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DIGITALISATION & DEVELOPMENT

Ecosystem for Promoting Industrial Revolution 4.0 Technologies in Malaysia

Proliferation of IR 4.0 Technologies in Large Scale Agriculture

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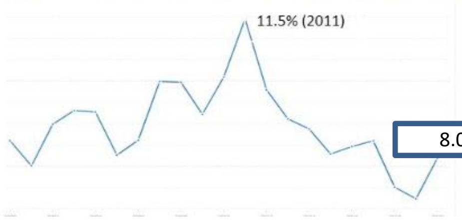
CONFIDENTIAL

Agriculture Contribution to the Malaysian Economy in Decline…

Malaysia's agriculture sector has seen a decline in GDP contribution over the years

Agriculture GDP Contribution Over The Years (Malaysia)



- The sector contributed 8.0% to the GDP in 2020 down 4.5% from its peak in 2011
- Key sub-sectors contributing > **80%** of agriculture GDP include:

37%	28%	16%
Oil Palm	Other Agriculture	Livestock

Source: World Bank, MARDI, DOA, FAMA

A Number of Factors Inhibiting Growth

1 Labor

- Decline as a percentage to Malaysian national employment from 24% (1991) to 13% (2020)
- Significant labor shortages
- Low-skilled labor

2 Technology adoption & transition

- Significant aspects of farming yet to transition IR4.0 technologies
- Innovation penetration & intensity - low

3 Crop sustenance & climate change

- Stress on natural agriculture resources disrupting supply chain and production capacities

Sime Darby is at risk of losing out on an estimated 1.2m MT unharvested Fresh Fruit Bunch (FFB) annually if the labour shortage persists.

However, IR 4.0 Technologies Adoption Could Address the Decline & Transform the Landscape

Widely Accepted use of IR 4.0 Technology

1. **AUTOMATION**

   - **Robotics** – autonomous robots in smart farming
   - IoT – remote farm monitoring ***(potential to increase agriculture productivity by 70%)***
   - Sensors – real time site specific management
   - Cloud Computing – decision support & automation systems

2. **SMART SENSING & MONITORING**

   - **AI** – algorithm, data integration with robotics, analytics
   - UAVs - Video analytics, imagery, irrigation management & pesticide treatment ***(single drone with a 10-litre fertiliser capacity could cover up to 24ha land in a day)***

3. **BIG DATA**

   - Predictive analytics for weather, fertigation, yields & harvesting cycles

Current IR 4.0 Technology Adoption & Intensity – Varied & Low in Magnitude & Scale

Factors Impacting Adoption

Ageing farmer demography
- Generational skills gap

Labor intensive VS. Tech intensive regimes
- Technical know-how in data analysis & interpretation
- Traditional farming practices VS. automation/deep tech applications

Lack of technology infrastructure & connectivity;
- Paddy farmers in Sabah & Sarawak with latency & bandwidth issues

Over dependence on low skill foreign workers

Technology innovation & product development
- Limited supply chain capabilities tech-based product development

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Concerted Efforts Undertaken by Key Stakeholders to Increase Adoption

Key Initiatives, Programs

- **Ministry of Agriculture's** provisioning for a special fund for Agriculture 4.0 up to RM43m
- Under the **Sector Digitalisation and Transformation programme**, the Government continues to provide support for the industry through various initiatives to transform and empower agro-entrepreneurs
- **MARDI** involved in developing cutting edge technologies in food processing, post-harvest handling, smart farming technology for paddy
- **Digital AgTech/eLadang** is a pilot initiative driven by the **Malaysia Digital Economy Corporation** in collaboration with specific partners to empower the agriculture sector by infusing 4IR technologies
- **Felda Global Ventures** has invested in automation and mechanisation of daily operations
- **Human Resource Development Corporation's** PENJANA Initiative to provide digital farming training courses

Catalytic Financing/Funding Options

AgroBank's RM60 million Agrofood Value Chain Modernisation Programme

- Offers funding up to RM1m at 3.5% interest p.a. to procure equipment and technology based on IR4.0 technologies

Ministry of Agriculture and Food Industries

- Young Agropreneur Programme through grants which are worth up to RM20,000

AgroFood Facility (RM500m) and Dana Pembiayaan Agromakanan(RM200m)

Commerce International Merchant Bank's

- Agrofood facility scheme for working capital and/or capital expenditure for the development of agriculture projects

Stakeholder Intervention Alone is Not Sufficient to Increase Adoption

Key Drivers Required to Increase IR4.0 Proliferation

Remove subsidies or repurpose investments through Government-linked or related organisations as in the case of palm oil through FELDA and paddy farmers through MADA to compete globally and increase exportability

Mindset change in embracing technology in stages must work hand in glove without inertia especially for the ageing farmer demography

Enable large scale automation in large scale agriculture hence reducing dependency on low-skilled foreign workers

Facilitate innovation through R&D grants enabling strategic partnerships between public and private sector that eventually commercialize IR 4.0 product development

DreamEDGE Sdn. Bhd.

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DreamEDGE prides itself as a **pioneering Bumiputera company** offering innovative solutions focused on providing and engaging clients by employing our pool of talents and resources to deliver engineering services across industry verticals such as **Automotive, Rail, Naval, Energy, Aeronautics, Automation and Manufacturing.**

- Digital Engineering Services & Consultancy
- Incorporated March 2007
- 136 employees
  - incl. 80 engineers
- ISO Certification:
  TUV NORD: ISO 9001:2005

- MIDA: R&D Status
- MATRADE Export Award Recipient 2018: Service Category – Mid-Tier Company
- 4 Star: SME Corp. Rating
- 4 Star: HRDF Training Provider
- 4 Star: MINDEF Audit Score

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(STRATEGIC PARTNER)
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TOKYO R&D ASIA, TOKYO, JAPAN.
- 50-50 JV COMPANY
-Automotive development services and consultancy

SmartDrive Inc., TOKYO, JAPAN.
(STRATEGIC PARTNER)
Mobility Data Platform, Big Data Analytics

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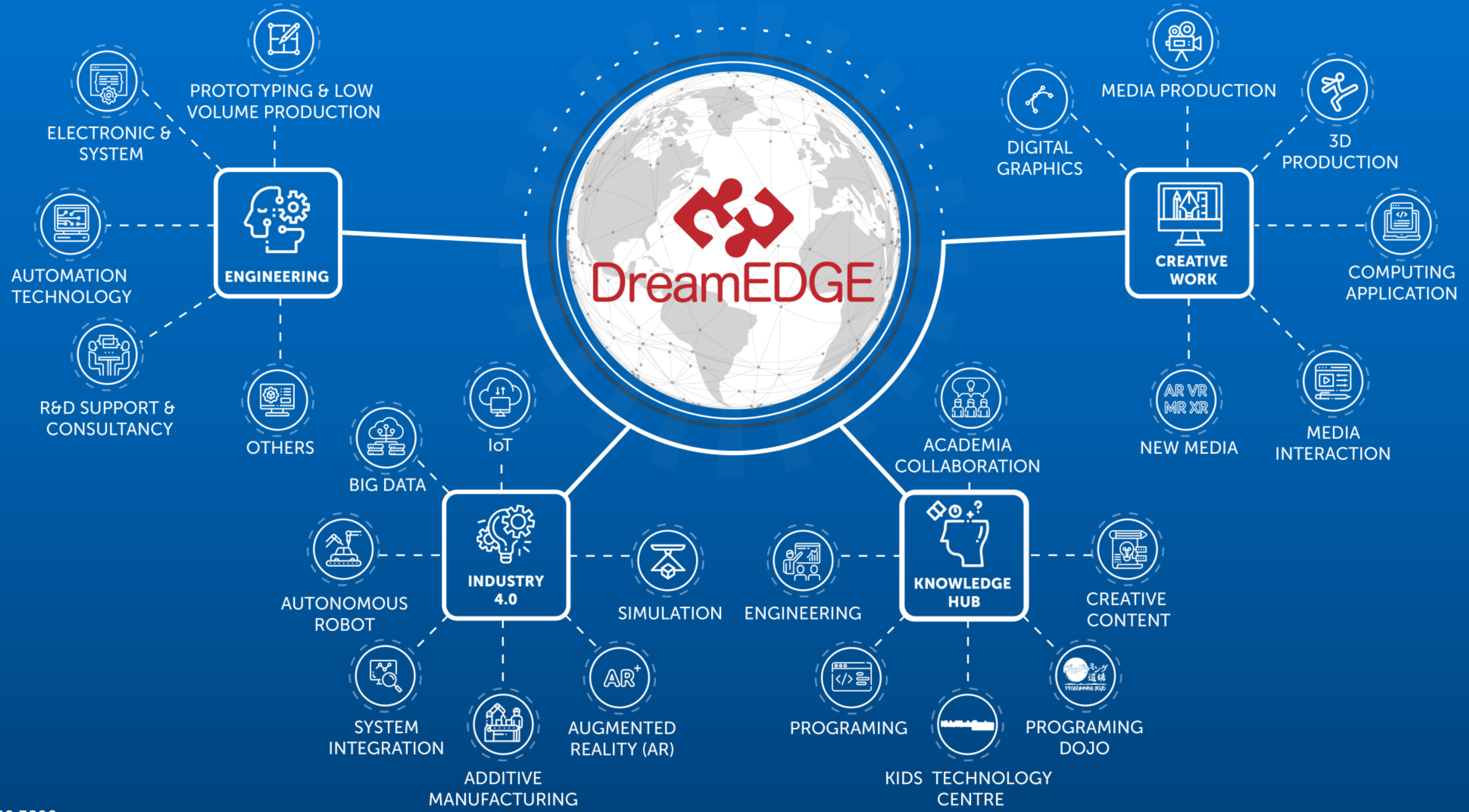

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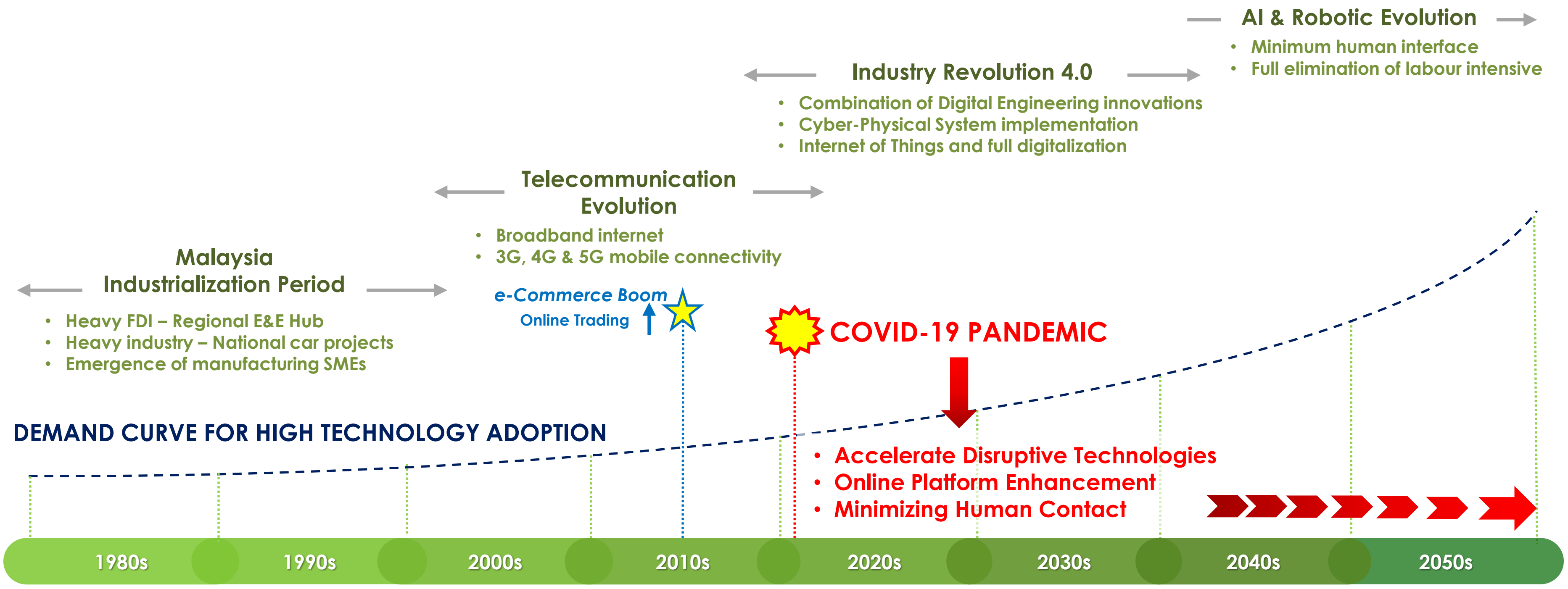
The Unprecedented 2020 and Beyond…

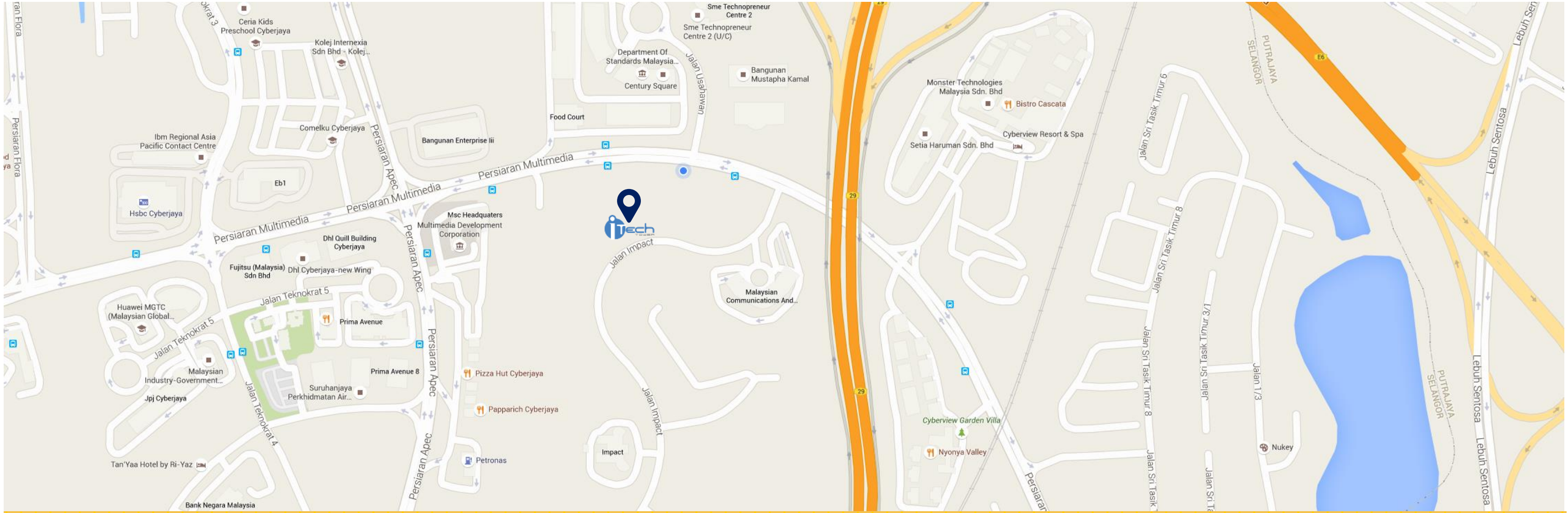
As Malaysia enters the new decade 2020, changes in business climate is imminent where advance technology adaptation is inevitable; labour intensive businesses will be replaced with Automation and AI in accordance to the development of Industry Revolution 4.0



Source: DESB Strategic Planning Analysis

THANK YOU

CONTACT US



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