Industrial Revolution 4.0: Past, Present and Future

Executive Summary

- This poster contains information on Industrial Revolution 4.0 which covers the **history of the industry** from the **1st to the 4th industrial revolution**. We gain a general knowledge on the history and how it has advanced throughout the history to the point of IR4.0.
- Industrial Revolution 4.0 also comes with it **components** that forms it:
  - Autonomous Robot
  - Cloud Computing
  - Internet of things
  - Augmented Reality
  - Big Data

- With the growing of technology, there are bound to be parts of the IR4.0 to be implemented already. As an example of **education**, using digital technology and traditional method for teaching and learning.
- Then there are the **commerce side** as well that are now mostly online.
- **Smart cars and smart homes** are an example of applied technology in our daily lives which is still scarce because it is expensive and mostly in the cities.
- With the IR4.0 coming onto place, **employment** will also be different with new jobs surfacing slowly but surely. A lot of new kind of jobs will be available for the people.

Introduction

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- We stand on the brink of a technological revolution that will fundamentally alter the way we work, live, and relate to one another. That is the whole purpose of 4.0 Industrial Revolution (IR4.0) which is focused to bring change into our daily lives.
- It is a new chapter in human development, enabled by extraordinary technology advances commensurate with those of the first, second and third industrial revolutions.
- **The First Industrial Revolution** used steam power, water and mechanical power to industrialize products.
- **the Second Industrial Revolution** used electricity for mass production of goods.
- **The Third** used electronics and information technology for production. Computers, micro-controller and so many more became key drivers to the industry.
- Today we live in an era that uses **IR4.0**. Breakthroughs in the technology field have taken place with the birth of artificial intelligence, robotics, 3-D printing and so many more. IR4.0 is proven to be a mixture of the previous three industrial revolutions.

Components of IR4.0

Autonomous robot

- Capable to **perform tasks by themselves** without human control. Robot helps reduce error and improve cycle time. BMW and Toyota are the company that used autonomous robot for their manufacturing. Autonomous robot able to function with the combinations of scanner, camera, microphones, sensor, spectrometer and so on.

Cloud computing

- Cloud is a must for the generation since the day they bought a gadget. Apple user, they used iCloud. For enterprisers, there are other cloud providers such as Alibaba, Huawei cloud and cloud α for TM group.
- Delivering public cloud services, this kind of operation from on premises infrastructure to cloud infrastructure which give a better stability, flexibility, and computer power.

Internet of things (IoT)

- Internet of things **is embraced the variables of human life**. For example, CCTV nowadays no longer just monitoring the surroundings but can be a sensor. In oil and gas industry, smart helmet is used to detect the real time delegation of the workers.

Augmented reality

- **Pokémon Go** is one of the examples of augmented reality where it used to locate or aim smart devices to provide more information.

- Augmented reality is useful for education and tourism industry.

Big data

- **A large number of unstructured data is gathered together with the big data analytic engines** to provide insights and report.
- For example, smart traffic light solution made by Telekom Malaysia where they gathered all information of vehicles based on the sensor of traffic lights and camera from the CCTV.
- They can detect the plate number of vehicles, the type of vehicles and the number of vehicles passed through the traffic lights. This is useful for the local authorities to perform the enforcement and plan for the next expansion.

Adoption of IR4.0 Technology

Education 4.0

- Education 4.0 is characterized by responding to the needs of IR 4.0, with man and machine alignment; harnessing the potential of digital technology; open educational resources, globally connected education, and lifelong learning. Correspondingly, the educational paradigm needs to be revisited and reframed

Commerce 4.0

- Malaysia GDP growth expected to improve in 2017 supported by domestic demand amidst challenging economic situation. The purpose of commerce 4.0 is to focuses on productivity driven & innovation led growth. Implementation of 6 High Impact Programmes (HIPs) and 26 supporting initiatives

Applied IR 4.0

- **Smart cars**
- In line with IR 4.0, automobile companies are emphasizing on adopting smart car technologies, which involves AI, robotics, IoT and big data.

Image Tesla 3

https://www.tesla.com/model3

- This digital revolution is an important influence on the complete transformation of the automotive industry in terms of the digitization of production, automation and linking manufacturing sites in a comprehensive supply chain
- **Smart homes**
- Smart home technologies become easier in monitoring home and control accessible for the homeowners from anywhere and anytime with connecting to the Internet of Things (IoT) principle. Smart Homes is becoming a part of the IoT assisting the homeowners that equipped with sensors and advanced technology in various conceivable situations

Future of works and jobs and Malaysia's digital infrastructure

Potential work employment

- 3D printing technician
- Biomechanics service person
- Computer vision engineer
- De-extinction zoologist
- Electronic textile designer
- Ethical hacker
- Infographic designer
- Machine learning engineer

World class DATA CENTRES

Tier II Ready Data Centres

- Plaza VADS, Kuala Lumpur
- Cyberjaya 8

Tier III Data Centres

- Iskandar Puteri Data Centre, Johor
- Klang Valley Data Centre, Cyberjaya

Image of Plaza VADS

https://bit.ly/3405S42

Digital Malaysia Infrastructure

- Connecting Malaysians everywhere, inclusively, with enriched digital lifestyle
- Supporting Government initiatives for betterment of the country
- Responsibly helping Malaysian in times of need
- Empowering and creating values for businesses through borderless digital possibilities
- Protecting nation's sovereignty and critical infrastructure from intrusion and disaster.

REFLECTIONS

- **MUHAMMAD HARUN BIN MARZUKI A20EC0212**

The presentation gave me a lot of general knowledge as in the advancement of human technology since the first industrial revolution. IR4.0 definitely showed how far we have achieved with technology. With IR4.0 slowly being spread about, I hope I can be involved in progressing our country for the foreseeable future. I'm also amazed with the advancement from our country especially from TM which has been working in advancing our country into the IR4.0 era.

- **AUM JEEVAN A/L AUM NIRANGKAR A20EC0017**

The industrial talk that I attended has given me a new perspective about 4IR. I learnt many useful things such as the revolution period, future jobs and many more. I believe this knowledge will help me in my future decision making. Not only that, I as a future software engineer know more about what I have to do to be prepared for the working life. I have to take initiative in brushing up my skills as well as gaining new ones before graduating. The job scope in the next 5 years is surely going to be different than now. Therefore, being more prepared is surely going to help me. This talk has been proven to be exceptionally helpful and I hope to be a quality product of UTM that is able to contribute to the IT world.

- **SYAMIMI AMIRAH BINTI ZAMROS A20EC0226**

This interview has been such informative speech where it let students to imagine the future and embraced the past to improve the productivity of the industry. This talk allows students to know more about the industry that they do not know and realized the existence of it. From year by year, I can see how fast the improvement has been made to use less human conduct and let robot or machine work efficiently in certain works or application. As for me, there are some parts that I just noticed from this talk especially about improvement of certain company made to increase the quality and quantity of their products. I realized that certain companies made such a huge change to give the best of their products.

- **AMIRUL IMAN BIN AHMAD KEFLEE A20EC0183**

After the interview it give me a great influence to know more about our IR4.0. It is exciting to know our country is making a great improvement in the technology which will help me to determine my carrier in the future as an engineer. I hope this IR4.0 will give me a motivation to improve myself to become a better person.IR4.0 also remind me what the challenge awaiting us as to become an engineer so we need to prepare ourselves with knowledge so we can show ourselves as a part of the IR4.0 who will improve our technology development in our county.

- **MUHAMMAD MUIZZUDDIN BIN KAMAROZAMAN A20EC0214**

Based on the speech that I attend, there are a lot of information that I gain about future of works and development of our country. Otherwise over the years, there are more and more technology companies focusing and developing IR 4.0 technology, product and solution in Malaysia. Opening higher job opportunities on these emerging industries. There also a lot of changes from past present and future jobs. There also world class DATA CENTRES nationwide including 2 tier III certified to Support the Nation's Digital Agenda. Finally, we should know that many efforts have been made by Malaysia to develop a successful infrastructure to produce technology equivalent with developing countries in this era of globalization.

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