INDUSTRY REVOLUTION 4.0

Past, Present and Future
By Mr Redzuan Shah bin Yusoff

INTRODUCTION

Technology is emerging more and more in humans life. The technological changes is happening faster than ever. It is important to know the stages and the components of industrial revolution as what Mr Redzuan mentioned "We learn from the past, to appreciate the present and lastly to focus on our future". Explore our group poster and learn about the Industrial Revolution journey starting from the ancient times up till today.

PAST

Industry Revolution 1.0

- Established during the 17th - 18th century
- Introduction to **mechanical power** (Muscle to Mechanical conversion era)
- Example: Transportation - from riding horses to using steam locomotive

Industry Revolution 2.0

- Established during the 20th century
- Introduction to **electricity**
- Mass production of goods era (Emergence of machines and factories)

Industry Revolution 3.0

- Known as the digital revolution
- Introduction to **computing**
- Birth of Programmable Logic Controller (PLC), microcontrollers, etc
- The era of Apple Computers Inc - founded by Steve Jobs and Steve Wozniak
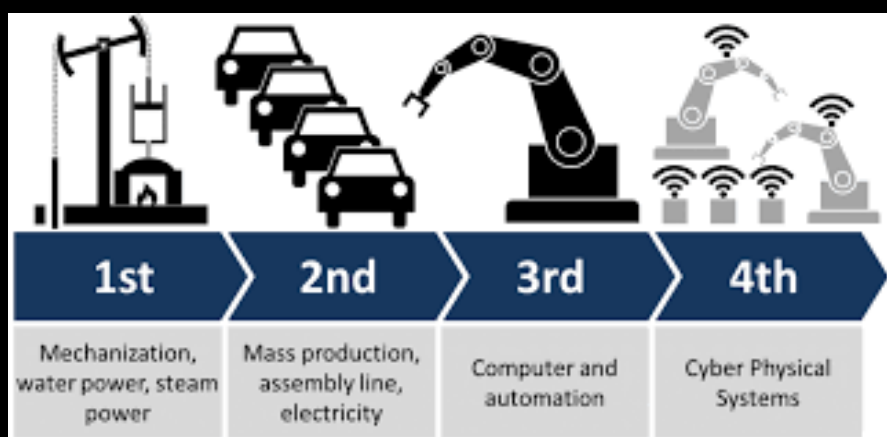

Figure 1: The Industrial Revolution Journey
Image credit: "Christoph Roser at AllAboutLean.com"
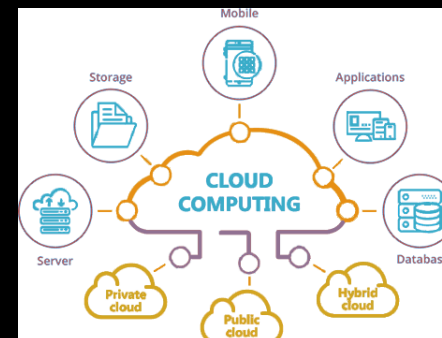

Figure 2: Components of IR 4.0
Retrieved from https://www.i-scoop.eu/industry-4-0/

Figure 3: Cloud computing
Retrieved from https://networkencyclopedia.com/cloud-computing/

Figure 4: Stages in big data analytics
Retrieved from https://www.edureka.co/blog/big-data-analytics/

PRESENT

Industry Revolution 4.0

- Introduction to **artificial intelligence**
  Autonomous robots
  - Ability to do tasks by themselves
  - Programmed to reduce mistakes and errors
  - Example: Tesla, Manufacturing robots (BMW)
- **Cloud computing**
  - Widely used for storage (Dropbox, iCloud)
  - Cloud infrastructure increases computing stability, flexibility & power
- **Internet of Things (IoT)**
  - Devices connected to the internet (set of censors, cameras and etc)
  - Pin points monitoring activities, real time callibration, provide insight
  - Example: Smart watch, smart homes
- **Augmented reality**
  - Widely used in tourism and education purposes
  - Gives user a virtual real-life like experience
  - Example: Virtual Tour Guide in Museums (Tourists are required to scan codes then hear and watch their guides explanations through digital devices)
- Industry Revolution 4.0 also includes big data, simulation, system integration, additive manufacturing and lastly cybersecurity.

FUTURE

- Focused on the co-operation between human and machine.
- **Invisible analytics**
- **Artificial Intelligence (AI)**
- **Virtual Reality (VR)**
- **Video consumption**
- **Wearables**
- **3D printing**
  - creates 3 dimensional object
  - Example: create prototype in 3 dimensional easily.
- **Drones**
- **Connected car**
  - driverless car and can connect vehicle to vehicle.
- **Mobile payments**
  - no need to use payment cards physically.
- **Commerce 4.0**
  - can study shopping pattern behaviour
- **Smart Home**
  - can control house as long as the remote is connected to the internet

WAY FORWARD
- Industrial revolution can benefit all walks of life in various of fields such as education, management, sociology and also economy.
- It also creates plenty of job opportunities depending on the market demand and growth of technology
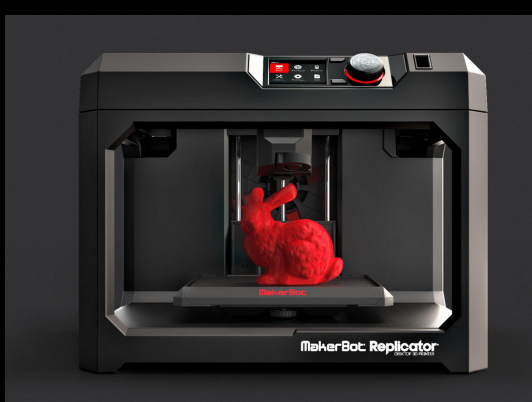

Figure 4: 3D printing
Retrieved from Hold Everything! 3D Print Custom-Designed Vases With MakerBot's Free App - 3DPrint.com | The Voice of 3D Printing / Additive Manufacturing

Technology has changed the way we live, commmunicate, study and work. Community needs to adapt themselves in transforming from the conventional industrial process to the use of modern technologies or they will be left behind. We need to be prepared for future IR 4.0 workforce by enriching ourselves with knowledge in various fields such as machine learning, autonomous robotic, cloud computing, big data analytics and etc. These knowledge are crucial to be implemented to build new technologies in the future for the benefit of mankind.

ONG HAN WAH

In the future, there will be a lot of things go online and robotic which was supposed to help us to make things more convenient but some are hard to learn. As we all know that, technology are keep on improving and we are still living. We have to keep on improving on our knowledge, skills, adaptability as well as creativity so that we can keep up with the things happening around us and create something new to fill up the shortage of something .

VINCENT

Innovation has helped human in many aspects. Therefore, we need to understand the past to appreciate the future. For example, innovation in commerce 4.0 has helped human reducing their time to go to shopping outlets and lands can be saved as e-commerce does not need physical outlets. Thus, people can earn their own money by making business at their home.

MADIHAH

Based on my opinion, the industrial talk is very informative for me. I gained a lot of knowledge and information about Industrial Revolution One, Industrial Revolution Two, Industrial Revolution Three and currently about Industrial Revolution Four. I also get to know about the high uses of technology in our daily life and the usage of technology will increase drastically as the time. Lastly, this talk could clear all the doubt I had about industrial revolution before this and now I clearly understood what industrial revolution is

RISHMA FATHIMA

From the talk, I was impressed on how technology was developed over time through the phases on industrial revolution. I look forward to see IR 4.0 be fully implemented in Malaysia and be a great use to the upcoming generation. In this globalised era, people tend to want things to be at their fingertips in all aspects such as smart security systems and interactive online education mode. As a student, I aspire to be one of the main contributors for the next industrial revolution era. This is because technology is developed to ease and reduce the burdens in our life.

QAISARA