



WFEO-CIC
The Institution of
Engineers, India

World Federation of Engineering Organisation

Summary of the Seminar Proceedings

12-07-2018 Ipoh, Malaysia

Presented by

Eng. Martin Manuhwa

WFEO Vice President

Chair of WFEO Anti-corruption Technical Committee

Presentation 1

- IEl President – Mr. Sisir Kumar Banerjee
 - Welcome remarks
 - He urged us to be Digital Citizens
 - Thanked the WFEO CIC for their effort in advancing the I4.0 Revolution

Presentation 2

- WFEO President – Dr. Marlene Kanga
 - WFEO has more than 100 National Members
 - Representing more than 30 million Engineers
 - WFEO is the Voice of Engineering in the World
 - I.R. 4.0 belongs Engineering and is rapidly transforming the world
 - Young Engineers embracing technology e.g. APPs
 - Diversity, Inequality, SDGs is the WFEO focus
 - WFEO supports these objectives of CIC on advancing I4.0 Revolution.

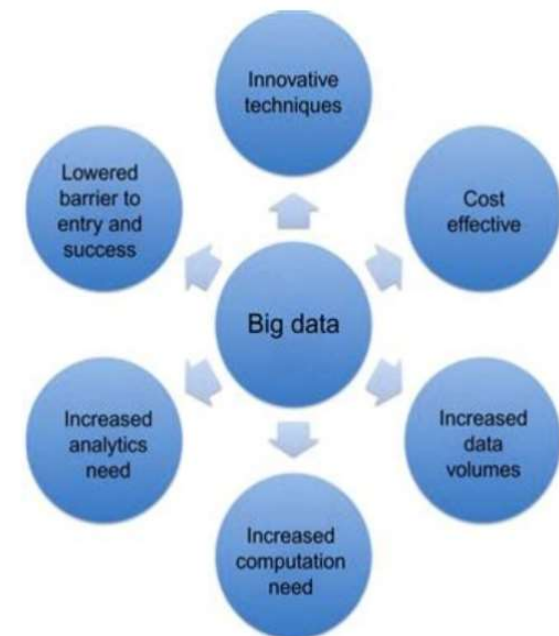
Presentation 3

- Y. B. – Tuan Kar Hing, Malaysia Arts & Culture
 - Represented : Secretary
 - IR 4.0 involves cyber ecosystems of connectivity, IoT, and Big Data and Analytics that will revolutionalize life.
 - Opportunities galore in SMART manufacturing, Tourism, Agriculture and all economic and social life.
 - Lets work together through knowledge collaboration

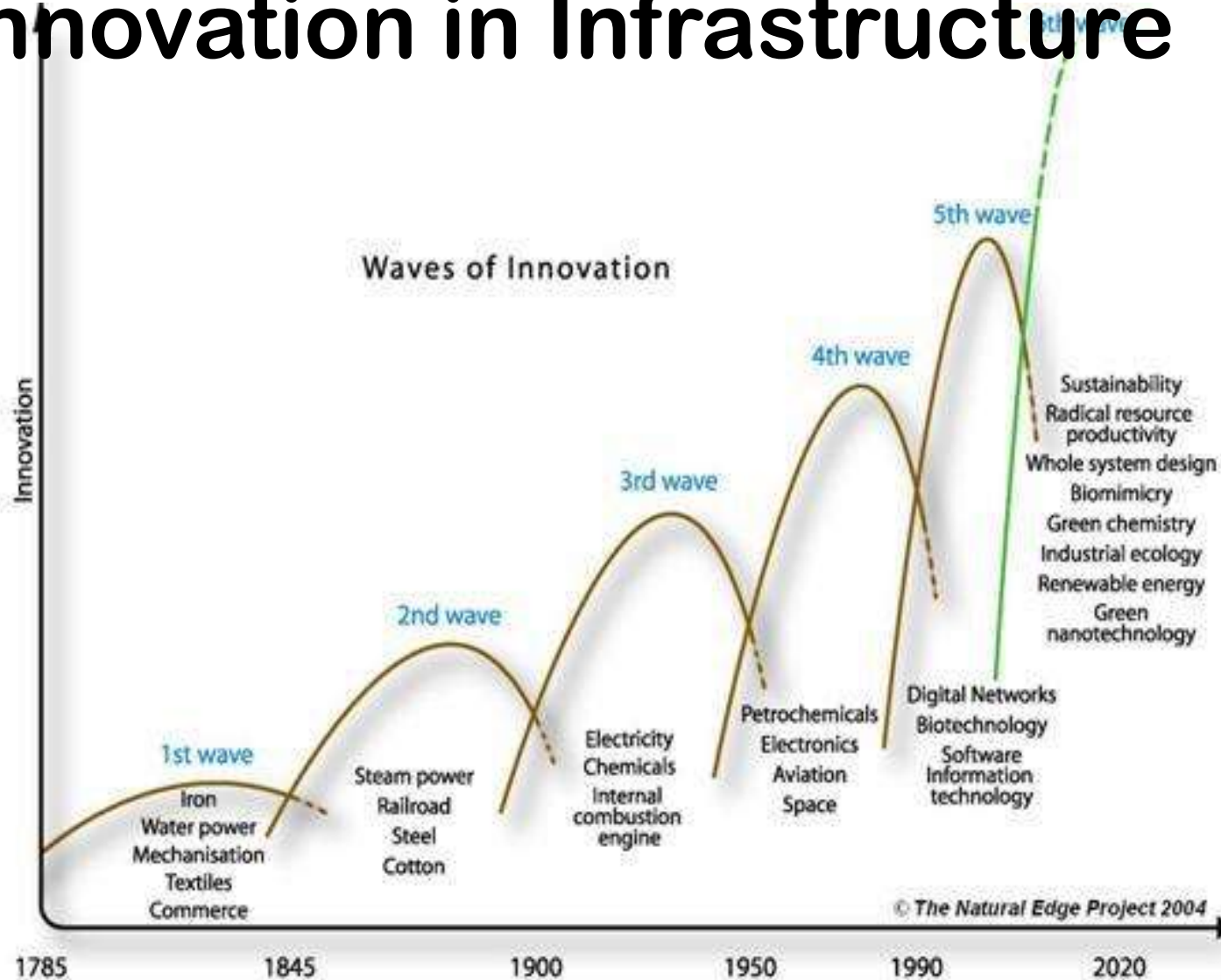
Lectures 1-5

- Ir. Dr. Leong Wai Yie : Smart Brain Sdn. Bhd
 - CREATING ROI FROM BIG DATA INVESTMENTS – MONETISING YOUR DATA ASSET
- Dr. Keoh Sye Loong : University of Glasgow
- Mr. Srinath Jangam : Larsen & Toubro
- Dr. Marlene Kanga
- Ir. Dr. Tan Chee Fai : Robolab

– Big Data and Analytics for IR 4.0



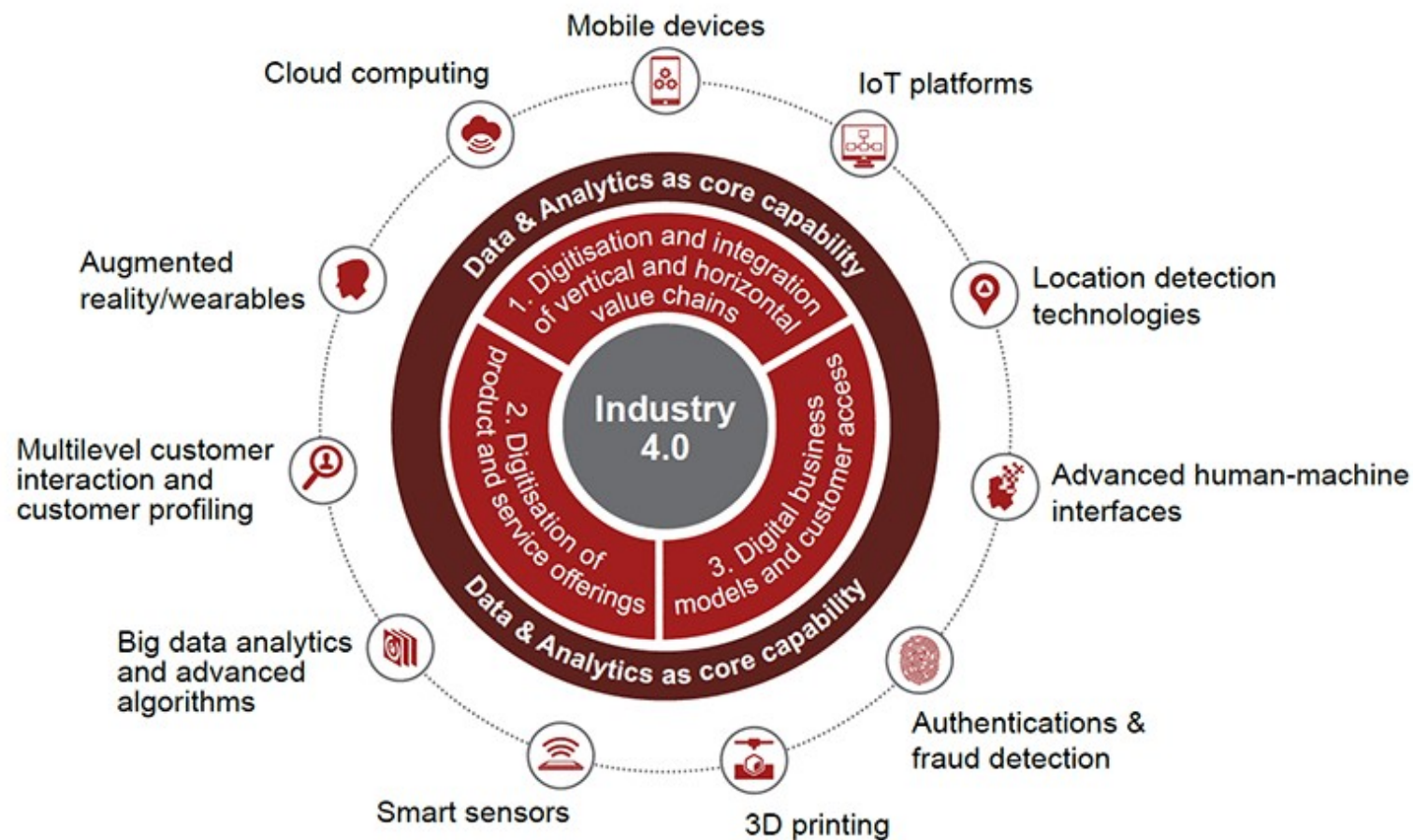
Engineering, Technology and Innovation in Infrastructure



Industry 4.0 – Where Are We?



Definition & Context



The Objective – from Buzz to Reality

Horizontal integration
Smart homes
Vertical networking
Devices
50Bio. Connected devices
Consumer
Information Analysis Marketing
Energy efficiency Digital natives
Artificial M2M Data Sharing Smart Grid
Sensors Complexity Smart Products
Social Machines Applications Interface Global
Factory of the future Multimodality
Web
Statistics
Social Media
Exploitation
Real Time
Automation
Networking
Apps
Cloud
www
Solutions
Digital Transformation
Intelligent Systems
Internet of Things
Big Data
Innovation
Cyber physical systems
Electrification
Data Collection
Costs
Interconnected
Engineering
Advanced robotics
HMI
Stable Connectivity
Embedded Knowledge
Systems networks
Productivity
Real time services
Vision



Industry 4.0 is our Enabler for Business Excellence

Industry 4.0 Drives Improvement of Quality, Cost, Delivery

▶ Return on invest confirmed !

Industry 4.0 is a people's business

▶ People play the decisive role in a connected plant !

Why Big Data now?

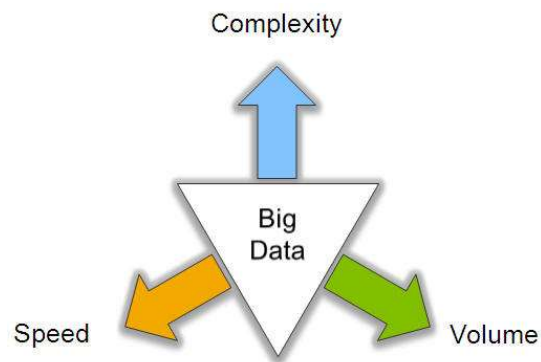
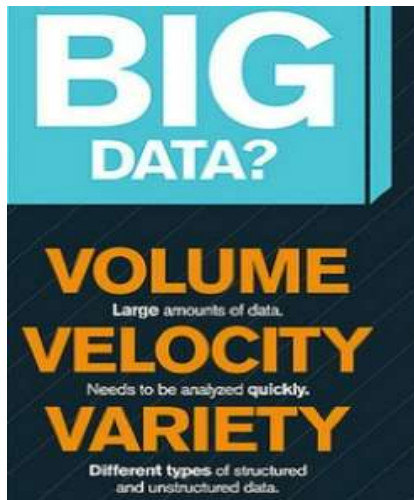
- More data are being collected and stored
- Open source code
- Commodity hardware / Cloud



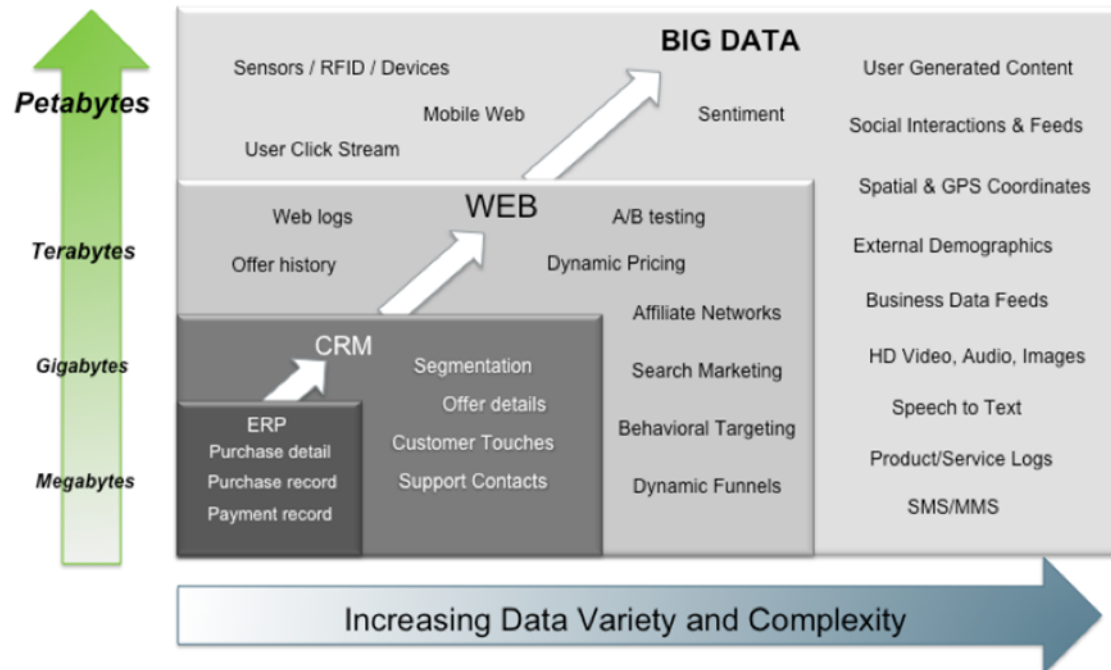
- High-Volume
- High-Velocity
- High-Variety

→ Artificial
Intelligence

Big Data: 3V's & 7 More V's



Big Data = Transactions + Interactions + Observations



Source: Contents of above graphic created in partnership with Teradata, Inc.

Other Big Data Charecteristics

#4 Veracity

#5: Variability

#6: Validity

#7: Vulnerability

#8 Volatility

#9: Visualization

#10: Value

The Model Has Changed...

- **The Model of Generating/Consuming Data has Changed**

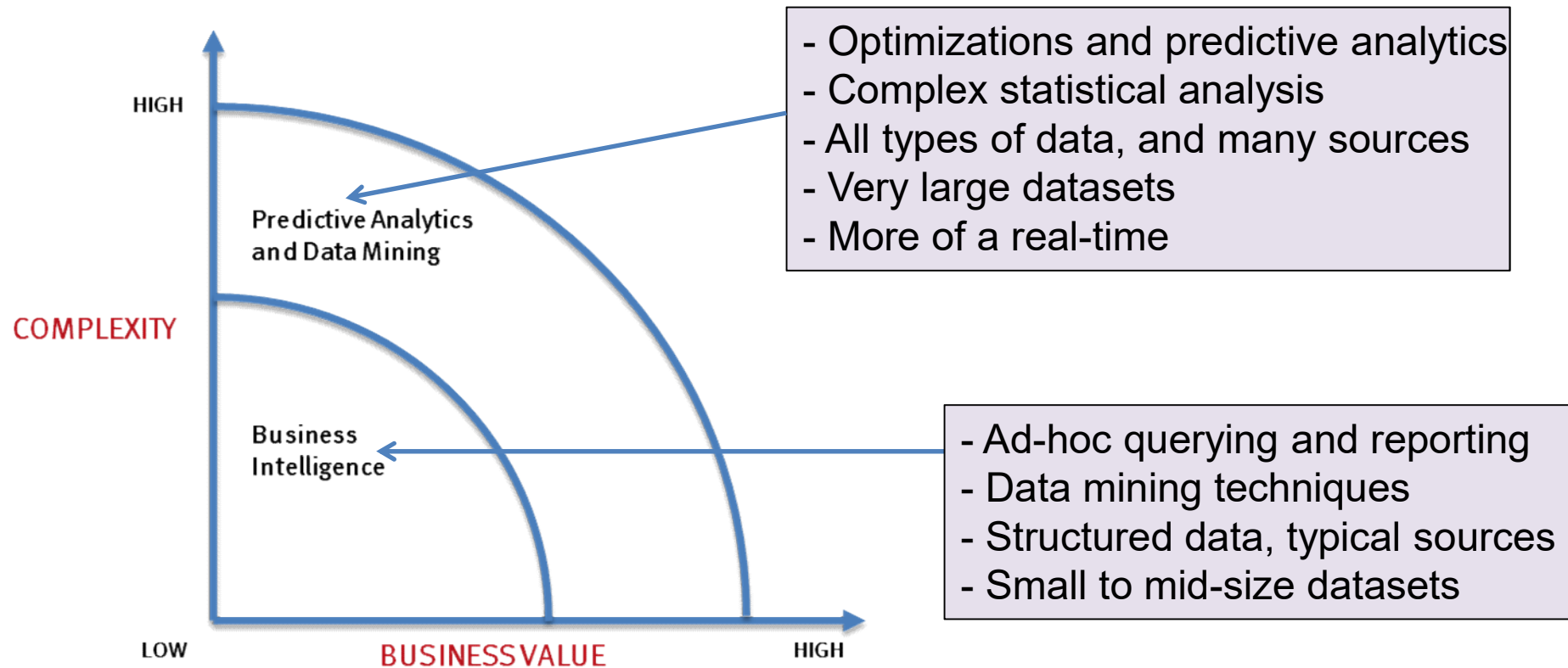
Old Model: Few companies are generating data, all others are consuming data



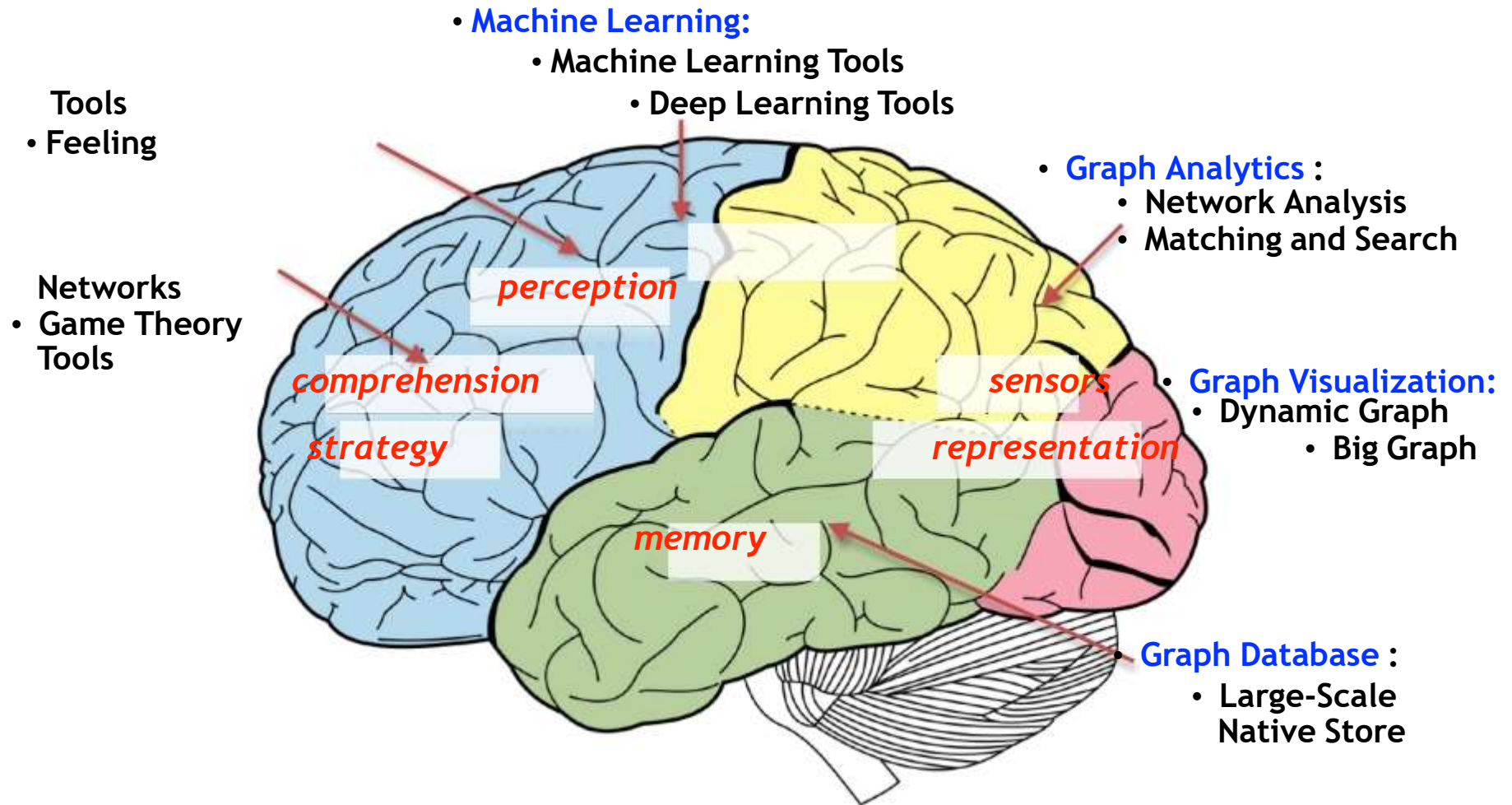
New Model: all of us are generating data, and all of us are consuming data



What's driving Big Data



Human brain is a graph/network of 100B nodes and 1T edges.

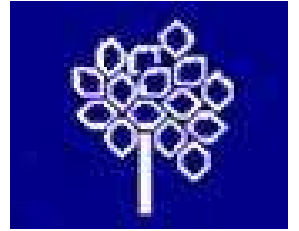


Key Differentiator of this Seminar: Focusing on building a full-spectrum understanding of the latest Big Data Analytics and Artificial Intelligence technologies and using them to build real industry real-world solutions.



- **Dataset and Use Cases: We will show as we go**

Should we move beyond whether it is real to being prepared?



Deep Blu

Alpha Go

1997



Jeopardy! — 1997

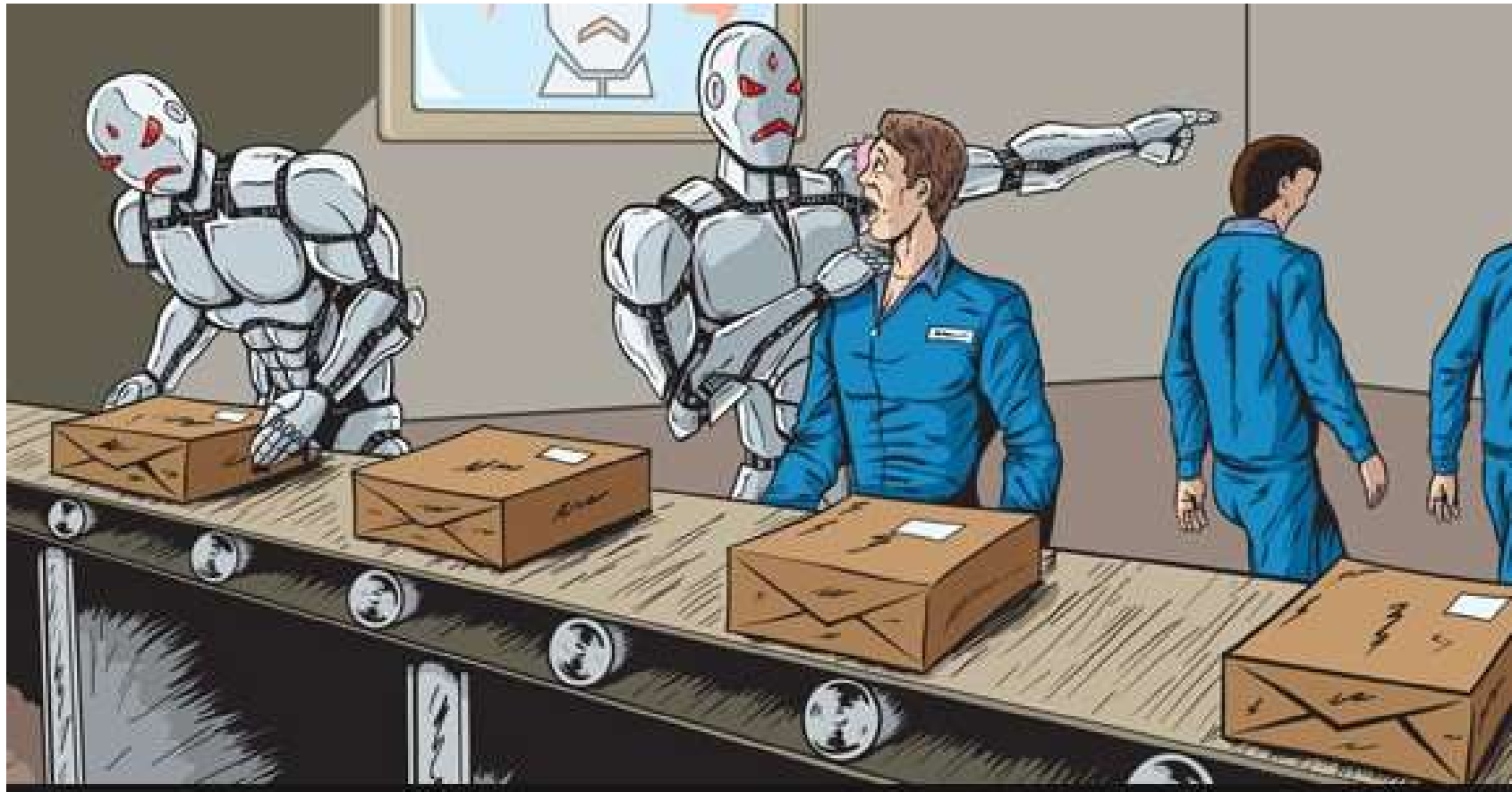


2015 +

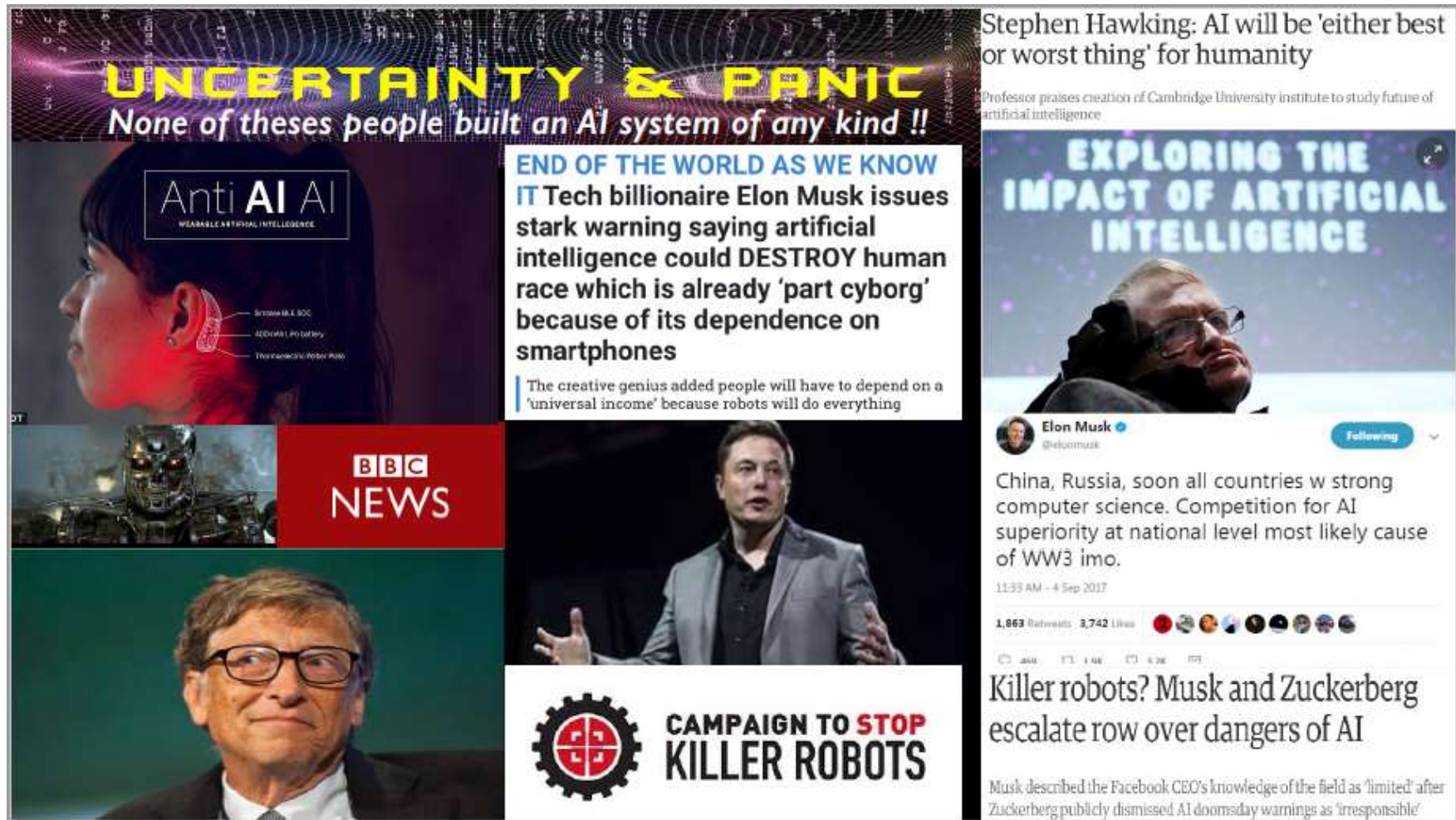




Technology in Balance / Maintaining Mastery / Technology as an enabler?



Are we stuck in this Paradigm?



Where are we?

NEW TECH DESTROYS JOBS

Whilst changing the nature of work and employment

Lost in my lifetime:

Typists
Dockers
Milkman
Blacksmith
Secretaries
Drawing office
Xerox operator
Elevator operator
Computer operator
Telephone operator
Comptometer operator
Financial report writers

++++

Lost in your lifetime:

Testers	Investment bankers
Tasters	Warehouse People
Analysts	Personal Assistant
Advisors	Tech support
Educators	Stock Trader
Reporters	Receptionist
Strategists	Forecasters
Call centres	Train driver
Report writers	Researcher
Personal bankers	Journalist
Personal assistants	Drivers
Answering services	Pilots

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Where are we?

TECH CREATES/ENHANCES JOBS

Whilst changing the nature of life, work & employment

Jobs to come:

Material Programmer	3/4D Designer
Recycling Designers	Risk Profilers
Interface Designers	Cyborg Engineer
Machine Mediators	Protein Designer
Wisdom Archivists	Crime Predictor
Genome Designer	Digital Historian
Material Designer	Information Caretaker
Wisdom Monitors	Truth Engine Mediator
Trouble Shooters	Component Repurposer
Nano-Engineers	Genome-Protein Activators
Bio-Engineers	

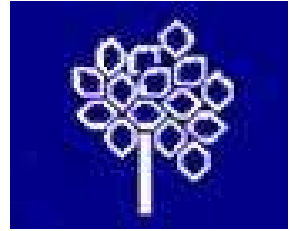
Jobs to Be enhanced:

Fabricator	Complexity analysts
Geneticist	Security Experts
Generalist	Entrepreneurs
Proteomist	Technologists
Multi-designer	Consultants
Problem solver	Architects
Longevity advisor	Detectives
Big Data Analyst	Designers
Cellular programmer	Engineers
Material programmer	Modellers
	Scientists
	Medics

Cyber Security Focus

- Keeping the Bad Guys out
- Protecting your Internal Network
- Recovering from an Attack

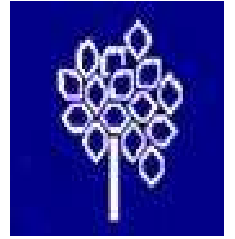
UN Sustainable Development Goals



- **Poverty eradication**
- **Good Health and Well Being**
- **Quality Education**
- **Clean Water and Sanitation**
- **Decent Work and Economic Growth**
- **Affordable and clean energy**
- **Industry, Innovation and Infrastructure**

There is a strong relationship to Technology Development and hence the need for Engineering and Technology based solutions

Being Prepared: All stakeholders



- Thinking Differently
- Strategies
- Take Actionable Measures
- Policy

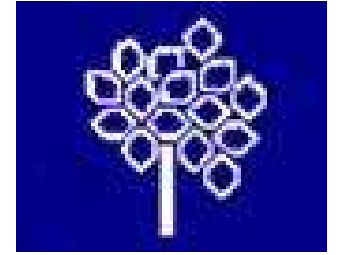
The Implications of Technology: “Fourth Industrial Revolution” in Infrastructure Development especially on the fight against Corruption.

- The advent of technology especially advances in ICTs, **artificial intelligence (AI)**, **machine learning** and the **Internet of things (IoT)** should make anti-corruption a lot easier as they bring new means of interconnectedness and unprecedented surveillance.
- The **Fourth Industrial Revolution**, or Industry 4.0 is an opportunity for the world to use enhanced big data mining, deep machine learning and other techniques to ensure a total zero tolerance to corruption on the digital zone.
- With technologies **like block chain, IoT and digital identification crime, corruption and modern day slavery** will be easy to detect.
- The only thing is to ensure that the criminals are not ahead of the pack.

Let's prepare for and ride the new wave of the 4th Industrial Revolution responsibly for development of Africa



African Proverb



If you want to go **FAST**
Go **Alone**,
If you want to go **FAR**,
Go **Together**