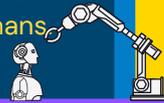


# INTRODUCTION

In 2016, the world got introduced a new term called Fourth Industrial Revolution (IR4 ).

IR4 aims to unite the virtual, physical, biological aspects of the people to create a highly more efficient production process.

One of the numerous fields of IR4 is **autonomous robots** which are machines programmed to perform a series of actions based on their environment to complete tasks without the intervention of humans.



## PERCEPTION

Laser scanners, bump and force torque sensors can be used as input devices for the robot

## DECISION

The robot used an embedded system in addition to a computer, which acts faster and with more authority than the computer.

## DESCRIPTION

## ACTION

The actuator's heart is usually a motor. There's always a motor that converts the energy into movement, whether it's a wheel, linear actuator, or hydraulic ram.

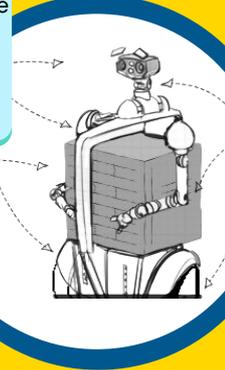


Figure 1 Autonomous robot illustration. Adapted from 'What Are Autonomous Robots? & Applications for Today's AMRs' by Jason Walker. Retrieved from 11 November 2021, from <https://www.cobotrobotics.com/blog/what-autonomous-robot/>

# AUTONOMOUS ROBOTS

## Komatsu's Frontrunner Autonomous Haulage System (AHS)

These trucks are being used in mining sites which can be controlled via a supervisory computer, enabling them to be unmanned.



Figure 3 Komatsu AHS truck. Adapted from 'Komatsu Frontrunner Autonomous Haulage System Surpasses Industry Records' by Ashley Burt, 2018. Retrieved from 11 November 2021, from <https://www.myintelsalesman.com/news/komatsu-frontrunner-autonomous-haulage-system-surpasses-industry-records>

**RP-VITA** stands for "Remote Presence Virtual + Independent Telemedicine Assistant."

It allows doctors to communicate directly with patients from all over the world.

With just a single click from the nurses, it may drive itself to the desired patient.



Figure 4 RP-VITA, Dr. Robots. Adapted from 'FDA clears Intouch's tablet-controlled, self-driving telemedicine robot' by Jonah Comstock, 2013. Retrieved from 11 November 2021, from <https://www.mobihealthnews.com/10831/fda-clears-intouch-tablet-controlled-self-driving-robot>

iRobot's **ROOMBA** is the most well-known example of an **autonomous robot**.

It's a little circular vacuum cleaner robot that can clean an entire floor without the need for a human to operate it



It also features sensors that could keep it from falling down the stairwell. **ROOMBA** is especially well-liked because of its inexpensive cost and ability to run constantly at any time.

Figure 2 Roomba. Adapted from 'Roomba Vacuuming Robot' by Patrick Faherty, 2021. Retrieved from 11 November 2021, from <http://www.guidedivingtech.com/roomba-vacuuming-robot/>

# REFLECTION

These exceptional robots will have a noticeable effect on the development, construction, and even in hospitals, as their high accuracy reduces accidents, provides faster and more productive work when completing a certain task.

Take for example **autonomous robots** in the medical field, According to nature journal **more than 200,000 deaths** in the United States are **caused by mistakes clinicals make**, this has proved that **autonomous robots** are the rightest thing to focus on as they can reach the deepest places in humans' body with a mere possibility of making a mistake.

Furthermore, **autonomous robots** are more flexible than the older generations of robots which allow them to do different types of work and require just a small number of changes in the program.

**Autonomous robots**, however, will probably replace a worker's job, which might eventually **cause a high unemployment rate**. In conclusion, **Autonomous robots**, of course, have their pros and cons but it can clearly be seen that their advantages outweigh the disadvantages.



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# Fourth Industrial Revolution(4IR)

## Introduction

In history, humans have passed four major industrial revolutions that changed the way people interact with their surroundings until today.

From depending on the mechanization and water power in 1784 to using electricity and assembly line in the 19th century, arriving at the third industrial revolution which mainly focused on computers and electronics in which most of our fathers and grandfathers experienced and finally reaching what we are having these days of which we name the Fourth Industrial Revolution (4IR).

The second plan which seems to be the most important one is to create a smart city that would solve several problems like enhancing logistic performance and resolving manufacturing performance by observing the smart analysis and so on. Moreover, by creating a smart city, diverse problems would be avoided such as water disruption which could be solved by applying the swims project that sends analyzed data and observations to a single platform. The government will also gain benefit from the smart city project by getting a close look at analysis of many fields like transportation.

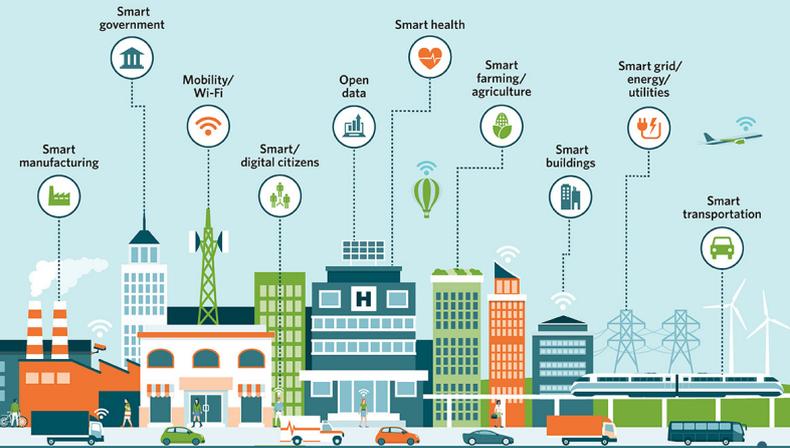


Figure 2 Smart City Component. Adapted from 'Smart City' by Sharon Shea, 2020. Retrieved from 11 November 2021 from <https://internetofthingsagenda.techtarget.com/definition/smart-city>

The third plan which as well plays an important role in the 4IR is getting to use 5G which without it the first two plans would have a much slower pace and would take a much longer time to be realized. With all of these renovations in the Malaysian community, it is for sure going to be one of the leading countries that improved implemented 4IR.

### 5G Main Advantages

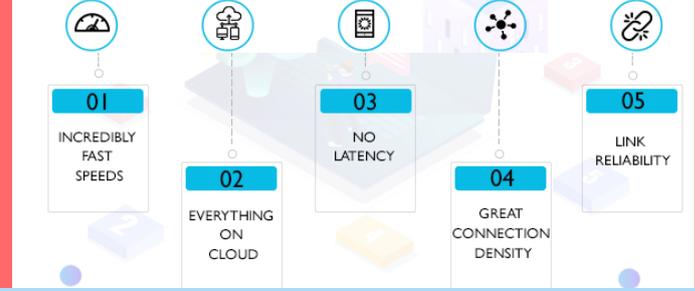


Figure 3 5G Main advantages. Adapted from 'As 5G networks start rolling out let's find out how it changes mobile app development?' by Rahul Singh, 2019. Retrieved from 11 November 2021, from <https://www.promaticsindia.com/blog/as-5g-networks-start-rolling-out-lets-find-out-how-it-changes-mobile-app-development/>

## Summary

4IR has had two main phases that could be defined with. Firstly, the manufacturing phase which started in 2011 and had concentrated only on how to create a sufficient manufacturing environment for all organizations in the market.

The second phase on 2015, which many companies started turning and had a broader focus on nearly all the aspects of improving humans' lives. Take, for instance, companies in Malaysia such as Telekom Malaysia Berhad(TM) which has 3 vital plans to improve the whole Malaysian community.

First of which is to digitalize nearly all governmental clusters, economies, and societies. This is done by cloud computing and building platforms for almost all services whether they are enterprise or even consumer's services.

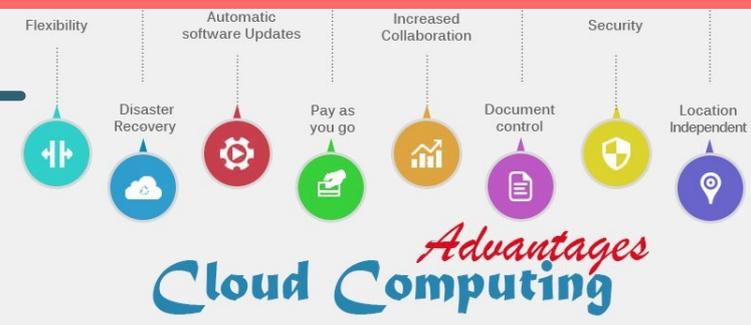


Figure 1 Advantages of cloud computing. Adapted from 'Advantages and Disadvantages of Cloud Computing' by Mohamed Wasim Akram, 2021. Retrieved from 11 November 2021, from <https://medium.com/@MohamedWasim001/iot-advantages-and-disadvantages-of-cloud-computing-b097fb5df0af>

## Reflection

The idea of depending on 4IR is what all countries should go for. This is because 4IR has many sections that would help all different classes of society whether a company, an enterprise, or even a consumer.

4IR can create the future of which everyone dreams with the help of big data and cloud computing. I personally believe that the plans which TM company aims to achieve sound brilliant. This is due to the improvement that would occur in Malaysian society. With those enhancements Malaysia would feel like a great place to live in for it would be safe, advanced, and productive. With this boost, customers' experience would, of course, feel much easier in addition the companies that implement these plans would have an upper hand compared to those who do not. It would also reduce the error percentage in all aspects of life like electricity, water, and traffic.

With all these implementations of 4IR technologies, numerous job opportunities are going to be offered to the upcoming generation of those who focus their study fields on computers and especially robots. This, however, will result in a big wave of an unemployment rate since a huge number of employees will lose their job to those autonomous robots. With that being said, the outcome of 4IR will be tremendously beneficial to most societies' inhabitants.

# CYBER SECURITY MALAYSIA

Cyber Security Malaysia is an agency under the ministry of communication and multimedia, tasked to secure the country's cyber space.



Malaysia Computer Emergency Response Team



CYBER SECURITY PROFESSIONAL DEVELOPMENT



Crime Scene Investigation



The logos were taken from cyber security Malaysia's website



The illustrations were taken from canva free Elements

## INTRODUCTION

The Rapid changes in the manufacturing sector and the evolution into IR4.0 resulted in the integration of robotics to the manufacturing sector and the increasing infusion of automation. However, this increasing shift has come with issues and challenges. Protecting information from cyber threats such as damage and theft shines as a challenge that must be tackled and Cyber Security Malaysia aims to serve the nation by being a shield that protects against these threats.

## ENABLING TECHNOLOGIES

**AI:** Programs can teach themselves on how to react and work when introduced to new data.

**Big Data:** To predict trends & markets, to anchor businesses to the trend

**AR (Augmented Reality):** Delivery of information and training, examples:  
a. Pilot & firefighters training

## 3 FACTORS TO IMPROVE MANUFACTURING IN MALAYSIA

1. Integrate 5G connections for high-speed communications.
2. The need to build high-skilled workers, (Although Malaysia's labor productivity has increased, the number of high-skilled workers have not)
3. The need to innovate and invest in new technologies to remain competitive.

## REFLECTION

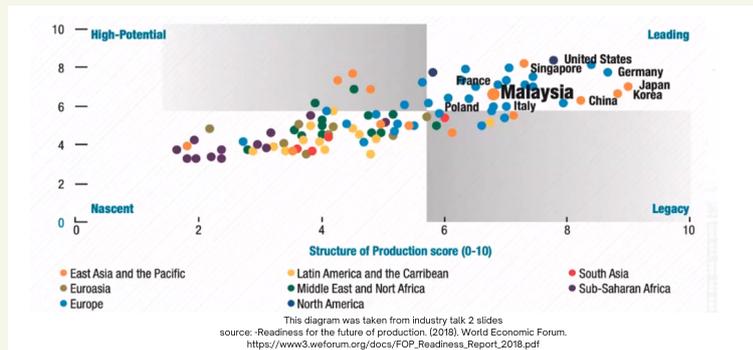
With the existence of newfound technology, Cyber Security Malaysia has managed to implement technology on the grassroots for the safety of our community, for instance, they have developed an AI called CamMuka, which helps to identify criminals. This will definitely help the police to identify criminals at a much faster rate. On another note, Malaysia has also seemingly progressed in big data, as it is aimed to grow US\$1.9 bil by 2025, according to Malaysia Digital Economy Corp's (MDEC). Moreover, the use of Augmented Reality in Malaysia as well has significantly increased, where training for pilots & firefighters are now also being done using AR technology. This would be a great opportunity for Malaysia to produce high-skilled workers that have dealt with various simulations through AR. In essence, it is hoped that with all these advancements made, Malaysia will be a country that is up to par with the other countries around the globe in terms of cyber security & technology advancement.



The illustrations were taken from canva free Elements

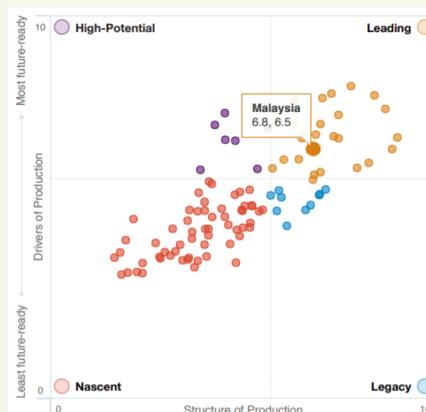
## MALAYSIA'S READINESS FOR THE FUTURE OF PRODUCTION

Malaysia's position in the structure of production score is 6.81/10 ranking 20 and a score of 6.51/10 for drivers of production indicator ranking 22, making Malaysia in the leading quadrant of countries, and the second leading country in ASEAN behind Singapore



## DRIVERS OF PRODUCTION

1. Technology and innovation
2. Human Capital
3. Global trade and investment
4. Institutional Framework
5. Sustainable Resources
6. Demand Environment



## SUMMARY

To sum it up, the integration of robotics made it harder to protect against theft and security threats. However, it has enabled us to use the AI to increase the security, decreasing the threats and increasing the development of the country.

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