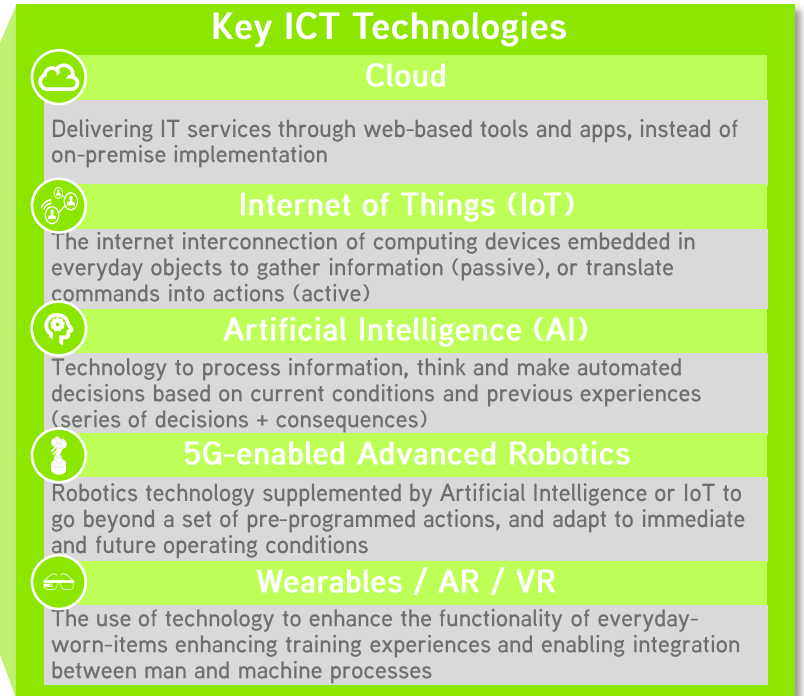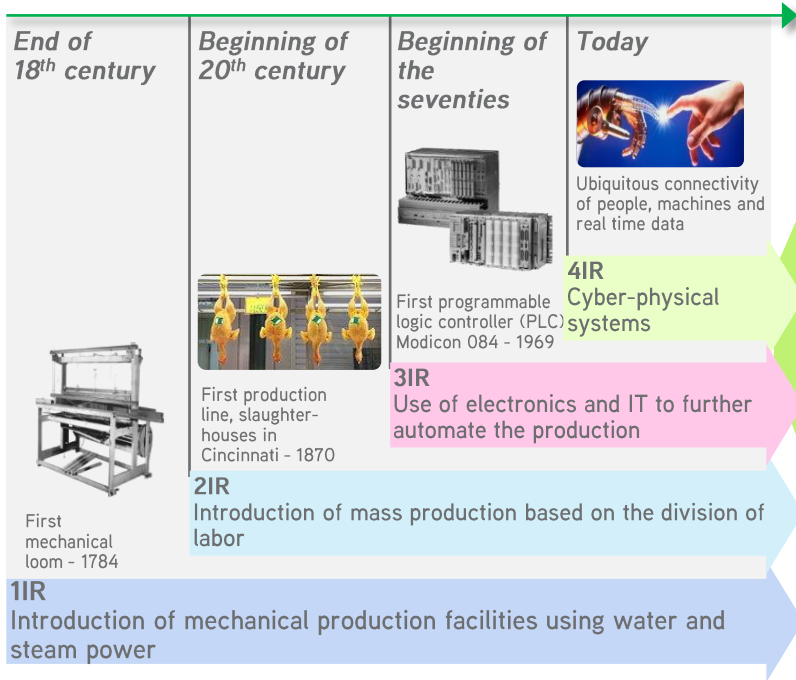# Moving up the ICT stack

Paul McManus

6th February 2020
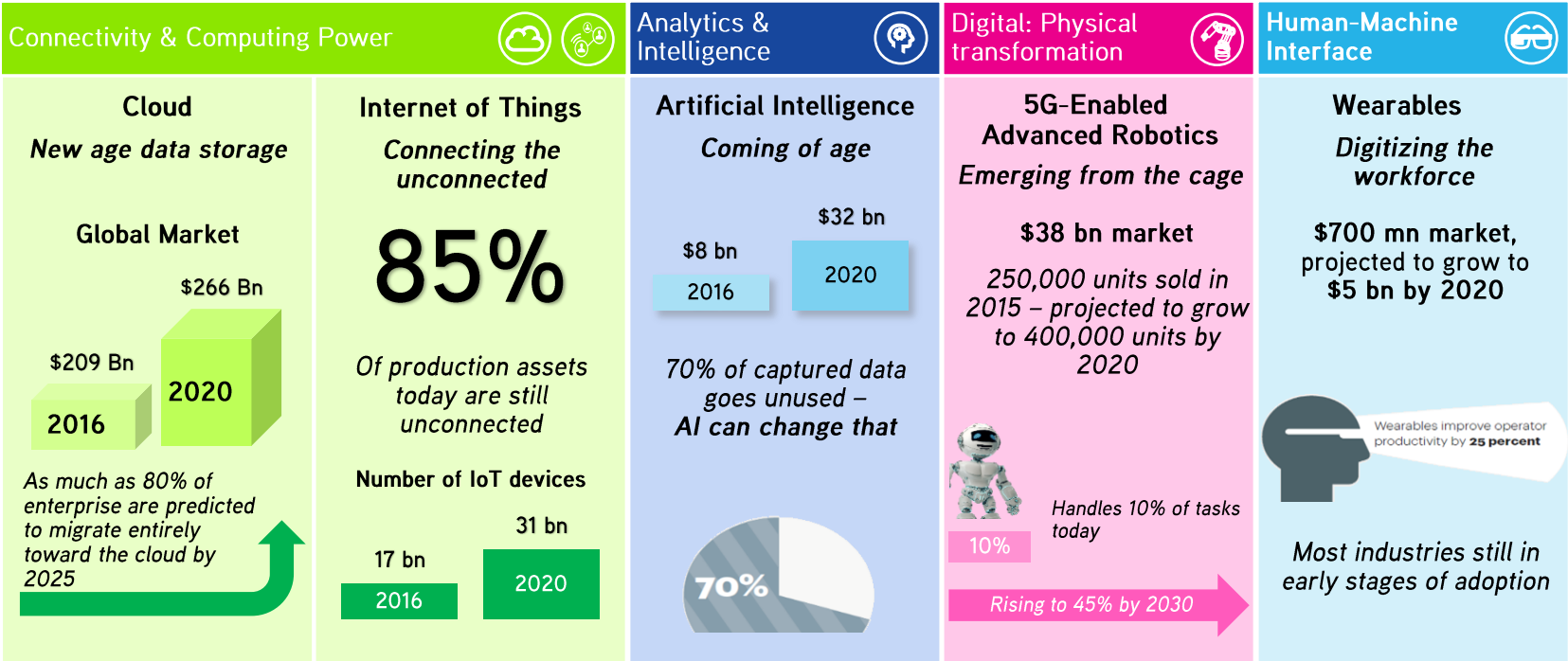
Digital technologies are enabling the Fourth Industrial Revolution (4IR) creating new opportunities
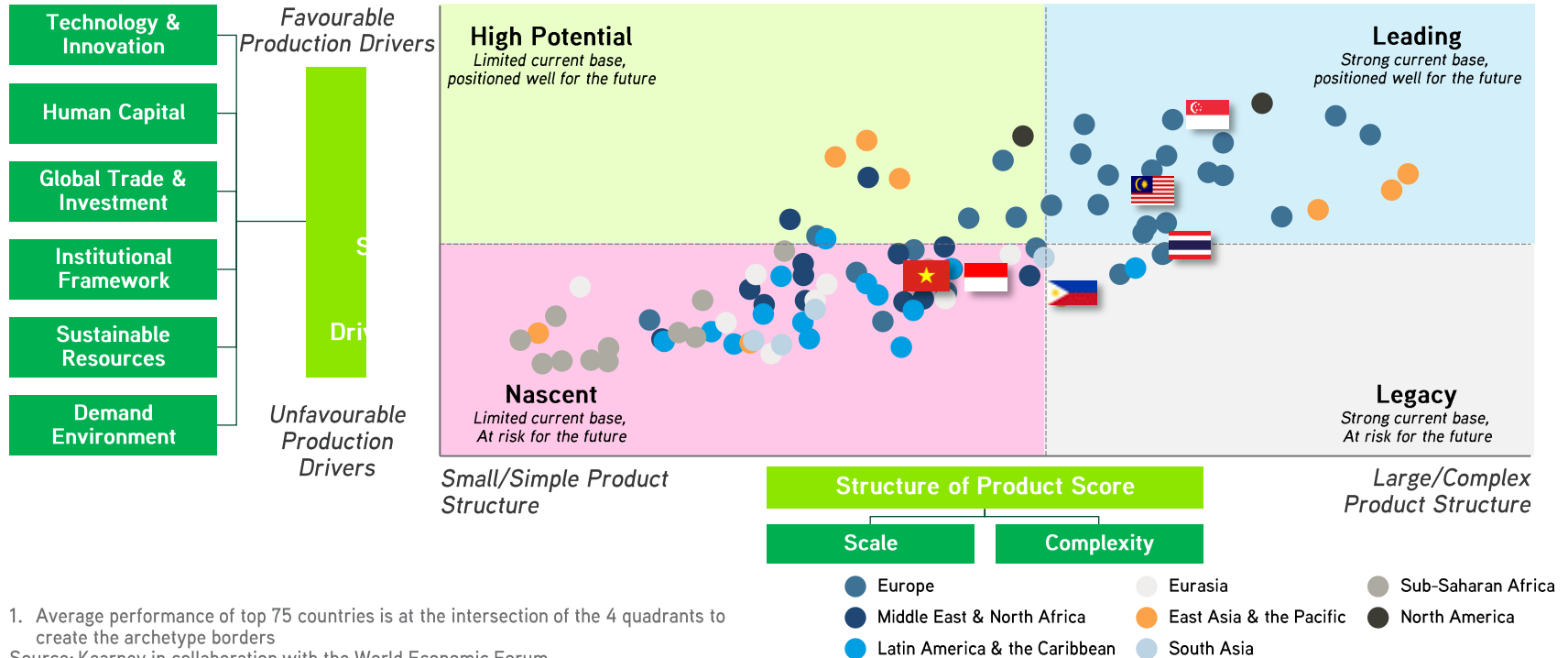
Industrial Revolution Timeline

End of 18th century	Beginning of 20th century	Beginning of the seventies	Today

Today: Ubiquitous connectivity of people, machines and real time data

First programmable logic controller (PLC) Modicon 084 - 1969

First mechanical loom - 1784

First production line, slaughter-houses in Cincinnati - 1870

4IR Cyber-physical systems

3IR Use of electronics and IT to further automate the production

2IR Introduction of mass production based on the division of labor

1IR Introduction of mechanical production facilities using water and steam power

Key ICT Technologies

Cloud
Delivering IT services through web-based tools and apps, instead of on-premise implementation

Internet of Things (IoT)
The internet interconnection of computing devices embedded in everyday objects to gather information (passive), or translate commands into actions (active)

Artificial Intelligence (AI)
Technology to process information, think and make automated decisions based on current conditions and previous experiences (series of decisions + consequences)

5G-enabled Advanced Robotics
Robotics technology supplemented by Artificial Intelligence or IoT to go beyond a set of pre-programmed actions, and adapt to immediate and future operating conditions

Wearables / AR / VR
The use of technology to enhance the functionality of everyday-worn-items enhancing training experiences and enabling integration between man and machine processes

Rapid global adoption of 4IR technologies is driving significant growth

Key Technologies – Trends and Opportunities

Connectivity & Computing Power		Analytics & Intelligence	Digital: Physical transformation	Human-Machine Interface

Cloud
New age data storage

Global Market

$266 Bn

2020

$209 Bn

2016

As much as 80% of enterprise are predicted to migrate entirely toward the cloud by 2025

Internet of Things
Connecting the unconnected

85%

Of production assets today are still unconnected

Number of IoT devices

31 bn
2020

17 bn
2016

Artificial Intelligence
Coming of age

$32 bn
2020

$8 bn
2016

*70% of captured data goes unused – **AI can change that***

70%

5G-Enabled Advanced Robotics
Emerging from the cage

$38 bn market

250,000 units sold in 2015 – projected to grow to 400,000 units by 2020

Handles 10% of tasks today

10%

Rising to 45% by 2030

Wearables
Digitizing the workforce

$700 mn market, projected to grow to **$5 bn by 2020**

Wearables improve operator productivity by **25 percent**

Most industries still in early stages of adoption

ASEAN countries are at different stages; Malaysia in the 'Leader' quadrant with further scope to increase adoption

WEF Country Technology Adoption Readiness Framework

Technology & Innovation

Human Capital

Global Trade & Investment

Institutional Framework

Sustainable Resources

Demand Environment

Favourable Production Drivers

Unfavourable Production Drivers

High Potential
Limited current base, positioned well for the future

Leading
Strong current base, positioned well for the future

Nascent
Limited current base, At risk for the future

Legacy
Strong current base, At risk for the future

Small/Simple Product Structure

Large/Complex Product Structure

Structure of Product Score

Scale | Complexity

- Europe
- Middle East & North Africa
- Latin America & the Caribbean
- Eurasia
- East Asia & the Pacific
- South Asia
- Sub-Saharan Africa
- North America

1. Average performance of top 75 countries is at the intersection of the 4 quadrants to create the archetype borders

Source: Kearney in collaboration with the World Economic Forum

In line with market opportunities, Maxis Business strategy lays out a clear multi-year focus to move up the ICT stack

maxis Business 2018

maxis Business 2019

maxis Business 2020

1 Grow from the mobile core
- Roaming SIM
- Bulk SMS
- BYOD
- MWaaS

2 Double down on Fixed
- Fixed connectivity
- FMC + UCaaS
- SD WAN/LAN

3 Turbocharge Managed Services
- Managed bundles
- Automated network services
- Security

4 Make the IoT Market
- IoT offerings – e.g. Fleet Management, Asset tracking, etc.

5 Drive cloud partnerships
- IaaS & PaaS
- Hybrid Cloud
- Multi Cloud

6 Expand Digital Business Portfolio
- E-Commerce
- Analytics
- Payments

Offer innovative digital solutions

Enable business scale through range of cloud services

Sophisticated M2M and IoT solutions to advance business productivity

End-to-end management and protection of ICT set-up

Provide robust fixed connectivity set-up, with best-in-class SLAs

World class mobile connectivity solutions

	Mobile Connectivity, Devices	Fixed Connectivity	Managed Services	IoT	Cloud	Digital Business Solutions
Market 2023 (RM Bn)	2.5 – 3	4 – 4.5	6 – 7	5 – 6	3 – 4	1.5 – 2
Market CAGR	1-2%	(-3%)	5-6%	15-20%	20-25%	Varies

1. Source: Gartner, Kearney, Maxis estimates

Global Enterprise leaders have executed a similar strategy with positive growth trajectories

		at&t	verizon (3)	vodafone (3)	Telefonica (4)	IT'S HOW WE CONNECT (5)
Revenue	**Total Company Revenue (USD)**	**~171B** (2018)	**~131B** (2018)	**~47B** (2019)	**~14B** (2019)	**~28B** (2019)
	Enterprise Share of Total Revenue	**~22%** (2018)	**~24%** (2018)	**~30%** (2019)	**~27%** (2017)	**~30%** (2019)
	Services[1] share of Enterprise Revenue	**~20-25%**	**~30%**	NA	**~21%**	**~45%**
	Enterprise Revenue CAGR	**~ -5%** (2016-2018)	**~ 1%** (2014-2018)	**~5%** (2014-2019)	**~1%** (2014-2019)	**~9%** (2014-2019)
Product Metrics	**Attach Rate[2]**	**~40-45%** (for top 500 customers)	**~70%** (2016)	NA	**~38%** (2014)	**50%+** (2017)

~11% in 2010-11

1. Defined as all products excluding core fixed and core mobile.
2. Defined as % of subscribers with a value-added service component attached to plan.
3. Verizon Global and Vodafone Global numbers reported.
4. Telefonica Spain numbers reported.
5. Includes Global Enterprise & Services and SME businesses
6. Mobile network OpEx not reported under enterprise business, hence high margin
Sources: AT&T Annual Report 2016-2018, Verizon Annual Report 2014-2018,Vodafone Annual Report 2014-2019, Telefonica Annual Report 2014-2019, Vodafone Expert Interview, Kearney.

In 2019, we started to steer the conversation from being just a connectivity provider to an ICT leader

	From *"Connectivity provider"*	*To* *"ICT Service provider of choice"*
Products	Connectivity focused	ICT Solution suite including Cloud, IOT, MS, etc.
Sales	Transactional	Account ownership and consultative
Delivery	Nascent capabilities	Enterprise grade service enablement & customer experience
Operating Model	Limited alignment	Matrix model of Sales, Delivery and Practices
People	Internally groomed	Hiring right-fit talent with global ICT experience
System/Process	Predominantly manual	Automation across entire customer lifecycle journey
Marketing	Limited business branding	Repositioning our Business brand

Repositioning Maxis Business as the preferred ICT solutions provider in Malaysia

Moving forward, it is imperative to establish the right assets in key focus areas that resolves business needs ...

Predictive Analysis

Data Security & Control

Productivity & Operational Efficiency

Shaping the IOT **market** with industry centric solutions

Building best in class **Cloud** services across segments

Elevation of **segment focused** and **consultative solution selling**

Fully **Transformed** Sales and Customer Journey
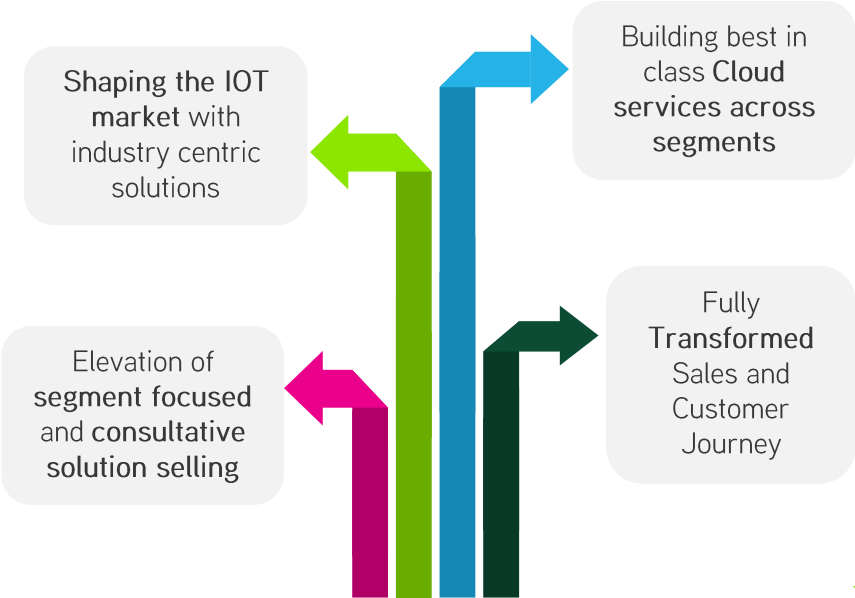
… whilst accelerating this growth through right-fit global & local partnerships

Strategic Partnerships – Anchored around technology, expertise, access & co-creation