Volume: 4 Issues: 19 [June, 2019] pp.01 - 12]
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com

A PRELIMINARY STUDY TO UNDERSTAND THE SMES' READINESS ON IOT IN MALAYSIA

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Accepted date: 23-03-2019
Published date: 20-06-2019

To cite this document: Zaidi, M.F.A., & Belal, H.M. (2019). A Preliminary Study to Understand the SMEs' Readiness on IoT in Malaysia. *International Journal of Accounting, Finance and Business (IJAFB)*, 4(19), 01 - 12.

Abstract: *IR4.0 is the fourth industrial revolution that has started to take effects on the current domain of production systems. It was caused by the advancement of digitalization systems and integration with IoT, and smart objects. Due to changing nature of technology, the new source of capabilities will emerge, while the existing one will become irrelevant for sustaining competitive advantage. As a result, firms worldwide including SMEs have left without many options, but to prepare and get ready with the change. As a part of major pillars of technological advancement that make happens the IR4.0, this study is focusing on the issues on IoT readiness among SMEs in Malaysia. The data was collected from the SMEs and descriptively analyzed with the SPSS v.20 statistical package. The findings have suggested the respondents are quite optimism with the benefits of IoT, but lacking of innovativeness to pioneer the introduction. In addition, although the respondents do not feel discomfort with IoT, they do seem undecided either to trust it or not. It was also found that top managements feel more optimism with IoT, but at the same time also feel more insecure with it. With these findings, it was suggested that the SMEs need more information and training to increase their knowledge for successful adoption of IoT in Malaysia. A few suggestions to improve the respondents' awareness on IoT and the readiness level are also highlighted.*

Keywords: *Industry 4.0, Internet of Things, Small and Medium Enterprises, Technology Adoption, Technology Readiness*

Introduction

The introduction of Industry 4.0 (IR4.0) is synonymous with the fourth industrial revolution in the domain of production systems (Schröder, 2016). This current industrial revolution is being observed through the paradigm shift from widespread digitalization of production, e.g., programmable logic controller (which is characterizing Industry 3.0) to advanced digitalization systems integration with the Internet of Things (IoT) and smart objects, which enabling the products to determine their own production processes (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). According to *Merriam-Webster* online dictionary, revolution refers to "a

sudden, radical, or complete change" or "a changeover in use or preference especially in technology". In a similar fashion, *Cambridge Dictionary* defines revolution as "a very important change in the way that people do things". Meanwhile, *Oxford Dictionaries* defines revolution as "a dramatic and wide-reaching change in conditions, attitudes, or operation". One thing obvious about these definitions is that revolution connotes change. In the context of industrial production, this means firms must change the way they produce products and deliver services to the customers. As a result, firms must realign their existing capabilities with the needs of industrial revolution in order to remain competitive. This implies the firms have to change the nature of their existing technological capabilities to get ready with IR4.0.

The foundation of IR4.0 is based on nine pillars of technological advancement consisting of autonomous robots, simulation, system integration, IoT, cybersecurity, cloud computing, additive manufacturing, augmented reality, and big data analytics (Rüßmann, et. al., 2015). Apparently, IR4.0 is only introduced after these enabling technologies (the nine pillars) have been created. For instance, IR4.0 phenomenon was first mentioned in Germany in 2011 (Roblek, Meško, & Krapež, 2016), but the term IoT was first coined in 1999 (Gubbi, Buyya, Marusic, & Palaniswami, 2013), the term big data has been in used since mid-1990s (Diebold, 2012), while the early concept of cloud computing was originated in 1960s (Timmermans, Stahl, Ikonen, & Bozdag, 2010). Ironically, IR4.0 that is enabled by the early innovation of the nine technologies was criticized as not yet the fourth industrial revolution[1]. Moreover, there is no clear-cut definition for IR4.0 at the time-being (Schröder, 2016). Regardless of the criticism, one thing for sure is that this new innovative production system will significantly impact how firms doing business in future. As a small step to understand IR4.0 in progress, this study will pay a special attention on IoT issues in the context of SMEs in Malaysia. For this reason, the objective of this preliminary study is to understand the IoT readiness of SMEs in Malaysia.

IoT and SMEs in Malaysia

IoT "comprises an evolving array of technologies that extend the idea of instantaneous connectivity beyond computers, smartphones, and tablets to everyday objects such as home appliances, cars, and medical devices" (Poudel, 2016, p. 997). Hence, IoT enables "intelligent interactivity between human and things to exchange information and knowledge for new value creation" (MIMOS, 2014, p. 2-01). The need to study IoT on SMEs is crucial since a previous research has suggested 70% of respondents among SMEs in develop countries utilizing IoT for improving current products, 52% for developing new service-based business models, 42% for reducing operational cost or increase efficiency, and 32% for improving the firm's image (Lueth, Glienke, & Williams, 2017). Just like any firms around the world, the small and medium enterprises (SMEs) that comprising 97.3% of total business establishments in Malaysia[2] are no exception from the implications of IR4.0. No matter how the SMEs will react to this radical technological change, with fewer options in hand, they must transform themselves towards IR4.0 sooner or later. This must be done since the existing source of capabilities will become obsolete and therefore insufficient to sustain competitive advantage under new emerging industry standards. As a result, Malaysia should focus on IoT to create new technology for the future growth of local companies.

[1] *http://www.slate.com/articles/technology/future_tense/2016/01/the_world_economic_forum_is_wrong_this_isn_t_the_fourth_industrial_revolution.html*

[2] *http://www.smecorp.gov.my/index.php/en/policies/2015-12-21-09-16-12/about-sme-masterplan*

In fact, the government of Malaysia is aware of the potential effects of IR4.0, which has recently committed to allocate MYR 245 million in term of matching grant to improve smart manufacturing, which was announced during 2018 budget presentation by the Minister of Finance Malaysia[3]. Despite of that, Malaysia is claimed to be slow in responding to IR4.0[4]. Meanwhile, as one of major components of IR4.0, IoT has been given special attention by the government of Malaysia with the introduction of National IoT Strategic Roadmap in 2014. Furthermore, a recent study has proposed that IoT can improve value co-creation, while at the same time reduce value co-destruction on firm performance (Zaidi & Belal, 2018). However, the SMEs may be hesitated to invest, equip, and transform themselves with the relevant IoT technologies for the reason that Malaysia is a technology-follower (Nordin & Omar, 2012). Hence, it is worthwhile to investigate the IoT readiness of SMEs due to the current development in Malaysia (Zaidi, 2017). For these reasons, this study aims to investigate the IoT readiness of SMEs in Malaysia, and for a start a simple survey will be organized to understand the readiness issues before pursuing a major study in the future.

Technology Readiness

Technology readiness is originally defined as the "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work" (Parasuraman, 2000, p. 308). For the purpose of this study, technology readiness is defined as the SMEs' propensity to embrace and use IoT for accomplishing goals at work, which is measured with the Technology Readiness Index (TRI). TRI is treated as an alternative version of Technology Acceptance Model (TAM) that is originally designed to explain user acceptance on new technology, i.e., information systems. TRI has also been integrated with TAM suggesting that the level of technology readiness does relate to the level of technology acceptance, where both are important to understand technology adoption (e.g., Hallikainen & Laukkanen, 2016). For this study, the focus will be directed to TRI only as the readiness is the prerequisite of technology acceptance. In addition, knowing the level of readiness is the first critical step to understand users' acceptance on new technology (e.g., Lin & Chang, 2011).

In principles, TRI enables researchers to identify a set of motivators and inhibitors to embrace and use new technologies. TRI allows the analysis to be further classified into four dimensions, in which optimism and innovativeness are for motivators, and discomfort and insecurity for inhibitors. TRI also enables the respondents on each dimension to be grouped into five useful segments related to technology – skeptics, explorers (early adaptor), avoiders (laggard), pioneers, and hesitators. For instance, the explorers will need minimal help to mastering new technologies, while the skeptics must be provided with concrete reasons for adopting new technologies. As such, TRI will produce very rich information on the level of technology readiness. Due to several revolutionary technologies in the recent years, such as high-speed internet connectivity, mobile commerce, and cloud computing, TRI 2.0 was introduced as to update and streamline the measures from the original TRI (Parasuraman & Colby, 2015). Despite of more advantages over the original TRI, such as wider applications, more refined, and less burden to respondents, studies that have applied TRI 2.0 are currently very low (Zaidi, 2017). However, in the context of the fourth industrial revolution, it is timely relevant to use TRI 2.0 to investigate the IoT readiness of SMEs in Malaysia. Table 1 summarizes the natures of IoT readiness, its dimensions, definitions, and the measuring items for this study, adapted from TRI 2.0.

[3] *http://www.parlimen.gov.my/files/hindex/pdf/DR-27102017.pdf*
[4] *http://www.theedgemarkets.com/article/malaysias-industry-40-initiative-slow-uptake*

Table 1: IoT Readiness with TRI 2.0

Natures	Dimensions	Definitions	Measuring Items
Motivators	Optimism	A positive view of IoT and a belief that it offers people increased control, flexibility, and efficiency in their working lives	▪ In my opinion, IoT will contribute to a better quality of working life ▪ In my opinion, IoT will give me more freedom of mobility at work ▪ In my opinion, IoT will give me more control over my daily activities at work ▪ In my opinion, IoT will make me more productive in my working life
	Innovativeness	A tendency to be an IoT pioneer and thought leader	▪ In my opinion, other people will come to me for advice on IoT at work ▪ In my opinion, I will be among the first in my circle of friends to acquire IoT when it appears ▪ In my opinion, I can figure out IoT products and services without help from others ▪ In my opinion, I can keep up with the latest IoT developments in my areas of interest
Inhibitors	Discomfort	A perceived lack of control over IoT and a feeling of being overwhelmed by it	▪ In my opinion, if I get technical support from a provider of an IoT product or service, I will sometimes feel as if I am being taken advantage of by someone who knows more than I do ▪ In my opinion, technical support lines will not be helpful to explain IoT in terms that I understand ▪ Sometimes, I think that IoT systems are not designed for use by ordinary people like me ▪ In my opinion, there is no such thing as a manual for IoT product or service that's written in plain language
	Insecurity	A feeling of distrust of IoT, stemming from skepticism about its ability to work properly and concerns about its potential harmful consequences	▪ In my opinion, I will be too dependent on IoT to do things for me at work ▪ In my opinion, too much IoT will distract me to a point that is harmful ▪ In my opinion, IoT will lower the quality of relationships by reducing personal interaction ▪ In my opinion, I will not feel confident doing business with a place that can only be reached by IoT

Based on this table, the following theoretical framework to understand the IoT readiness of SMEs in Malaysia is proposed (see Figure 1).

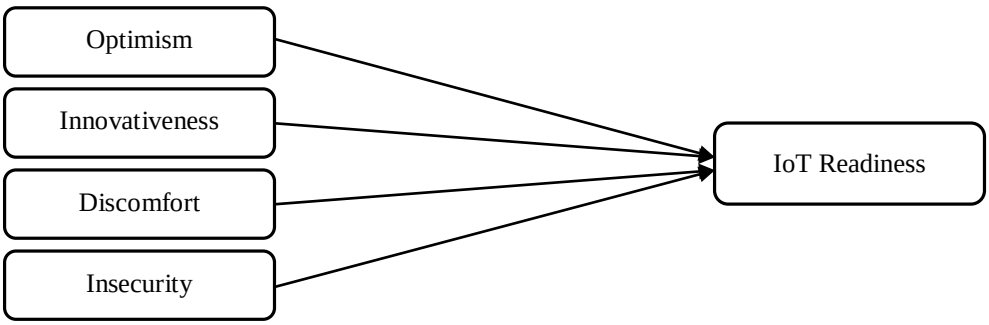

Figure 1: IoT Readiness of SMEs in Malaysia

Research Methodology

A questionnaire comprising of two items addressing the respondent backgrounds and 16 items addressing the IoT readiness with a 5-point Likert-scale from [1] for "strongly disagree" to [5] for "strongly agree" was adapted from TRI 2.0. As to ensure respondents understanding on the survey, all questionnaire forms are attached together with a full page of basics information on IoT and its connection with IR4.0. Due to cost constraints and time limitations, this study has personally distributed the questionnaire in a single two-day SMEs' workshop in Kuala Lumpur, Malaysia on November 2017. All data were recorded and descriptively analyzed with the SPSS v.20 statistical package.

Research Findings

Respondent Background

The survey has received 41.7% of responses from directors, and 27.8% from managers. This study also responded by executives (16.7%), engineers (2.8%), and others, e.g., consultant, trainer, etc. (11.1%). In term of ICT usage, 89.2% of respondents are using email (e.g., Gmail) and mobile messages (e.g., WhatsApp), 86.5% having computer and software at work, 73% with social media (e.g., Facebook), and 45.9% with online business (e.g., Lazada). In general, the statistics have suggested that although the respondents are familiar with the ICT tools, some are still not using any internet webpages to communicate and socialize with the customers, while more than half are yet to adopt the current trends of doing business with online sales. See Table 2 for details.

Table 2: Respondent Background

Respondent Position	**Percentage**
Director	41.7
Manager	27.8
Executive	16.7
Engineer	2.8
Others	11.1
ICT Utilization	**Percentage**
Email	89.2
Mobile Massagers	89.2
Computer & Software	86.5
Social Media	73.0
Online Business	45.9
Others	13.5

Motivator: Optimism

The results on optimism have shown that the respondents were believed that IoT will contribute to a better quality of working life (4.46), give them more freedom of mobility at work (4.41), more control over daily activities at work (4.32), and more productive working life (4.35). Therefore, with the average mean of 4.3851 (between "agree" and "strongly agree"), it can be generally concluded that the respondents have a sufficiently positive view on the IoT and belief that it will offer them increased control, flexibility, and efficiency over their working lives. With this level of optimism, it seems that the respondents are quite motivated and ready to accept IoT with its potentials. See Table 3 for details.

Table 3: Optimism

IoT will contribute to a better quality of working life	**Perc.**	**Mean**
[3] Neutral	10.8	
[4] Agree	32.4	4.46
[5] Strongly Agree	56.8	
IoT will give me more freedom of mobility at work	**Perc.**	**Mean**
[2] Disagree	2.7	
[3] Neutral	8.1	4.41
[4] Agree	35.1	
[5] Strongly Agree	54.1	
IoT will give me more control over daily activities at work	**Perc.**	**Mean**
[2] Disagree	2.7	
[3] Neutral	8.1	4.32
[4] Agree	43.2	
[5] Strongly Agree	45.9	
IoT will make me more productive working life	**Perc.**	**Mean**
[3] Neutral	13.5	
[4] Agree	37.8	4.35
[5] Strongly Agree	48.6	
	Average Mean	**4.3851**

Motivator: Innovativeness

The statistics have suggested that the respondents are somehow "agree" that the others will come to them for advice on IoT at work (3.63), they will be among the first to acquire IoT when it appears (3.41), they can figure out IoT products/services without help from others (3.11), and they can keep up with the latest IoT developments in their areas of interest (3.56). However, with the average mean of just 3.4044 (between "neutral" and "agree"), it can be generally concluded that the respondents motivation still need to be improved in order to become more innovative as their tendency to be the IoT pioneers and thought leaders are just slightly better than average ("neutral"). See Table 4 for details.

Table 4: Innovativeness

Others will come to me for advice on IoT at work	**Perc.**	**Mean**
[2] Disagree	5.7	
[3] Neutral	45.7	3.63
[4] Agree	28.6	
[5] Strongly Agree	20.0	

I will be among the first of my circle to acquire IoT when it appears	Perc.	Mean
[2] Disagree	13.5	
[3] Neutral	43.2	3.41
[4] Agree	32.4	
[5] Strongly Agree	10.8	
I can figure out IoT products/services without help from others	**Perc.**	**Mean**
[1] Strongly Disagree	5.4	
[2] Disagree	29.7	
[3] Neutral	29.7	3.11
[4] Agree	18.9	
[5] Strongly Agree	16.2	
I can keep up with latest IoT developments in my areas of interest	**Perc.**	**Mean**
[2] Disagree	16.7	
[3] Neutral	30.6	3.56
[4] Agree	33.3	
[5] Strongly Agree	19.4	
	Average Mean	**3.4044**

Inhibitor: Discomfort

Based on the findings, the respondents are somehow "disagree" that they will be taken advantage by the IoT service providers when they get technical supports from them (2.89). The respondents also seem to "disagree" that the technical supports will not be helpful to make them understand the IoT better (2.89). Furthermore, they also "disagree" that IoT systems are not designed for the ordinary people like them (2.51). In addition, the respondents also more inclined towards "disagree" on the statement that suggests there is no manual for IoT products/services that is easy to read (2.76). With the average mean of just 2.7635 (between "disagree" and "neutral"), it can be generally concluded that the respondents do not necessarily perceived lacking of control over IoT and feeling being overwhelmed by it, which suggest that they do not seem discomfort with IoT. However, there is no guarantee that their readiness to adopt IoT will not be inhibited by this feeling. See Table 5 for details.

Table 5: Discomfort

If I get technical support from a provider of IoT, I will feel as I am being taken advantage of someone who knows more than I do	Perc.	Mean
[1] Strongly Disagree	18.9	
[2] Disagree	24.3	
[3] Neutral	16.2	2.89
[4] Agree	29.7	
[5] Strongly Agree	10.8	
Technical support line will not be helpful to explain IoT in terms that I understand	**Perc.**	**Mean**
[1] Strongly Disagree	8.1	
[2] Disagree	37.8	
[3] Neutral	24.3	2.89
[4] Agree	16.2	
[5] Strongly Agree	13.5	

I think that IoT systems are not designed for use by ordinary people like me	Perc.	Mean
[1] Strongly Disagree	18.9	
[2] Disagree	35.1	
[3] Neutral	29.7	2.51
[4] Agree	8.1	
[5] Strongly Agree	8.1	
There is no such thing as a manual for IoT product/service that is written in plain language	**Perc.**	**Mean**
[1] Strongly Disagree	13.5	
[2] Disagree	27.0	
[3] Neutral	37.8	2.76
[4] Agree	13.5	
[5] Strongly Agree	8.1	
	Average Mean	**2.7635**

Inhibitor: Insecurity

For the second dimension of inhibitor, the respondents are somehow "agree" that they will become too dependent on IoT to do things at work (3.30), and will lower the quality of relationships by reducing personal interaction (3.27). In contrast, the respondents are somehow "disagree" that IoT will distract them to a point that is harmful (2.81). Meanwhile, the respondents are not quite sure either to feel confident or not to do business that can only be reached by IoT (2.97). In overall, with the average mean of 3.0878 (very close to "neutral"), it can be generally concluded that the respondents are neither feeling distrust nor trust of IoT, stemming from skepticism about its ability to work properly and concerns about its potential harmful consequences (insecurity). See Table 6 for details.

Table 6: Insecurity

I will be too dependent on IoT to do things at work	Perc.	Mean
[1] Strongly Disagree	8.1	
[2] Disagree	5.4	
[3] Neutral	40.5	3.30
[4] Agree	40.5	
[5] Strongly Agree	5.4	
Too much IoT will distract me to a point that is harmful	**Perc.**	**Mean**
[1] Strongly Disagree	16.2	
[2] Disagree	24.3	
[3] Neutral	27.0	2.81
[4] Agree	27.0	
[5] Strongly Agree	5.4	
IoT will lower the quality of relationships by reducing personal interaction	**Perc.**	**Mean**
[1] Strongly Disagree	13.5	
[2] Disagree	16.2	
[3] Neutral	18.9	3.27
[4] Agree	32.4	
[5] Strongly Agree	18.9	

I will not feel confident doing business that is reached only by IoT	Perc.	Mean
[1] Strongly Disagree	18.9	
[2] Disagree	10.8	
[3] Neutral	32.4	2.97
[4] Agree	29.7	
[5] Strongly Agree	8.1	
	Average Mean	**3.0878**

IoT Readiness at Different Management Levels

Although this study is focusing on the individual level of analysis; it appears that the directors (comprising 41.7% of all responses) are representing high level management, while the other respondents (e.g., managers, executives, etc.) are representing both mid and low level managements, which enabling the two groups to be compared and contrasted. As shown in Table 7, the average means of directors on optimism (4.6000) and innovative (3.4615) are relatively higher than the average means of the other respondents. Ironically, the directors are also feeling insecure with IoT (3.2167), while the other respondents do not necessarily feel insecure (2.9048). In addition, the other respondents also do not feel discomfort (2.5595) with IoT more than what the directors do (2.9000).

Table 7: Comparing the IoT Readiness

Natures	Dimensions	Average Mean	
		Directors	The rest
Motivators	Optimism	4.6000	4.2024
	Innovativeness	3.4615	3.2875
Inhibitors	Discomfort	2.9000	2.5595
	Insecurity	3.2167	2.9048

Discussions

It was found that despite of being optimism with IoT where the respondents are generally believed that it will offer benefits in term of increased control, flexibility, and efficiency at workplaces, they are somehow not innovative enough to be the IoT pioneers and thought leaders. Furthermore, the respondents lacking of ability to figure out IoT products/services without help from others implying that their technical knowledge on IoT products/services are currently low. However, the respondents are generally not feeling discomfort with IoT as they are somehow "disagree" that IoT will be out of control and overwhelming them. In term of insecurity, there is no definitive answer for this dimension as the average mean is so close to "neutral" (3.0878). Therefore, it rather hard to tell either IoT is being perceived as harmful and distrust by the respondents. Despite of that, when looking at the individual items of insecurity, the respondents do concern on being too dependent on IoT to do things at work, and also worries that it will lower the quality of their relationship by reducing interpersonal interaction. In a meantime, when comparing the two groups of respondents, it was found that the directors' group is relatively more optimism and innovative than the other group. Ironically, the directors are also relatively feeling more discomfort and insecure with IoT. In summary, with a small number of sample sizes, the results should be applicable to the group of respondents only. Despite of that, the results do provide some fundamental information to trigger future research agenda. Besides that, the results also implying the SMEs should be provided with more training to increase their basics understanding and knowledge on IoT.

Suggestions

First, with a score of 4.3851, optimism has the highest average mean among four dimensions of IoT readiness, including the scores for both groups of directors (4.6000) and the other respondents (4.2024). Therefore, with the score exceeded scale [4] for "agree", there should be no doubt that the respondents do realize and acknowledge the potential benefits of IoT. This means that the respondents are well informed about the possible effects of IoT to their business. This also implies that the initiatives driven by the National IoT Strategic Roadmap (MIMOS, 2014) for SMEs have started to take effect. Therefore, the respondents' optimism on IoT is a good indicator to transform SMEs in Malaysia towards IR4.0. With this level of optimism, the respondents should be given more encouragement, opportunities, incentives, and supports from the related authorities to equip themselves with IoT technologies.

Second, with the average mean of 3.4044, the respondents do possess some elements of innovativeness that will help them to increase motivation to adopt IoT. However, with the score falls between "neutral" and "agree", the respondents are more likely to be the technology followers than the innovators. This is true since the findings have shown that the respondents are less capable to figure out IoT products/services without help from others. Since IoT is still very new among SME in Malaysia, the respondents' knowledge needs to be enhanced in order to be the pioneers and thought leaders of IoT. This can be done by exposing them with more training on IoT.

Third, the results did not suggest the respondents are feeling discomfort with IoT as they are somehow "disagree" with the statement. This is a good sign to introduction IoT as the respondents are not thinking that they will be losing control and being overwhelmed by IoT. Even though the results did not show that discomfort will inhibit respondents' readiness for IoT, the group of directors is relatively less confident than the group of other respondents on this dimension. They could be concerning on the effect of IoT that might reduce their control on information and risking the firm operations. For this reason, the SMEs should be trained on how to control IoT and make good use of it.

Fourth, with the average mean so close to "neutral" (3.0878), the results on insecurity is a bit mixed, in which two items have scored above "neutral" and the other two items have scored below "neutral". This means while the respondents are not feeling so much distracted (2.81) and unconfident (2.97), they do worries that IoT will make them too dependent (3.30) and reduce the quality of relationships (3.27). When comparing the scores of two groups of respondents, it appears that the concern comes from directors (3.2167). As the important person in firms, directors are a bit skeptical that IoT will work properly and will not bring harmful consequences to the firms. Hence, to increase IoT readiness of SMEs, and to get full support from the top management, their skeptical feeling on IoT should be reduced.

Fifth, it is a good indicator that the group of directors has achieved higher level of optimism and innovativeness than the group of other respondents. Since IoT is a new technology, top management initiation to introduce IoT in firms is very important. In addition, top management optimism on IoT will increase the confidence level of employees and provide support to implement the new change. This is supported by the findings that have shown the group of other respondents does not feel discomfort with IoT. However, the directors are somehow inhibited with the feeling of distrust of IoT that stemming from skepticism about its ability to work properly and concerns about its potential harmful consequences. To reduce this feeling,

IoT security issues should be given priority where the facilities and infrastructures to improve them have to be designed and developed.

Conclusion

IoT is one of important enablers of IR4.0 that will redefine the domain of production systems. IoT will affect the current competitive advantage of firms worldwide including Malaysia. Due to its newness, the IoT readiness of SMEs in Malaysia is yet to be understood. This study has found the respondents are quite optimism with IoT that will increase their control, flexibility, and efficiency of the works. However, the overall mean of innovativeness is not quite sufficient to suggest that they are ready to be the pioneers and thought leaders of IoT. Meanwhile, the respondents do not feeling discomfort with IoT, but undecided either it can be trusted or not for doing business. When comparing the IoT readiness of the directors' group with the others, it was found that while the directors are relatively more motivated towards IoT readiness, they are however also feel more insecure with it. In contrast, the group of other respondents may not as motivated as the group of directors, but they do not feel discomfort with IoT. As to improve the level of IoT readiness, more incentives and supports should be provided to SMEs as a payback for their optimism on IoT. In addition, more training should be given to SMEs as to improve their knowledge on IoT products/services. Meanwhile, although the respondents do not feeling discomfort with IoT, they should be educated on how to control IoT and make good use of it. Besides that, long time planning regarding the use of IoT is necessary to avoid becoming too dependent on it, and also to maintain human interactions and relationships. Lastly, the directors feeling of distrust of IoT needs to be managed as their support is the most critical to introduce IoT in SMEs. Besides that, the respondents' knowledge on IoT should be increased with relevant programs.

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