs related to the implementation of IR 4.0 revealed that firms are more inclined to traditional production methods (Umrani&Johl, 2018).

However, there was a limited study conducted on the strategies adopted by Malaysian manufacturing SMEs to take advantage of the IR 4.0 technologies for corporate sustainability.

3. Research Methodology

Mixed method research of approaches was undertaken. The combination of both approaches serves to build on the strength of each approach to counteract the weaknesses of the other (Onwuequzie & Leech, 2004; Steckler et al., 1992).

Guided by this, the study adopted a combination of qualitative and quantitative approaches. The data collection tools for the qualitative stage were literature review and personal interviews, involving 12 participants. Four research propositions were crafted by the literature were tested using a web survey involving 105 participants.

3.1. Salient Findings

Content analysis was conducted to identify themes and findings from the secondary data collected from the literature review and personal interviews. Descriptive statistics were used to analyze the survey data. The salient findings are outlined and these are related to the implications of IR 4.0, the challenges faced by the Malaysian manufacturing SMEs for adopting IR 4.0, and the adequacy of the Government policies to support Malaysian manufacturing SMEs to adopt IR 4.0 for global competitiveness.

3.2. The implications of IR 4.0 on the Exporting Malaysian Manufacturing SMEs

The literature revealed that the overall landscape of the global economy has evolved over the years as a result of globalization and the digital revolution. SMEs play a role as the engine of growth of the nation as well as job creation. The interview participants concurred that the adoption of IR 4.0 technologies generates a wide range of opportunities for Malaysian manufacturing SMEs. IR 4.0 creates opportunities to transform the manufacturing value chain from increased production efficiency to innovative products and service deployment. While keeping productivity at the highest, sustainable business practices can be achieved for corporate sustainability. Thus, creating more sustainable patterns of production and consumption would promote SMEs to a circular economy in the future in line with the aim of Malaysia to become an inclusive and sustainable nation.

However, the manufacturing SMEs must be well equipped with emerging trends, knowledge, resources, business networking, innovation strategies, and skillsets to successfully sustain intense global competition. The adoption of IR 4.0 will provide opportunities to firms to compete and move to a higher tiered supplier in the global value chain. The outcome of the web survey concluded that the IR 4.0 will create a positive impact on the export prospect by way of increased participation in the global supply chain and allows SMEs to access new technologies and upgrade technology through an international network. This suggests more personalized products and mass customization. The ability of IR 4.0 technologies such as data analytics, IoT, cloud computing, and other disruptive technology will enable SMEs to succeed in extreme competitions in the global markets and increase market share.

3.3. The Challenges Faced by the Malaysia Manufacturing SMEs for Adopting IR 4.0

THE ICT adoption rate within the SMEs in Malaysia is low and the application of automation within manufacturing firms is less than 50%. Therefore, the manufacturing SMEs are positioned between 2.0 and 3.0. Literature also revealed that SMEs face problems of funding, talent management, culture, lack of awareness, and global mindset.

The interview and web survey responses concluded that SMEs face several operation management challenges when business processes are integrated with technology to improve productivity and export performance. Many SMEs are family-owned businesses and are reluctant to transform and take the opportunity to develop their brands. Funding is the key aspect that hinders SMEs from technology investment. Implementing IR 4.0 solutions like cloud computing, artificial intelligence, and IoT requires huge costs of hiring and training. Therefore, many SMEs have outsourced rather than growing and preserving their organizational knowledge.

This outcome draws attention to the manufacturing SMEs to adopt appropriate strategies to successfully embrace IR 4.0 and integrate business practices including access to funding, technological infrastructure, and innovation, hiring of experts with a global orientation to manage and support technology adoption programs to grow export markets as well as build network linkages. A change management approach is important to cultivate technology adoption culture, leadership style as well as organizational resistance. Sustainable practices are still at an infancy stage among SMEs in Malaysia. To comply with the United Nations trade and sustainable development practices, SMEs have to proceed with certifications following the global environment pre-conditions besides, domestic certification. These are important to expand trade and participate in the global value chain for corporate sustainability.

3.4. The Adequacy of the Government Policies to Support Malaysian Manufacturing SMEs to Adopt IR 4.0 for Global Competitiveness

The literature revealed that the Malaysian government has a broad policy framework that is aimed at recognizing the importance and encouraging SMEs to participate in domestic and international trading to increase their export performance. The policies at large are related to the availability of funds, marketing, consultation, and information and communication services.

The personal interview participants responded that government support policies to adopt IR 4.0 are at an infancy stage. The participants suggested that comprehensive steps such as talent development with targeted upskilling and reskilling to fulfil the shortage of IR 4.0 talents should be prioritized, a review of foreign labour policies in the domain of IR 4.0 could expedite the hiring of experts to speed-up technology adoption programs for export-ready SMEs to participate in global trade without delays, streamlining and optimizing resources to avoid duplication across Government agencies as well as promoting growth for various sectors instead of restriction on certain sectors within the SMEs. Adopting IR 4.0 sustainable business practices to penetrate new export markets as more developed markets have such pre-condition.

The findings of the web survey suggested that the Government should have better access to financial support and tax incentives as IR 4.0 technology adoption programs are costly. To have a global mindset, SMEs must be exposed via training to understand and equip with knowledge, technology trends, and business networks to sustain global competition.

4. Conclusion and Recommendations

This paper examined the appropriate strategies for the Malaysian manufacturing SMEs for corporate sustainability in the context of IR 4.0. The findings revealed that while manufacturing SMEs adopt and leverage IR 4.0 solutions to strengthen their involvements in export orientation, SMEs have to overcome several barriers to successfully adopt IR 4.0 technologies to gain entry into global markets to increase export performance. SMEs have to

The government support programs focus on developing and sustaining the competitiveness of Malaysian manufacturing SMEs. However, more policy support is required, including tax incentives for the development of smart manufacturing systems and advocate a circular economy. On the contrary, Malaysian manufacturing SMEs have to implement effective strategies to adopt IR 4.0 technologies to increase export performance within the existing market as well as venturing into new export markets. Therefore, the manufacturing SMEs have to realign their business strategy and IR 4.0 technology adoption strategy to seek corporate sustainability.

5. References

- i. Arasti, Z, Zandi, F & Bahmani, N. (2014), 'Business failure factors in Iranian SMEs: Do successful and unsuccessful entrepreneurs have different viewpoints?', *Journal of Global Entrepreneurship Research*, vol. 4 (1), pp. 1-14.
- ii. Abdullah, N. & Zain. S. (2011). The Internationalization Theory and Malaysian Small Medium Enterprises (SMEs). *International Journal of Trade, Economics, and Finance*, Vol. 2, No. 4.
- iii. Steckler, AB. & Mcleroy, Kenneth & Goodman, R & Bird, S & McCormick, Laura. (1992). Toward Integrating Qualitative and Quantitative Methods: An Introduction. *Health education quarterly*. 19. 1-8. 10.1177.
- iv. Abdullah, N., & Rosli, N. F. (2015). An Evaluation on Determinants of SMEs Performance in Malaysia. *South East Asia Journal of Contemporary Business, Economics, and Law*, 7(2), 16-23. Retrieved from http://seajbel.com/wp-content/uploads/2015/09/KLIBEL7_Bus-16.pdf
- v. Ahmad, N. H., & Seet, P. S. (2009). Dissecting behaviours associated with business failure: A qualitative study of SME owners in Malaysia and Australia. *Asian Social Science*, 5(9), 98-104.
- vi. Abdul Yatid, Moonyati. Why is digital adoption by SMEs not taking off? Reported in the *New Straits Times*. January 24, 2019. Retrieved from <https://www.nst.com.my/opinion/columnists/2019/01/453789/why-digital-adoption-smes-not-taking>
- vii. Asian Development Bank (2017). Integrating SMEs into Global Value Chains: Risks, Challenges, and Opportunities. Retrieved from <https://www.adb.org/news/events/integrating-smes-global-value-chains-risks-challenges-opportunities>.
- viii. Agyei-Mensah BK. Financial management practices of small firms in Ghana: An empirical study. 2010.
- ix. Abdullah, Syahida & Muhammad, Amran. (2008). The Development of Entrepreneurship in Malaysia: State-led Initiatives. *Asian Journal of Technology Innovation - ASIAN J TECHNOL INNOV*. 16. 101-116.
- x. Andersen, Mette & Skjoett-Larsen, Tage. (2009). Corporate social responsibility in global supply chains. *Supply Chain Management: An International Journal*. 14. 75-86.
- xi. Bannock, G. (1981). *The Economics of Small Firms: Return from the Wilderness*. Blackwell, Oxford.
- xii. Chong, W. T. (2012). Critical success factors for small and medium enterprises: perceptions of entrepreneurs in urban Malaysia. *Journal of Business and Policy Research*, 7(4), 204-215.
- xiii. Department of Statistics Malaysia. (2017). Small and Medium Enterprise Gross Domestic Product 2016. Release Date: 21 September 2017.
- xiv. Department of Statistics Malaysian. (2019). Small and Medium Enterprise Gross Domestic Product 2018. Release Date: 31 July 2019.
- xv. Economic Planning Unit. (2006). *The Ninth Malaysia Plan, 2006-2010*. Kuala Lumpur: Prime Ministers Department. 2006.
- xvi. Economic Planning Unit. (2016). *The Eleventh Malaysia Plan, 2016- 2020*. Kuala Lumpur: Prime Ministers Department.

- xvii. Hamel, G. & Prahalad, C.K. (1994) *Competing for the Future*, Boston: Harvard Business School Press.
- xviii. Hamidi, S. R., Aziz, A. A., Shuhidan, S. M., Aziz, A. A., & Mokhsin, M. (2018, March). SMEs maturity model assessment of IR4.0 digital transformation. In *International Conference on Kansei Engineering & Emotion Research* (pp. 721-732). Springer, Singapore.
- xix. Hashim, M.K. (2000). Business strategy and performance in Malaysian SMEs: A recent survey. *Malaysian Management Review*, 35(2), 1-10.
- xx. Hong Kong Trade Development Council (2019). *The Belt and Road Initiatives*.
- xxi. Retrieved from <https://research.hktdc.com/en/article/MzYzMDAyOTg5>
- xxii. Heywood, C & Kenley, R. (2008). The Sustainable Competitive Advantage Model for Real Estate. *Journal of Corporate Estate*, (10).2, pp.85-109.
- xxiii. Jacobs, Jennifer. The opportunity and threat of industry 4.0. Reported in *The Edge Markets*. July 12th, 2017. Retrieved from <https://www.theedgemarkets.com/article/opportunity-and-threat-industry-40>
- xxiv. Liew, J.T. Cover Story: Budget 2020: SME digitization the main focus. Reported in *The Edge Markets*. October 24th, 2019. Retrieved from <https://www.theedgemarkets.com/article/cover-story-budget-2020-sme-digitalisation-main-focus>
- xxv. Ketchen, D. J. Jr., Rebarick, W., Hult, G. T. M., & Meyer, D. (2008). Best value supply chains: A key competitive weapon for the 21st century. *Business Horizons*, 51, 235 - 243.
- xxvi. Kearney, A. (2018). *Readiness for the Future of Production Report 2018*. Retrieved from http://www3.weforum.org/docs/FOP_Readiness_Report_2018.pdf
- xxvii. Koh, S. C. L., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems*, 107(1), 103 - 124.
- xxviii. Lau, Rachel. China's Belt and Road: What's in it for Malaysia? Reported in *the Borneo Post*. September 03, 2017. Retrieved from <https://www.theborneopost.com/2017/09/03/chinas-belt-and-road-whats-in-it-for-malaysia/>
- xxix. Labour force statistics, Malaysia, January 2016. Department of Statistics, Malaysia. Release date 25 March 2016. Retrieved from [https://www.dosm.gov.my/v1/uploads/files/Statistik%20Tenaga%20Buruh,%20Malaysia,%20Januari%202016%20\(Website\)\(1\).pdf](https://www.dosm.gov.my/v1/uploads/files/Statistik%20Tenaga%20Buruh,%20Malaysia,%20Januari%202016%20(Website)(1).pdf)
- xxx. Lee W.Y., Tan S.T., Sorooshian S. (2019). *Manufacturing, Malaysia, Pairwise comparison, Main impacts, Flexibility*. E-ISSN: 2224-2899. 355. Volume 16, 2019.
- xxxi. Li, S., Subba Rao, S., Ragu-Nathan, T. S., & Ragu-Nathan, B. (2005). Development and validation of a measurement instrument for studying supply chain management practices. *Journal of Operations Management*, 23, 618 - 641.
- xxxii. Malay Mail. 2019. Mida consistent in assisting SMEs embrace industry 4.0. Reported in *the Malay Mail*. August 02, 2019. Retrieved from <https://www.malaymail.com/news/money/2019/08/02/mida-consistent-in-assisting-smes-embrace-industry-4.0/1776971>
- xxxiii. Mohammad, A. A. F. (2012). Sizing up Malaysia's manufacturing SMEs-definitional implications. *Journal of Statistical Modeling and Analytics*, 3(1), 37-45.
- xxxiv. MITI. (2018). *MITI Report 2018*. Released in June 2019. Retrieved from: https://www.miti.gov.my/miti/resources/MITI%20Report/MITI_Report_2018.pdf
- xxxv. MITI. (2009). *Malaysia International Trade and Industry Report 2008*. Kuala Lumpur.
- xxxvi. MITI (2006). *IMP 3 Third Industrial Master Plan 2006-2020: Malaysia Towards Global Competitiveness*. Kuala Lumpur, Ministry of International Trade and Industry
- xxxvii. Nachum, L., & Zaheer, S. (2005). The persistence of distance? The impact of technology on MNE motivations for foreign investment. *Strategic Management Journal*, 26(8), 747-767.
- xxxviii. Omar S S., Arokiasamy L., & Ismail S S. (2009). The background and challenges faced by the Small Medium Enterprises: A Human Resource Development Perspective. *International Journal of Business and Management*, 4(10), 95-102.
- xxxix. Onwuegbuzie, A. J., & Leech, N. L. (2004). Enhancing the Interpretation of Significant Findings: The Role of Mixed Methods Research. *The Qualitative Report*, 9(4), 770-792. Retrieved from <https://nsuworks.nova.edu/tqr/vol9/iss4/10>
- xl. Ragayah, M. Z. (1999). Malaysian reverse investments: trends and strategies. *Asia Pacific Journal of Management* 16(3).469-496.
- xli. Razak, R, A (2011). Entrepreneurial orientation as a universal Remedy for the Receding Productivity in Malaysian Small and Medium Enterprises: A Theoretical Perspective. *International Journal of Business and Social Science*, Vol. 2 No 19.
- xlii. Rahman, M. N. A., Wasilan, H., Deros, B. M., & Ghani, J. A. (2011). Barriers of SCM in SMEs. *Applied Mechanics and Materials*, 44 - 47, 3997 - 4001.
- xliii. Rosli, M. M. (2012). Competitive strategy of Malaysian Small and Medium Enterprises: An exploratory investigation. *American International Journal of Contemporary Research*, 2(1), 96-105.
- xliv. Ridzwan, Rikinorhakis & Muhammad, Nik & Ab Rahman, Anis. (2017). Issues and Challenges among Young Entrepreneurs in Malaysia. *IOSR Journal of Business and Management*. 19. 80-84. 10.9790/487X-1903028084.
- xlv. Salazar, Ronald & Wang, Jifu & Oswald, Sharon. (2011). A Model for Technology Adoption in China: Extending Caselli And Coleman. *Journal of Applied Business Research*. 27. 79-90.10.19030/jabr.v27i4.4658.
- xlvi. Saleh, A. S., & Ndubisi, N. O. (2006). An evaluation of SME development in Malaysia. *International Review of Business Research Papers*, 2(1), 1-14.

- xlvi. Salikin, N, Wahab, N & Muhammad, I (2014), 'Strengths and Weaknesses among Malaysian SMEs: Financial Management Perspectives', *Procedia-Social and Behavioral Sciences*, 129, pp. 334-340.
- xlviii. Sayuti, N. M. (2007). Exploiting Organizational Capabilities for Successful Supply Chain Integration: Challenges for Malaysian SME. The 4th SMEs in a Global Economy Conference Shah Alam, UiTM.
- xliv. Scheers LV. SMEs marketing skills challenges in South Africa. *African Journal of Business Management*. 2011; 5(13), 5048-5056.
- i. SME Corporation (2018). SME Annual Report 2017/18 - A Connected World: Digitalizing SMEs. Retrieved from http://www.smeCorp.gov.my/index.php/en/?option=com_content&view=article&layout=edit&id=3342
- ii. SME Corporation Malaysia & Huawei Technologies (M) Sdn. Bhd. (2018). Accelerating Malaysian Digital SMEs: Escaping the Computerisation Trap. Retrieved from <https://www.huawei.com/minisite/accelerating-malaysia-digital-smes/img/sme-corp-malaysia-huawei.pdf>
- iii. SME Corporation Malaysia (2015). SME Annual Report (2015/16). Kuala Lumpur
- liii. SME Corporation Malaysia (2017). SME Annual Report 2016/2017.
- liv. Retrieved from: <http://www.smeCorp.gov.my/index.php/en/laporan-tahunan/2150-sme-annual-report-2016-17>
- lv. SME Corporation Malaysia. Economic Census 2016: Profile of SMEs. 29 September 2017. Retrieved from: https://www.smeCorp.gov.my/images/SMEAR/latest/2/Census%20English_FINAL.pdf
- lvi. SME Corporation Malaysia (2012). SME Master Plan 2012 - 2020. Kuala Lumpur. Retrieved from: [http://www.smeCorp.gov.my/vn2/sites/default/files/SME%20Masterplan%202012-2020%20\(booklet\)_0_0.Pdf](http://www.smeCorp.gov.my/vn2/sites/default/files/SME%20Masterplan%202012-2020%20(booklet)_0_0.Pdf)
- lvii. Tan, L. L. (2008). The Internationalization of Malaysian Manufacturing Small and Medium Enterprises. Southern Cross University.
- lviii. Tech Wire Asia. 2019. Why Malaysian SMEs are Struggling with Industry 4.0? August 21st, 2019. Retrieved from <https://techwireasia.com/2019/08/why-malaysian-smes-are-struggling-with-industry-4-0/>
- lix. Teh, S. S. and Kee, D. M. H., The Readiness of Small and Medium Enterprises for the Industrial Revolution 4.0 (December 31, 2019). *Global J. Bus. Soc. Sci. Review* 7 (4) 217 - 223 (2019).
- lx. Tham S. Y. (2006). 'Outward foreign direct investment from Malaysia: trends, patterns and policy issues'. Paper presented at the ASEAN-UNCTAD seminar, 'Key Issues of FDI: Outward FDI from Asia.' Chiang Mai, 10 April 2006.
- lxi. Umrani, AI, Johl, SK & Ibrahim, MY. (2015). Corporate Governance practices and problems faced by SMEs in Malaysia. *Global Business and Management Research: An International Journal*, 7(2), 71-77.
- lxii. UPS United Parcel Services (2008). UPS Reveals Asia Business Monitor Survey Findings. Available At: <http://www.ups.com>.
- lxiii. Wilson K. (2007), 'Promoting Entrepreneurship in South East Europe Policies and Tools', Organization for Economic Co-operation and Development. Pp. 43-66.
- lxiv. Zain, Mohamed & Ng, Siew. (2006). The Impacts of Network Relationships on SMEs' Internationalization Process. *Thunderbird International Business Review*. 48. 183-206.