UNIVERSITI TEKNOLOGI MALAYSIA

SECP1513 - SECTION 04

TECHNOLOGY AND INFORMATION SYSTEM

GROUP ASSIGNMENT: 01- POSTERS ON IR4.0 & INDUSTRIAL TALKS

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Fourth Industrial Revolution (IR 4.0)

Topic: Internet of Things (IoT)

INTRODUCTION

- The Internet of Things (IoT) is a crucial technology that will enable the electronics devices or machines to operate autonomously without the assistance from humans by connecting them to a network or Internet in Fourth Industrial Revolution (IR 4.0).

DESCRIPTION

- The technology of the Internet of Things allows the electronics devices to operate and communicate with each other without depending on assistance and interaction from humans. The IoT devices have such capability because the devices are connected to the network or Internet to share, collect and transmit the data, enabling the communication between devices in real-time. Thus, this technology will significantly reduce the workload of humans to interact with machines or devices.

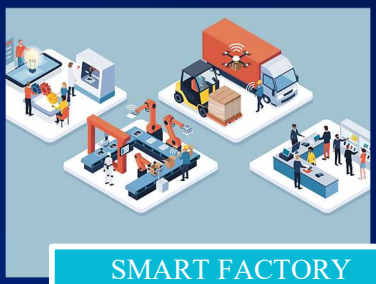
Example OF IoT APPLICATION

SMART HOME

(European Heating Industry)
Image Source: https://ehi.eu/heating-technologies/smart-heating-and-smart-home/

SMART FARMING

(Junjie, 9 September 2020)
Image Source: https://pandaily.com/china-aims-to-develop-smart-agriculture/



SMART FACTORY

(Cambridge Innovation Institute, 2019)
Image Source: https://internetofbusiness.com/complete-guide-10-smart-factory-trends-to-watch-in-2019/

REFLECTION

"The 4th Industrial Revolution has brought many goods to society. Especially the creation of IoT has made people's life easier and society prosper more. Its function to connect everything to one network has allowed people to do stuff and tasks more easily and more conveniently. Society has also prospered with IoT as it opens up new sectors in the industry and allows new technology to be used to help people in a larger picture."
(PUAH JUN HONG- A21EC0221)

"By using the IOT, we are able to save a lot of time and energy in complete the tasks. For example, I realized that the smart farming actually help the farm industries to save a lot of human resources. At the same times, the smart farming can do a huge amount of work more efficiency in the short time."
(GOH JUN BOON- A21EC0179)

"After I had learn about the IoT, I realize that IR 4.0 had change our world become better. In my surrounding, I notice that I already use many application that used IoT technology. I also found that IoT has bring up new market that can provide more job opportunity to us. Not only that, IoT also had explore innovative of human when producing new product of IoT. In the business field, IoT had improve the efficiency and productivity that can make workers feel more comfortable. After using IoT applications, businessman can reduce their costs and get more profit."
(TEO CHEEN SHENG- A21EC0232)

"From my point of view, IoT technology could be beneficial to human life especially in the aspect of the manufacturing industry as it will transform the industry to a complete autonomous. Thus, this will significantly reduce the risk of humans exposing to a dangerous environment during manufacturing and even increase the production quantity and efficiency as the IoT machines could operate without the commands from humans and able to operate non-stop to catch up with the huge demand from the customers."
(YAW CHOON HONG- A21EC0240)

"In recent years, the rapid development of IoT has brought convenience to our life. I realized that IoT will transform our home become smart and easy to use. It not only brings more possibilities to life but also to society. IoT can detect the natural environment, simplify industrial processes and make our life better."
(ZHANG HANCHEN- A21EC4024)

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Industry Talk 1 by TM

INTRODUCTION

The fourth Industrial Revolution (IR4.0) will be bringing new technologies into different aspects such as society, business industries, and others. In Malaysia, TM will be playing a major role in enabling IR4.0 by implementing multiple services and advanced infrastructure to enhance the cyberphysical system which will be a crucial element for IR 4.0.

EXECUTIVE SUMMARY

In this Industry Talk, TM has introduced different strategies to support and achieve the ongoing Fourth Industrial Revolution. As one of the major telecommunication companies in Malaysia, TM has its responsibility to introduce the IoT, cloud services, implementing several high-tier data centers that will be required in IR 4.0. Within the strategies of TM, they have planned to digitalize traditional services, introduce smart cities, and implement a 5G network. In general, these strategies which enable the evolution of IR 4.0 will help the business to open new markets, authorities will be able to manage cities efficiently, people's lives would be more convenient and work can be done within a short period.

CONTENT

1. TM's Strategies To Back the Cyberphysical System of IR4.0 & Digital Malaysia

- Enabling Internet of Things (IoT) technology
- Implementing cloud services
- Tier 2 and Tier 3 Data Centres that allow global connectivity
- Provide a strong digital infrastructure foundation.

2. Area that TM will adopt its strategies

- Cloud and Digital Services
- Smart Cities
- 5G

3. Cloud and Digital Services

- Digitalization of Services ——Major markets are transforming traditional services into digital services
- Benefits of the service digitalization for a company
  - ❖ Improve the operational efficiency
  - ❖ Improve the customer's satisfaction
  - ❖ Overtake the competitor
  - ❖ Increase the business opportunity and performance
- Requirements for Digitalization of Services
  - ❖ Digital Infrastructure

4. Smart Cities

- Logistics Industry (Smart Fleet)
  - ❖ Real time location, vehicle and traffic tracking
  - ❖ Increase the logistics productivity and efficiency
- Manufacturing Industry (Smart Manufacturing Solutions)
  - ❖ Analysis and forecast the demand to increase the production volume and sales accordingly
- Utilities Industry (SWIMS-Smart Water Integrated Management System)
  - ❖ Provide central monitoring and analysis services
  - ❖ Increase water revenue by early detection of water leakage

5. 5G

- Offers Gigabit speed internet with low latency to a high connection density area.
- Scenarios require the use of 5G
  - ❖ Enhanced Mobile Broadband(eMBB)
  - ❖ Massive Machine Type Communication (mMTC)
  - ❖ Ultra-reliable low latency communication (uRRLC)

6. TM Network Operating Centre

- Purpose
  - ❖ Monitoring
  - ❖ Giving commands and controls
  - ❖ Manage unexpected incidents

(Mukhriz Hazim, 18 April 2019)
Image Source:
https://www.malaymail.com/news/malaysia/2020/01/16/tm-u-mobile-explores-5g-network-sharing-opportunities/1828700

REFLECTION

"Throughout this industrial talk, I realized that as the main telecommunication company in Malaysia, TM is one of the significant parts of the development of IR 4.0 in Malaysia. Meanwhile, I am understanding about three of the adoption areas within 4IR. In the aspect of cloud and digital, market forces are driving digital transformation in business across all verticals. By doing transformation, the business field in Malaysia will gain a lot of benefits. Besides, transformation into the smart city is one of the big goals that the Malaysia government is making all the effort to achieve. Lastly, 5G is the next generation of mobile network evolution that our country is about to bring in because it opens a wide range of use cases that will boost the development of technologies. In conclusion, I believe Malaysia will overcome the challenges to face the IR 4 by having good cooperation with TM."
(GOH JUN BOON)

"I think that TM will definitely bring an impact to people's life during the 4th Industrial Revolution. With more and more demand in the market and consumerism rising up, the telecommunications company is able to bring more advanced technologies to the people such as the 5G network to allow people to carry out tasks faster. The introduction of new technology also helps out people who are doing businesses as they are able to manage, control and deliver their products and services more conveniently through just a screen."
(PUAH JUN HONG)

"After attending this Industry Talk, I think our country is adapting to IR4.0. Telekom Malaysia (TM) has tried their effort to solve the challenge of IR 4.0. I am so grateful that I was living in Malaysia. Our government has tried to build a smart city to make our life easier. For example, the government is using the Smart Water Integrated Management System (SWIMS) to reduce water wastage. In the business field, there are analyzing the product performance for every city to increase the economy. Furthermore, a businessman can find the potential area and increase sales with Smart manufacturing. The transport and logistics will become more efficient after the success of IR4.0 in our country. Additionally, the conjunction of IoT and 5G allow the city traffic situation to become more manageable as the vehicles will be able to communicate with everything to share the information in real-time."
(TEO CHEEN SHENG)

"After attending the talk, I have understood the important role of Telekom Malaysia (TM) to help enable IR4.0 in Malaysia by improving the infrastructure. The infrastructure is such an important element for IR 4.0 because IR 4.0 will be involving a complete cyberphyiscal system. The cyberphysical system will include many advanced technologies such as IoT, Augmented Reality, Artificial Intelligence, 5G connectivity, and many others. With the advanced and complete cyberphyisical system, I believe that the IR 4.0 will create a digital transformation in Malaysia business industries which will increase the production volume and operational efficiency in the future to meet the increasing demand of human needs and improve human life remarkably."
(YAW CHOON HONG)

"From this lecture talk, I learned that Malaysia is making every effort to develop IR4.0 and transform it into a smart city. One of the most important technologies is 5G, which has ultra-fast upload and download speeds and extremely low latency. This makes it possible for many technologies, such as remote manipulation of instruments for surgery. After the popularization of IR4.0, more technologies that could not be realized before will gradually appear in our lives and bring convenience to our lives. This will undoubtedly boost Malaysia's economic development. So IR4.0 is very important to Malaysia and even every country."
(ZHANG HANCHEN)

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Industry Talk 2 by CyberSecurity Malaysia

INTRODUCTION

This industrial talk is introducing the Industry forward and national policy developed by MITI for IR 4.0. This talk introduces how Malaysia moving forward to IR 4.0. Not only that, the speaker has discussed challenges and issues related to moving forward into IR 4.0.

EXECUTIVE SUMMARY

The talk has mainly discussed the responsibilities of the Malaysia government during the IR4.0 transformation. During the transformation to IR4.0, Malaysian Communications and Multimedia Commission agencies will be responsible to tackle all cybersecurity issues. Additionally, the Ministry of International Trade and Industry has introduced the Industry4WRD policy which will greatly enhance the digitalization among the industries in Malaysia. The policy will highlight the factors for the digital transformation within Malaysia's industry, factors that will impact future manufacturing in Malaysia, challenges, and the solutions like A-C-T Policy. Furthermore, there is also additional information about ways for Malaysia to move forward during the transformation.

CONTENT

Malaysia government agencies that are responsible for cybersecurity:

- CyberCSI : Investigation for cyber criminal case
- MyCERT : Monitoring, manage cyberattacks
- CyberSafe: Offer cybersecurity services to SME
- CyberGuru: Offer cybersecurity courses to Malaysian

National Policy specifically for Fourth Industry Revolution:

- Industry4WRD (MITI -Ministry of International Trade and Industry)

A. Factors for Digital Transformation within Malaysia's industry
   - Global Economic Order (The rise of powerful nations' economics)
   - Technology Advancement
   - Knowledge & Skills (Produce skilled workforce in the future)
   - Global Supply Chain
   - Competitiveness (For Malaysia To secure a market position in the world)
   - Regulations (Improve production quality)
   - Customer Behaviour

B. Factors that will impact the future manufacturing in Malaysia
   - Strategic geolocation that enable other countries to relocate the production line
   - Availability of high productivity and skilled labour
   - Advanced manufacturing technologies to improve efficiency, production quality and market competitiveness

C. Main issues and challenges
   - Demands for better quality and innovative products
   - Intellectual Property (IP) and copyright issues
   - Digital Readiness and Connectivity of the SME
   - The risk of exposing to the cyberthreats during
   - High cost of investment for digital transformation

D. Solutions to the issues and challenges
   - A-C-T Policy
   - A – Attract stakeholders for the adoption of IR4.0, inclusion for the SME, and offer preferred manufacturing location
   - C – Create an ecosystem by improve worker's talents, increase collaborations opportunities, upgrade digital infrastructure, offer funding support and others
   - T- Transform industry capabilities by boosting in various aspects such as productivity, efficiency, technological and innovation capabilities and others

3. Responsibilities of CyberSecurity Malaysia during transformation to IR4.0
   - ❖ Create a group of intelligent workers by increasing the awareness, various courses, and job-attachment program
   - ❖ Develop internationally recognised SOP and guidelines
   - ❖ Provide laboratories for industries and SME to do product development and pilot project

WAY FORWARD

1. Upskilling and Reskilling: Labour force for industries need to be taught new skills to produce a better quality product.
2. Involvement of SMEs: SMEs contribute to a portion of the economy in our country.
3. Evolution in Innovation: Collaborate with other field partners to open up new opportunities and access to new technology.
4. Focused funding support: Funding is required to kickstart the development of new technology.
5. Digital Infrastructure: A digital infrastructure is needed for industries to have a reliable and secure service during business operation.

REFLECTION

"I have realized our country that is currently going into the IR4.0 has to face issues and challenges in order to succeed and improve people's life in Malaysia. More skilled personnel will appear in society if the transformation succeeds. With this, people's life in Malaysia would prosper as more opportunities will appear in the market and more advanced technologies would be available for everyone."
(PUAH JUN HONG)

"I understand that our country should have advanced digitization and advanced technologies to transform into IR4.0. These are significant because we have to enhance efficiency which drives competitiveness and bring market value to the services. Meanwhile, there are some factors that drive IR4.0 such as technology advancement, knowledge, skills, and competitiveness. I noticed the enabling technologies for IR4.0 include A.I., Big Data and cloud computing. As a conclusion, I realized Malaysia has work hard for preparation to transform into IR 4.0 which will position Malaysia into one of the future leaders."
(GOH JUN BOON)

"The main goal of IR4.0 is to set up security courses for people to reduce cybercrimes for a better environment and technological life. IR4.0 promotes advancements such as cloud computing and big data analysis. These technologies help people's daily life. Most importantly, it drives the improvement of productivity, efficiency, and technology in Malaysia. IR4.0 will simplify processes and provide more job opportunities for graduates."
(ZHANG HANCHEN)

"I found interests in digital forensic and acknowledge that we should market ourselves for future jobs. Our country is preparing for the readiness of IR 4.0. However, challenges such as our unstable economy cause infrastructure to be expensive. So our country needs to be efficient to create an ecosystem in Malaysia that will benefit the IR4.0 as it leads Malaysia to move forward and make people's life easier. During the transformation into IR 4.0, people will acquire skills by studying the new technologies. Thus, the graduates can easily find jobs to prosper the country in the future."
(TEO CHEEN SHENG)

"The digitalization will face more cyber threats. Thus, government should monitor, tackle and increase awareness about cybersecurity in Malaysia. Additionally, the government has enrolled Industry4WRD which helps out industry digitalization. With the assurance from government agencies during the digitalization phase, I believe that the digital transformation within the industry will be significantly beneficial for the people in Malaysia as the digital transformation will increase the productivity of our manufacturing industry and lead the people towards prosperity in the future."
(YAW CHOON HONG)

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