Industry 4.0 Enables SMEs for a Smart Future

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Hong Kong Productivity Council
Hong Kong Productivity Council

- 52 Years of Experiences
- ~$466m External Income*
- Statutory Body
- ITC
- 23 Council Members
- ~30% Government Subvention
- ~60% SMEs Clients* (based on no. of projects)
- 1,000+ Projects*
- ~90% Industrial Applications*
- ~84% Local Procurement (~60% SMEs)
- 4 Offices in GBA
- 630+ Staff

* Figures based on latest available data.
Definition of »Industrie 4.0«
Common understanding at 2019

Value Chain
X
Product Life Cycle
X
Collaboration
X
Data

Industry 4.0

Big Data
Automation
IOT
Cloud Computing

System Integration
Connection
HKPC enables Industry 4.0 in Hong Kong & GBA

Digital@HKPC
Partnership with Fraunhofer IPT
Industry 4.0 Recognition Programme
Industry 4.0 Pioneer in Hong Kong & GBA
Deployment Strategy for Malaysia Industry 4.0
Digital@HKPC
The first local demonstration centre (Smart Industry One) for the future operation of Industry 4.0 smart factory inaugurated at 24th August, 2017

Demonstrate to Public
• Industry 4.0
• Enterprise 4.0
• CMC Cycle
• Smart Manufacturing
• Smart Logistics
• Smart Innovation
• Smart Materials
• Smart Machine & Process

Illustrate “Digital Transformation” technologies
• Digitalization - Vertical & Horizontal Integration
• Industrial IoT
• 5G connected applications
• Blockchain in Supply Chain and Manufacturing
• Cyber Physical Production System (CPPS)
• Smart Data Analytics
• Augmented Reality (AR)
• Autonomous Production
• Human-Robot-Machine Collaboration
• Mass Customization and Personalization
• Industrial Cyber Security
Industry 4.0 Partners Fraunhofer IPT, Germany

Technology
- Digitalisation
- Internet of Things
- Cyber Security
- Real-time Visibility
- Data Analytic
- Cyber-physical System
- Deep Learning
- Artificial Intelligence
- Human-machine Interface
- Virtualisation

Services
- Invention & Innovation
- i4.0 Certified Training
- i4.0 Maturity Assessment
- i4.0 Pilot Project
- i4.0 Advisory Service
- i4.0 Recognition

Fraunhofer IPT, Germany
Industry 4.0 Maturity Level for SMEs

Stepwise approach for SMEs upgrade and identify business benefits

- Digitalization + Connectivity
- Industry 4.0

**Return on Business**

**Objectives**
- Simplify repetitive manual tasks
- Streamline business and IT
- Make data-based decisions
- Grasp complex interactions
- Prepare for upcoming situations
- Leave the control to the system

**Building Blocks**
- Introduce IT on shop-floor and reasonable automation
- Connect and integrate business processes
- Build a real-time digital shadow
- Run data analytics and understand effects
- Simulate possible future scenarios
- Let systems adapt itself where possible

**Hong Kong Industry Maturity Level**

- Computerization
- Connectivity
- Visibility
- Transparency
- Predictability
- Adaptability

Level: -1, 0, 1i, 2i, 3i, 4i
Fraunhofer IPT & HKPC Developed an “Industry 4.0 Smart Enterprise & Factory Upgrade and Recognition Program”

Critical Steps for SMEs toward Industry 4.0

1. Conduct i4.0 maturity assessment
2. Identify i4.0 pilot project and formulate i4.0 upgrade & deployment strategy

A model for Manufacturing (OBM, ODM & OEM) to evaluate HKSMEs “i4.0/e4.0 Maturity Level Upgrade & Migration Strategy”
**Industry 4.0 Pioneers**

**Smart Manufacturing**

**Metals & Plastic Industry**

1st Hong Kong Company achieved Industry 4.0 "1i Maturity Level Recognition" on 11 Oct, 2018
- Successfully undergone Digital Transformation in 15 months
- End-to-end Digitalization and vertical integration of operation and production
- Connectivity of Machines (IIoT) and real time shop floor visualization
- Automation and robotics applied

**Smart Manufacturing**

**Electronics Industry**

2nd Hong Kong Company and 1st Electronics Industry achieved Industry 4.0 "1i Maturity Level Recognition" on 26 March, 2019
- Successfully undergone Digital Transformation in 18 months
- End-to-end Digitalization and development on Industrial IoT devices for data integration between operation and production
- Real time visualization of SMT shop floor OEE and data-driven Kaizen
- Digital talent development for data analytics and machine learning
Industry 4.0 Pioneers

3rd Hong Kong Company achieved Industry 4.0 "1i Maturity Level Recognition" on 22 May, 2019

- Successfully undergone Digital Transformation in 12 months
- Digital Lean driving continuous improvement through real-time data acquisition from operation and production
- Connectivity of Machines (IIoT) and real time shop floor visualization
- Real-time dashboard for order, material, WIP and FG monitoring and alert for efficiency improvement

Smart Manufacturing

3rd Hong Kong Company achieved Industry 4.0 "1i Maturity Level Recognition" on 22 May, 2019

Printing Industry

- Successfully undergone Digital Transformation in 12 months
- Digital Lean driving continuous improvement through real-time data acquisition from operation and production
- Connectivity of Machines (IIoT) and real time shop floor visualization
- Real-time dashboard for order, material, WIP and FG monitoring and alert for efficiency improvement

Smart Manufacturing & Products

- A paradigm shift from traditional business to smart digital business by i4.0 concept
- Smart product development by 3D Printing and Mobile Apps platform for innovating a new digital business model
- Extended to STEM education for students
- Digitalization on Smart Production and Operations for productivity & efficiency improvement
- Integrated with material suppliers by digital solutions for replenishment process optimization

Toy Industry

A paradigm shift from traditional business to smart digital business by i4.0 concept

- Smart product development by 3D Printing and Mobile Apps platform for innovating a new digital business model
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Industry 4.0 & Enterprise 4.0 Applications

Smart Manufacturing
- Electronics
- Metal
- Logistics
- Print
- Toys
- Plastics
- Mould
- Automotive
- Home Appliance
- Machinery

Smart Enterprise
- Retail
- Trading & Import/Export
- Banking, Finance & Insurance
- Testing
- Information Communication & Technology
- Property
- Hospitality & Tourism
- Professional & Scientific Convention & Exhibition
Deployment Strategy for Malaysia Industry 4.0

1. Industry 4.0 Demonstration Factory
   - To educate Government, Associations, SMEs & University how i4.0 can help.
   - To demonstrate the future needs for development of technologies.
   - To create the awareness on i4.0 smart future.

2. Industry Pioneer – Pilot Case from SMEs
   - To build the first i4.0 pilot case for Industry Pioneer.
   - To develop the Malaysia i4.0 Maturity level and upgrade roadmap using sector specific & stepwise approach.

3. Development on Local i4.0 Smart Solutions
   - To groom the local solution vendor adopting i4.0 innovation & Digital Transformation.
   - To upgrade and speed-up the capability of future technology development.
   - To nurture and encourage startups and innovation to drive local R&D technologies.

4. Development on future i4.0 Digital Talents
   - To nurture talents through new technology training such as AI & Robotics, Machine Learning.
   - To accelerate global partnerships with foreign research Institute, University & organizations.
   - To build future digital talent pool through STEM education from school students.
Innovate for a Smart Future

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