















advise our proposed IIoT system, we need something concrete and a specific conception. The basic idea renders a design private for a specification IIoT, as it tries to describe IIoT correctly by referring to two important features: (a) forms of technology used in IIoT design and (b) The distinguishing goals and aims of certain systems. We need a description that has the framework but also allows us a bigger extension of (a) and (b).

The benefit of simplistic architecture is that because it makes it transparent that the related innovations are used for industry-specific uses, it satisfies the fundamental requirement of helping one to differentiate between IoT devices and IIoT devices. Of instance, products such as smart kettles and smart bike locks are not useful from a business perspective per se, the basic architecture correctly categorizes such things as non-IIoT products. Given the benefit, the description still remains uninformative. Another pitfall to avoid when attempting to achieve an IIoT definition is the understanding of IIoT with regard to another term, which simply does not separate itself from IIoT and would be uninformative circular the explanation. This kind of question is illustrated, for example, in industry-led literature: The IIoT vision of the world is one where smart connected asset (the things) operate as part of a larger system or systems of systems that make up the smart manufacturing enterprise (Conway, 2015).

A system that include the usage, in real-time, digital and autonomous access, activities, study collection, and communications, computers, or the sharing of knowledge within the industrial context, in order to maximization of overall performance value, of the cyber-physical resources and networked digital elements relevant to generic information technology. The profit can include: increased products or services demand, enhanced productivity, lowered labour costs, reduced energy consumption and increased building-to-order times.

### 3.5 Industry sector

The strategic industries are important to the magnitude and scope of the risks to an

enterprise and the IIoT tools utilized in the operating systems of the company (Beecham, 2014). All sectors allow varying degrees of use of Institute of Licensed Company Secretaries (IACS), and use of IIoT is likely to be increased based on market patterns identified by industry analysis firms. With retail exception, industrialized economies typically accept the sub-categories mentioned above as essential infrastructure. Retail was included to represent the vital distribution of important products to customers and illustrate the increasing technological sophistication of certain retail outlets, such as the building control, maintenance and protection systems installed at their properties. The overview of the industrial industry is adapted from the UK Government funded study on modern production (Maier, 2017).

## 3.6 Technology Category

### 3.6.1 Automation

Automation basically refers to the stage of the operation. Industry 4.0's basic concept lies in "increasing productivity by sensible automation" (Heng, 2015). Phrases apply to process control, or more precisely automated facilities, if stated (Lasi, Fetteke, Temper, Feld, & Hoffmann, 2014; Schlechtendahl, Keinert, Kretschmer, Lechler, & Verl, 2015), data exchange (Lu, 2017), communication (Shrouf, Ordieres, & Miragliotta, 2014), vehicles (Li, 2018), feedback to suppliers (Sanders, 2016) or employees (Schuh, 2015) or even "truly automated value chains" (Rubmann, 2015). Some sources view CPS (Li, 2018) and IoT (Li, 2018) as the engines of enhanced automation.

The environmental consequences of increased automation are not stated in any of the examined publications. On the other side, it discusses societal consequences. Schuh proposes the likelihood of "immediate automated input for production employees" and "online pre-processing of captured



production data" which "can be sorted, compiled, aggregated and abstracted to promote cognitive learning and usage by the employee" (Schuh, 2015). Li sees opportunity to support human operators by way of automation (Li, 2018), While Hofmann and Rusch consider automation as a way of allowing logistics "without human involvement" in industry 4.0 (Hofmann & Rusch, 2017)

Five media find Big Data a vital technology with an industry 4.0 base, relating almost entirely to the method and business framework stages, its primary aim is to help convert the immense volume of data (Almada-Lobo, 2016) (Monostori, 2014) into useful information (Lee & Kao, 2014) in real-time (Vogel-Heuser & Hess, 2016) and thereby technically support automation (Jazdi, 2014). Nevertheless, the overwhelming majority of text fragments referring to Big Data often identify their position by mixing it with, or even simply removing, the word with other technology such as cloud (eleven publications) or CPS (six publications) – a trend not found with any other core function to that degree. Yet more comprehensive explanation of Big Data's practical role in business 4.0 could be contained in each of the text fragments. Just one textual segment concerned with big data in the wider context applies to sustainability, by beginning it will lead "to achieving high performance" (Wang, 2016).

### 3.7 Employees

Employees of the main attribute are found in various ways that can be loosely outlined in two sub-categories. Such include, firstly, the consequences of Industry 4.0 for workers with respect to software (Heng, 2015; Stock & Seliger, 2016) and organizational aspects (Stock & Seliger, 2016; Xu, Xu, & Li, 2018) of potential jobs and, concurrently, training, job requirements and expertise for industry 4.0 workers (Erol, 2016; Stock & Seliger, 2016). More broadly, parts of the text discuss the human position in business environment 4.0. It is generally assumed that there is a diminution in the form of physical labour in comparison to intellectual function, for example. Hard

muscle labor ad is often performed by robots as part of the mental job" (Gabriel & Pessl, 2016). Certain relevant considerations require *decentralization* of decision-making and greater management flexibility (Schumacher & Erol, 2015) (Stock & Seliger, 2016). It is believed that career pathways and the job itself should become more versatile about "place, time, and material" (Bauer, 2015).

Analyzing comments pertaining to training and potential job conditions, ICT abilities, transparency, collaboration and teamwork are considered explicitness as essential skills (Gabriel & Pessl, 2016; Sanders, 2016; Xu, Xu, & Li, 2018). Working in Industry 4.0 would often allow workers to constantly learn new skills and expertise (Bauer, 2015) to be interested with the technical activities (Stock & Seliger, 2016) and build inventions and enhancements (Erol, 2016). Document fragments associated with workers of business 4.0 discussed the mechanism or stage of the company in the first instance. The bulk of the pieces of the same document deals with the potential repercussions for future research. They also contain optimistic factors, such as improved opportunities for aging workers (Gabriel & Pessl, 2016; Heng, 2015). Publications often report possible adverse effects in terms of employment reductions for under-qualified employees (Heng, 2015; Stock & Seliger, 2016) and "greater psychological stress (emotional and mental)" (Gabriel & Pessl, 2016). All of the above-mentioned consequences for workers are critical for understanding the social aspect of sustainable change in potential working conditions.

## 4. Global Managerial Strategies Effect on Industrial Revolution 4.0

### 4.1 Effect of industrial revolution 4.0

The development of the Industrial Revolution 4.0 and its impact on the socio-economic status of a country cannot be underestimated. There are positive effects of the use of this industry of 4.0 revolutions such as economic growth and the smoothness of daily life. At the

same time, negative effects such as job loss are also important factors.

#### 4.1.1 Positive effect of industrial revolution

There are a number of positive things Industry 4.0 has to offer, such as the possibility of new jobs being created, such as social media account manager for an organization or company that runs facebook, whatsapp, instagram and twitter for marketing purposes. The use of robots and machines will also make a job or job process faster and more efficient. At the same time, it will help the country's economic growth as each product and product will be delivered in quality and systematically within a set time. In addition, the presence of Industry 4.0 can also influence the country's economy, which will modernize all sectors of Malaysia that are geared towards digitization according to current needs. According to Internet users statistics released in January 2018 reached 25.08 million (79%). In Malaysia Internet business activities are gaining popularity and are gaining popularity in line with the country's economic development and development. For example, the technology used in the internet business is e-commerce in which transactions and banking are carried out between traders and consumers over the internet. Successful entrepreneur Vivy Yusof has been the first to bring the concept of e-commerce to Malaysia. Fashion Valet is the first online fashion store in Malaysia run by her and her husband. Co-founders Vivy Yusof and Fadzarudin Shah have proven that they are difficult partners to overcome. Their business started in 2010 now offering 500 brands to customers worldwide.

In addition, Industry 4.0 also has an impact on the tourism sector where some hotels and travel centers will sell their products by promoting them over the internet so that the market will expand beyond the country. This situation will attract more tourists to come and holiday in our country and at the same time will result in foreign currency flows. In addition, through the

industry revolution 4.0, the upstream and downstream sectors of the sector have been able to increase productivity. The Automatic Rubber Tapping System (ARTS) is one example of the benefits of this revolution. The ARTS trial process has shown a timeline for tapping and collecting latex. At the same time, the use of stimulants can also be used to improve outcomes. In order to identify the appropriate action, data collection and analysis for each gram, torque and principal (GTT) can be done. In addition, by utilizing automation as a whole, foreign labor can be reduced and this will reduce the cost of the company.

#### 4.1.2 Negative effect of industrial revolution 4.0

As the industrial revolution 4.0 marks the beginning of a new era with the emergence of various advanced technologies such as supercomputer and smart robots, the emergence of such advanced technologies demonstrates technological capabilities without directly involving humans in any field or task. The development and use of technology that is gaining traction in today's work organization has certainly led to the growth and productivity of an organization. However, these developments have led to a reduction in the workforce of both the public and private sector in an organization. Technological advancements with the advent of sophisticated machines and automation robots are capable of completing a wide variety of jobs in a short period of time without the help or control of many workers. These smart machines and robots dominate the field of work that is supposed to be done by humans, but due to rapid technological advances, many workers are faced with the removal and reduction of manpower at every department and organization. Some of the biggest job losses are with women as they are more involved in the office and administration.

The emergence of technology in industrial revolution 4.0 has had a profound impact on society today, making it the leading

field of Malaysian national development. But on closer scrutiny, the use of infectious technology is a rare negative effect because it arises unknowingly that the working space has been compromised because workers have to work outside of office hours. This can lead to employee dissatisfaction with the employer and can lead to greater conflict. In addition, the advent of advanced information and communications technology (ICT) in which workers receive messages and instructions through social media networks such as email and social media applications such as whatsapp accessible via mobile further conflicts work and family (Derks et al., 2016). Occasionally, some employers send messages using social media applications asking about work, while employees are on vacation or spending time with family. This will result in role conflicts, time conflicts and pressure conflicts. Even at home, the role of the worker is still being demanded and the employee must complete the tasks assigned either immediately or indirectly. Indirectly the time allotted to the family has diminished and the attention to the family has been neglected. This situation affects the emotions of the workers and creates tension in the family. Workers are unable to focus on their role in the family, which is likely to put pressure on not only the employee but also their family members. Technology is constantly evolving over time, which is why technology requires continuous improvement and this will cost a lot of money. Any changes that may occur should be communicated to the employee through courses, workshops or training. So this will take a long time. During this process the productivity of the company decreases as workers need time to adapt to the newly introduced system (Belcher, 2010). In addition, companies have to bear the cost of software, technical services and the implementation of burdensome courses. Every shift in technology will also cause workers' motivation to decline as they have to deal with the difficulties of learning new applications and meeting new standards. Once the system upgrade is completed the maintenance fees will have to be borne by the company. The

irony is that Industry 4.0 certainly exists and the impact will be felt all over the world including Malaysia. Through Industry 4.0, it will surely benefit the country especially in terms of economy. In the face of this industry 4.0, the government needs to work with all parties so that the community is ready to meet the challenges of transition to ensure that our people are well informed and highly skilled in comparison with other developed countries.

#### **4.2 Challenges of industrial revolution 4.0**

In accordance with digitalization that leads to a transformation of doing business whether in manufacturing, production, communication as well as in human resources, innovative strategies is needed to create a norms that can go globally. Organizations must always be ready to handle new challenges. Design thinking is one of the strategies that linking creative, innovative and analytical methods. It will determine and strategically develop new ideas and concepts that can increase the organizations competitiveness. Organizations need to develop strong digital culture that can drives to the successfulness of organizations (Oberer & Erkollar, 2018). Integration of technologies and the enhancement of globalization make the work structure become more technologically complicated, which will increase the demand for high skill workers with related qualification. It will be quite hard to retain these qualities; whereas at the same time, a little bit low quality workers that not really fit the position will lose their jobs. Besides that, new competencies are expected not only from employees in doing jobs, but also from managers to make coordination. With continuous changes, it becomes more critically important for managers to design new cooperation between the industries. The roles of managers and leaders will grow relatively with the development.

Nowadays, market becomes more volatile and diverse. Many companies feel the pressure to sustain their business and also

must consider their stakeholders need by maintaining the competitiveness. The complexity of process is growing with the value chain become more correlated between others. In respond with this, organizations really need employees who is equipped with intercultural skills, have a good entrepreneur thinking, and also the abilities in creating networking with other organizations internationally (Hecklau et al., 2016). Other than that, this revolution has emerged by social aspects trends where it directly affects business such as aging population in workplace. Many countries such as Japan, China and German are also facing these challenges. Furthermore, it can be observed within younger generation. This new generation has a change in their social values and beliefs, the difference in workplace where nowadays becoming more virtual and also the process of work which seemly become more complex. According to Holtgrewe (2014), it will bring considerable and unpredictability to employees, which will increase the demand of coordination and negotiation. As be mentioned, these trends will need the employees who have the extraordinary traits and ability to adapt to a changing working environment without putting aside sufficient technical skills and accepting uncertainty of situations.

One of the most crucial challenges is in technological aspects. It includes the growth of information technology such as a huge amount of data usage, growing platform and collaboration, and also the need in security such as protection against cyber-attacks. These challenges stress out the importance of technical and analytical skills of human resources in order to ensure the success of fourth industrial revolution. At this particular point, it is a fundamental change in organization to the roles of employees and managers. Employees are predicting to deal with more complex task and the need of an effective problem solving and decision making. Managers must be prepared to present a significant leadership skill and the abilities to manage changes in line with development.

Besides that, environmental aspects cannot be left behind. As far as this issue is concerned and focused, it is noticed that climate change, resource shortage, energy efficiency, demographic change and many others led to produce demands for people with a sustainable of mindset, motivation to protect the environment and also creative and innovative way to develop new sustainable solutions (Hecklau et al., 2016; Kagermann et al., 2013). With the challenging issues that we are facing, managers must have a strong will power to establish any possible actions that can make environmental aspect not being neglected just because focusing on technology and productions of goods only.

#### **4.3 Strategies of industrial revolution 4.0**

In facing a rapid development of technology and the uncertainty of demand, managers must have qualities as global leaders to make things done strategically. Fourth industrial revolution requires new skills and managers need to train the right talent for the right post. In worlds' today's, human capital is critical in achieving success for organizations. It is predicted that there will be a different shape of scenario where the changes is anticipated. There are the elements of human capital as a key success factors that organizations needs such as education, knowledge and also the experience. According to human capital theory, it mentioned that knowledge give more cognitive skills to individuals that can influence work productivity and efficiency. But, with this new era, the recruitment may differ from what have been done before. Instead of recruiting based on candidates qualifications, companies should focus on the capabilities in the need organizations. Any existing programs may need to re-evaluate again with considering the new technologies that related for.

Moving towards, changing of leaderships styles in this digital era is a must. Leader must be competence enough with critical perspective and dimension together with fast changing environment, team oriented, more cooperative approach and also robust focus innovation. Both leaders and

employees should work actively and independently with creative and innovative mind in align with revolution (Oberer & Erkollar, 2018).

Personal competencies are very important and can be considered as one of the most important strategies. It include the ability of a person to act in a reflective and autonomous manner such as the ability to learn and it can indirectly develop cognitive abilities, without forgetting the development of personal attitude and ethic value. In addition, managers must make sure that employees that they are hired for must being able to face the task that are not as routine as usual line what they have done before. It is because, the future is very uncertain and uneven. Their task will keep on changing rapidly and because of that they need to ready every single of time. Organizations should also focus on the personal development of employees as a lifelong learning not only for individual but also for the organizations. However, it is believed that the moral value aspect in creating a good attitude towards technological development also important in building organizations that perform well in every aspects.

Besides that, in this fourth industrial revolution, managers must know how to manage the change process strategically. Organizational change process must consist related components to make things done perfectly. In includes a phased transition, emergence of change through network, current work culture and also must look back onto any redundancy that has happened before. Organization's decisions makers must give their full attention toward that and make things go right in fastest way.

In managing organizations that rapidly moving toward Industrial Revolution 4.0, managers must make sure human resources being able in contributing to the companies parallel with organizations vision and mission to achieve their desired goals. In order to achieve it, human resources managers with suitable traits are really important. Hence, managers who can understand and interpret data and know about some technical things

about technology and at the same time up to date with the latest development will have some advantage. Managers also must prepare themselves to have a good command control in handling organizations and go beyond the expectation.

The vision for this industrial revolution is to propagate so that workers can control, regulate and then configure smart manufacturing steps. Since the basic routine tasks are taken over by smart machines, so that employees can focus more on creative, innovative way that can give value added to the organizations. Organizations can plan well and make a strategic roadmap on going towards that. With this, it enables organizations to communicate clearly about their goals strategically with all the stakeholders.

Along with that, any organizations must consistently initiate the process of innovation with a systematic approach to plan strategies, visualize goals, and plan future projects for organizations. This approach requires full commitment from management to ensure shared understanding of organizations focus and any possible impact from global environment. The organizations strategic roadmap need to have transformation of business models and analytical assessment of the impact of technology. Besides that, roadmap also must consist the development vision, and strategies regarding the transformation and revolution for organization.

## 5. Conclusion

The journey towards fourth industrial revolution can be said as evolutionary and ongoing process. Technologies have to be adapted to the emerging demand and requirement of manufacturing and innovation management. Everything must be done quickly in order to adapt with rapid changes. New business model and strategies have to be developing for new demand from stakeholders as well as new forms of cooperation and collaboration.

Managers in organization plays a very important role to make it run smoothly and can

compete globally. With so many challenges that we are facing, a good managerial strategies that fit best organizations requirement can increase the productivity and efficiency. In managing, there is no leadership style that fits all situations. Hence, managers must be wise and brilliant enough to choose what the best way is. Since the revolution in rapidly evolve, it is very important to have a good leadership traits and being dynamic accordingly with the situation.

With this online business, purchases can be made from home and this will save you costs and expenses. Various online applications can be used for this purpose. Rapid technological advances have turned the manual into automatic. The whole world including Malaysia is working to adapt to the changing times and developments of this technology. Regional countries such as Vietnam, Indonesia and Thailand are also preparing for this new era. Therefore, we must always be aware and ready to change so that the country does not miss out on the era of the industrial revolution 4.0.

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