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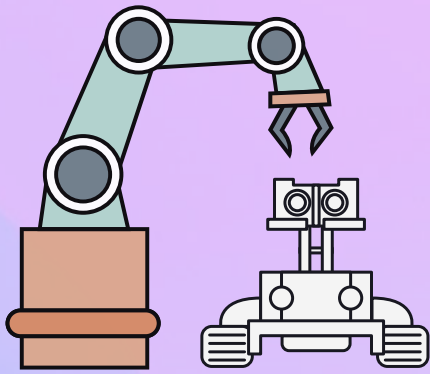
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# AUTONOMOUS ROBOTS

4IR

## INTRODUCTION

Industry 4.0 (IR4.0) is a new phase of the industrial revolution that promotes interconnection, automation, machine learning, and real information. Furthermore, the IR4.0 paradigm emphasizes the interconnection of physical commodities such as sensors, devices, and enterprise assets, as well as their connectivity to one another and the Internet. The autonomous robot is one of the IR 4.0 technologies. Autonomous robots are intelligent machines that can carry out tasks automatically without the need for explicit human intervention. Numerous autonomous robots have been developed during this era. Goods-to-person picking robots, self-driving forklifts, autonomous inventory robots, unmanned aerial vehicles, and so on are examples of autonomous robots.

## RELECTION

- After years of development, autonomous robots have been able to help humans deal with complex problems, greatly increasing the efficiency of human work, which will have a great impact on product productivity, industrial structure and the world pattern, and promote human beings to enter the inclusive model Intelligent society.
- "lazy" are the driving force behind social progress. Under the tide of market economy, the division of labor and cooperation in human society has become more and more detailed, which has promoted the sales growth of various service robots.
- We need to clearly see that the overall development of autonomous robots and artificial intelligence is still in its infancy. Artificial intelligence is not an all-powerful product, and artificial intelligence still has many "cannots". We should rationally plan the development path, work hard to promote basic research, improve technology, try to cultivate talents, and formulate laws and regulations to build an artificial intelligence technology power!

## DISCRIPTION

An autonomous robot also known as auto robot. Autonomous robot is a robot that perform tasks and operate in environment independently which is without human control or intervention. Autonomous robot is usually considered to be subfield of artificial intelligence, robotics and information engineering. A truly autonomous robot is one that can perceive its environment, make decisions based on what it perceives and has been programmed to recognize conditions and then actuate a movement or manipulation within that environment. Humans will delegate boring, dangerous or dirty tasks to robots, so that they can spend more time on doing the interesting, fascinating and valuable tasks that only humans can complete.

## EXAMPLE

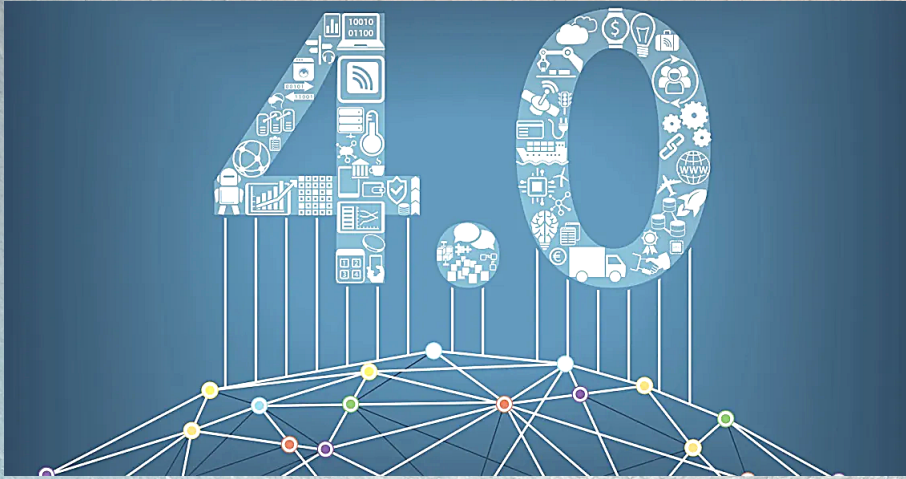
There are some examples of autonomous robots which is delivery robot. Delivery robots have to carry goods from one destination to another destinations without assistant human. They can walk with avoiding the obstacles and finding the correct stations. When the battery of the delivery robots is over, it will change by itself and after fully charging, it will automatically continue it's work. Some of the delivery robots can work for 8 hours long. Besides, there are some autonomous game bot that competes with humans. The game bot will act like a human as attacking the enemies and protect its team but the act will be simplify. The act will not complex like humans. Autonomous robots can also be used in enhancement the customer experience in the mall. In some hotels and shopping malls to provide customers with services and clean environment. This can also be used to efficiently and accurately package goods and deliver them to each customer safely.



# FOURTH INDUSTRIAL REVOLUTION FOR #1 TALK

## EXECUTIVE SUMMARY

THIS POSTER IS ABOUT FOURTH INDUSTRIAL REVOLUTION (4IR) AND SOME INFORMATION ABOUT TELEKOM MALAYSIA BERHAD (TM). 4IR IS ONGOING THE AUTOMATION OF MANUFACTURING THROUGH THE USE OF MODERN INTELLIGENT TECHNOLOGY. 4IR PUSHES US TOWARDS A MORE TECHNOLOGICALLY ADVANCED FUTURE. THERE ARE SOME CHARACTERISTIC, EXAMPLE, REFLECTION AND WAY FORWARD ABOUT 4IR IN THIS POSTER.



## INTRODUCTION

TELEKOM MALAYSIA BERHAD (TM) IS ONE OF A LEADING INTEGRATED TELECOMMUNICATIONS COMPANY IN MALAYSIA. TM ALWAYS PROVIDE A WIDE RANGE OF COMMUNICATION SERVICES AND SOLUTIONS IN BROADBAND, DATA, AND FIXED-LINE. IN MALAYSIA, ABOUT 2.7 MILLION HOMES, 13000 ENTERPRISES AND PUBLIC SECTOR, AND 600 MALAYSIAN INTERNATIONAL TELCOS AND OTTS USE TM SERVICES. MOREOVER, TM IS GOING TO CONNECT THE NATION FOURTH INDUSTRIAL REVOLUTION (4IR). 4IR INVOLVED IN CYBER PHYSICAL SYSTEM AND IT HAS TWO PHASE WHICH ARE IR4.0 (2011) AND IR4.0 (2015). IR4.0 (2011) ONLY PAY ATTENTION TO MANUFACTURING BUT IT CHANGED TO INCLUDE ALL ASPECT OF HUMAN LIFE WHEN IR4.0 (2015). THERE ARE NUMEROUS EXAMPLES OF IR 4.0 TODAY, INCLUDING THE INTERNET OF THINGS (IOT), DATA ANALYTICS, PLATFORMS, ARTIFICIAL INTELLIGENCE (AI), AND SO ON.

## CONTENT

Adoption areas within 4IR

### 1. Cloud/Digital

#### *DIGITALIZATION OF SERVICES*

- IT Infrastructure digitally
- Enterprise/ consumer apps digitally
- Television services digitally
- Telco services digitally.....

### 2. Smart cities

- Driving production volume & speed up transaction and managing overall manufacturing performance with smart manufacturing solutions.
- Smart Water Integrated Management System (SWIMS)

### 3. 5G

#### *Scope & Parameter*

- Enhanced Mobile Broadband (EMBB)
- Massive Machine Type Communication (MMTC)
- Ultra Reliable and Low Latency (URLLC)

#### NOC main functions:

- Proactive Performance Monitoring
- Services and apps monitoring
- Command Control on all TM Services (Domestic & International)
- Incident management
- 24 x7 One Stop Network Assurance Centre
- Business Continuity and Crisis Management

## WAY FORWARD

- 80% of the Malaysian will have unlimited backup space in the cloud
- 10% of the vehicles on the roads will be driverless
- More than 50% of home appliances will be connected to internet
- There will be one trillion sensors connected to the internet
- Water loses can be controlled
- Total visibility of the water can be provided and water revenue can be increased
- Smart cities will be built
- Customer services with the good connection and high speed railway will be improved
- Cases of crime will be decreased



## REFLECTION

• 5G is not only a new generation of mobile communication technology, but also a new infrastructure for economic and social development. It is universally applicable to many industries, bringing long-term and continuous improvements to these industries, and catalyzing new innovations. 5G, a general technology, can have a profound and lasting impact on many industries, redefining economic competitiveness and changing society.

• The 4IR has the strength and power to change many things in a wide range of work, operations, and society. If we can make good use of the industrial revolution, we can meet the needs of companies and society, improve employee productivity, and improve people's quality of life and happiness.

• With the development of industry like ICT, people do not need to travel between home and company or school every day. They can use computers to work at home, or use remote teaching methods to learn without being affected by the epidemic; the past communication methods are time-consuming and time-consuming. It is not very safe, so using the phone to communicate with friends not only saves time, but also strengthens the relationship faster; especially the popularity of online shopping, so that people can satisfy their desire to shop without leaving home; the emergence of video conferencing It also makes business communication easier.



# FOURTH INDUSTRIAL REVOLUTION

## FOR #2 TALK



### EXECUTIVE SUMMARY

This poster is about the Fourth Industrial Revolution (4IR). In the era of Fourth Industrial Revolution, the utilization rate of machines and automation has continued to rise until today. Besides, 4IR enables us to have more developed technology in the future. There are some characteristic, example, reflection and way forward about 4IR in this poster.

### INTRODUCTION

In the last ten years, a fourth industrial revolution has emerged. IR 4.0 arose in 2011 in the German government's high-tech strategy. This illustrates the manufacturing sector's fast development. It also represents human resources will be replaced by machines as the manufacturing industry develops. The use of robotics and automation in manufacturing is also growing in order to improve efficiency. In this era of IR 4.0, it is more important to focus on advanced digitization, advanced technologies, and efficient resource utilization. It is significant because it can improve manufacturing efficiency as well as competitiveness.

### REFLECTION

- The fourth industrial revolution is a way to integrate intelligent interconnection technology with people's daily life. This fusion of digital and physical technologies creates endless possibilities. It will also subvert our view of industrial development and create the development of enterprises in many countries. This is also because the rich and extensive digital data enhanced by artificial intelligence and advanced models can match the professional expertise gained through years of practical experience.
- Industry 4.0 allows companies to use the Internet, huge data, automation technology, and digital and real technology to create truly practical business solutions, rather than simply using technology and a static way to operate their business. Therefore, we should give priority to building a culture of learning and collaboration, and creating opportunities for training talents within the company and in communities that have not been effectively developed, so that the entire company can make progress.
- Every time a new technology is successfully developed and put into use, it not only promotes manufacturers to improve their own service quality, but also creates services that can meet consumer requirements in many ways, such as video services and data services that can meet customer requirements for multi-functional mobile phones. At the same time, continuous improvement of machine technology can also reduce the consumption of raw materials, save labor costs, and facilitate manufacturers to sell to consumers at a cheaper price and reduce the burden on consumers.

### CONTENT

#### Industry 4.0 Transformation Drivers

1. Global Economic Order
2. Technology advancement
3. Knowledge & skills
4. Global Supply Chain
5. Competitiveness
6. Regulations
7. Customer Behavior
8. Others

#### Technologies advancement and convergence

1. Big Data Analytics (predict trends and market)
2. Artificial Intelligence
3. Augmented Reality (used to training pilot)
4. Additive Manufacturing
5. Cybersecurity
6. Advanced Materials
7. Simulation
8. System Integration
9. Autonomous Robots
10. Internet of Things (IOT)
11. Cloud Computing

#### Malaysia Readiness for IR 4.0 3 factors

- Global value chains and geographic of production are continuing to shift
- Quality of labor and higher productivity, but not low labor cost
- New technologies are disrupting and fostering a technology-based model of production

#### Malaysia Issues & Challenges Demand

- Awareness
- Innovation
- Digital Readiness & Connectivity

#### Supply

- Governance
- Funding & Incentive
- Ecosystem Support
- Training Providers

### WAY FORWARD

- Automobile will be produced with 3D printer
- 90% of population will own a smart phone
- 90% of population will have internet access
- Get strategic partner for smart manufacturing and related services in Asia Pacific such as China, US
- Labour Productivity Growth
- Manufacturing Contribution to Economy
- Innovation Capacity
- High-skilled jobs such as mobile service technician and machine operator
- Access to smart technologies
- Existing resources need to reskill and update for the new disruptive manufacturing technologies

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