INDUSTRIAL REVOLUTION

“...fundamental change in the way products (goods & services) being produced, delivered & consumed...”
INDUSTRIAL REVOLUTION

1.0 Based on mechanical production driven by water & steam power.

2.0 Based on mass production enabled by electrical energy.

3.0 Based on the use of computer & electronics to further enhance automation.

4.0 Based on the use of cyber physical systems.
We stand on the brink of technological revolution that will fundamentally alter the way we live, work and relate to one another. In its scale, scope and complexity, the transformation will be unlike anything humankind has experienced before.

"Klaus Schwab
Founder & Executive Chairman
World Economic Forum"
THE 4th INDUSTRIAL REVOLUTION

Affects almost every facets of business sectors and arenas

SECURITY
- Cybersecurity
- IOT Security

TRANSACTION
- Centralized Repository
- Blockchain

INTERFACE
- Buttons
- Voice & Gestures

DECISION MAKING
- Data & Spreadsheet
- Artificial Intelligence

MOBILITY
- Driver
- Autonomous

FACTORIES
- Humans
- Robots
12 TECHNOLOGIES

- 3D printing
- Automation & Robotics
- Biotechnology
- Battery & Energy Storage
- Blockchain & Distributed Ledger
- Geo Engineering
- Internet of Things
- Super Computing
- Artificial Intelligence
- Space Technologies
- AR & VR
- Advance Materials

Source: World Economic Forum
WHY IT MATTERS?
THE 4th INDUSTRIAL REVOLUTION

Accelerated Rate of Change

Convergence

New source of growth/inequalities

Technology Advancement

Technology cost & investments
THE 4th INDUSTRIAL REVOLUTION

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Technology cost & investments

“... Reset the playing field...”
THE 4th INDUSTRIAL REVOLUTION

ECONOMIC

- Expansion of trade
- Reconfigure factory system
- Increase standard of living
- Massive employment/unemployment
- Redistribution of wealth/inequalities
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SOCIAL
- Growth of cities
- Increased in leisure time
- Increased population
- Social challenges e.g. urban slums etc.
- Increased innovation
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POLITICAL
- Expansion of democracy
- Increased government involvement in society
- New world order - Industrialized nation
- Rising nationalism
- Business people rise to power
“...the world is changing; future of Jobs will see changes in jobs role and lifestyle preferences”

Growing Population
“...Malaysia's population 35 million by 2030”
“...World's population 8.5 billion by 2030”

Aging Population
“...median age of Malaysian 40yr by 2040”
“...global, people aged 65+ double to 1 billion by 2030”

Global Talent Crisis
“... 2014-2030, increase migration south-south countries”
“...by 2030, labor force participation rates failing below 63 percent of the global working age population”

“As generations collide, workforces become more diverse and people work longer; traditional career models may soon be a thing of the past”

“...many jobs being filled today did not exist 20 years ago; it is expected that in 10 years time, 60% of jobs will be completely new”
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TRAVEL AGENTS

TELLERS

SURVEYORS

JOURNALIST

LEGAL ASSISTANT

FINANCE ASSISTANT
JOBS THAT DID NOT EXIST 10 YEARS AGO
PLAUSIBLE SCENARIOS

Turbulence and Trust Deficits
A chaotic world where trust is a scarce commodity. Yet, thanks to the possibilities created by the rise of the networked society, there is a significant latent desire for social engagement by citizens, particularly at the local level.

Mad Max
A world characterized by international and national conflict. Governments exert strong security controls on business and society. Levels of funding for societal and development challenges are limited.

A Privatized World
Many governments are seen to have failed, inequality is incredibly high and corporations play the most important role in society, being the main providers of social services.

Transparently Blurred
Global economic growth is relatively high over the period 2020-2030. The government & private sector are both deeply engaged in tackling societal challenges. Access to data, technology and rigorous monitoring are the hallmarks of a revolution in both economic activity and social development.

Source: World Economic Forum
ROLE OF GOVERNMENT

“...what government do in these scenarios...”

• **Taking control...** ownership of development of technology and its application

• **Liberalized ...** A hands-off approach moving towards decentralization and market liberalization

• **Business friendly...** Understand the changing role of government, paving the way for business to take leadership?

• **Managing growth ...** to ensure stability & fairness...
ARE WE READY?
THE WORLD MOST TECH READY COUNTRIES

Malaysia Ranked

#31

Source: WEF, INSEAD, KKMM, DoS, Insights, MIGHT
Robot Density in the Manufacturing Sector

Source: International Federation of Robotics, MIGHT

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IS THE PUBLIC SERVICE READY?

- Leadership
- Governance
- Workforce
- Work Environment
- Communication & Collaboration
**POLICY QUESTIONS**

- How do we manage the transition & impact?

- What policies do we need to:
  - Protect societies & human rights
  - Development of critical infrastructure
  - Balance information
  - Ensure services & opportunities availability

- How might the development pathway change?

- What kind of new legal infrastructure required?
ROLE OF GOVERNMENT

“...what should government do? ...”

• **Maintain a sense of cohesion** in facing disruptions to the economic, social & political landscape...

• Understand the **changing role of government**. Digital government vs analogue government?

• Cultivate an **understanding of the 4th Industrial Revolution** & the risk and opportunities it presents...

• Ensure the **necessary infrastructure** is in place to take advantages of its opportunities...
... technology values are characteristics that consumers would seek out in products, services, and technologies over the next decade.
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CHALLENGES AHEAD
THE 4th INDUSTRIAL REVOLUTION

... Not all organizations & industry sectors are at the same stage of understanding as what this means to their business...

... Level of disruptions, the risk & opportunities differs for each businesses & sectors...

... affecting services, products or business model ...
“Increase disruptions & instability”

“Barriers to entry continues to be lowered”

“Role of technology will be at the forefront”

“New competitors & incumbents”
“To regulate or liberalized?”

“Preparing the right ecosystem”

“Education & skills required”

“Interoperability & standards”
THANK YOU

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