# Roles, Functions and Programmes of SHRDC & Malaysian Smart Factory 4.0

**7th July 2018**

**Klang Chinese Chamber of Commerce**

# SHRDC

## State Government

Infrastructure

## Federal Government

Equipment Grant

## Industry

Expertise

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# OUR FIRST 25 YEARS FOR THE INDUSTRY

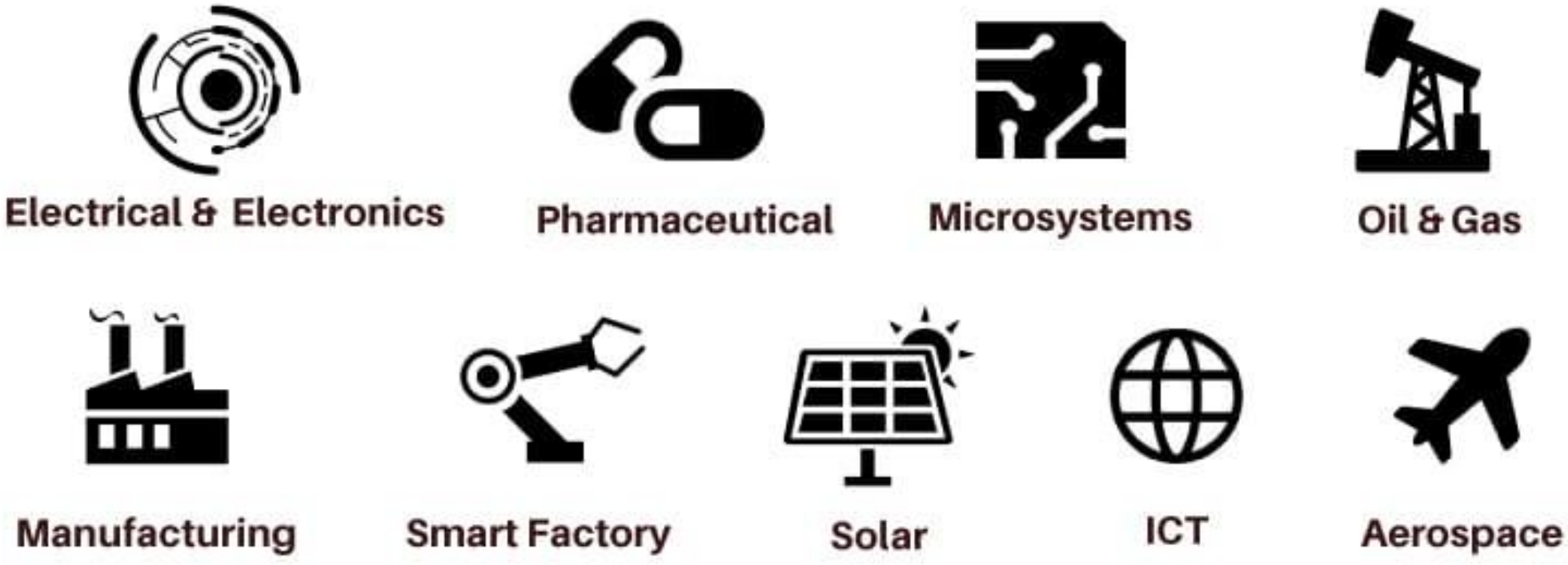
| | | | |
|---|---|---|---|
| No. of employees **38** | Training space **48,000** sq ft | No. of pax trained **84,486** | Serving **< 2,000 companies** |

- Manufacturing
- Product Design and Development – Oil & Gas, Machine & Equipment Design, Semiconductor
- ICT – Big Data Analytics, Programming & Database, Cloud
- Solar Technology – Design and Installation
- Aerospace – MRO Components and Component Mfg
- Smart Factory and Industry 4.0

# SKILLS TRAINING & TALENT DEVELOPMENT

## Upskilling | Workforce

## Pipeline Talent Development | Apprentices and Trainees

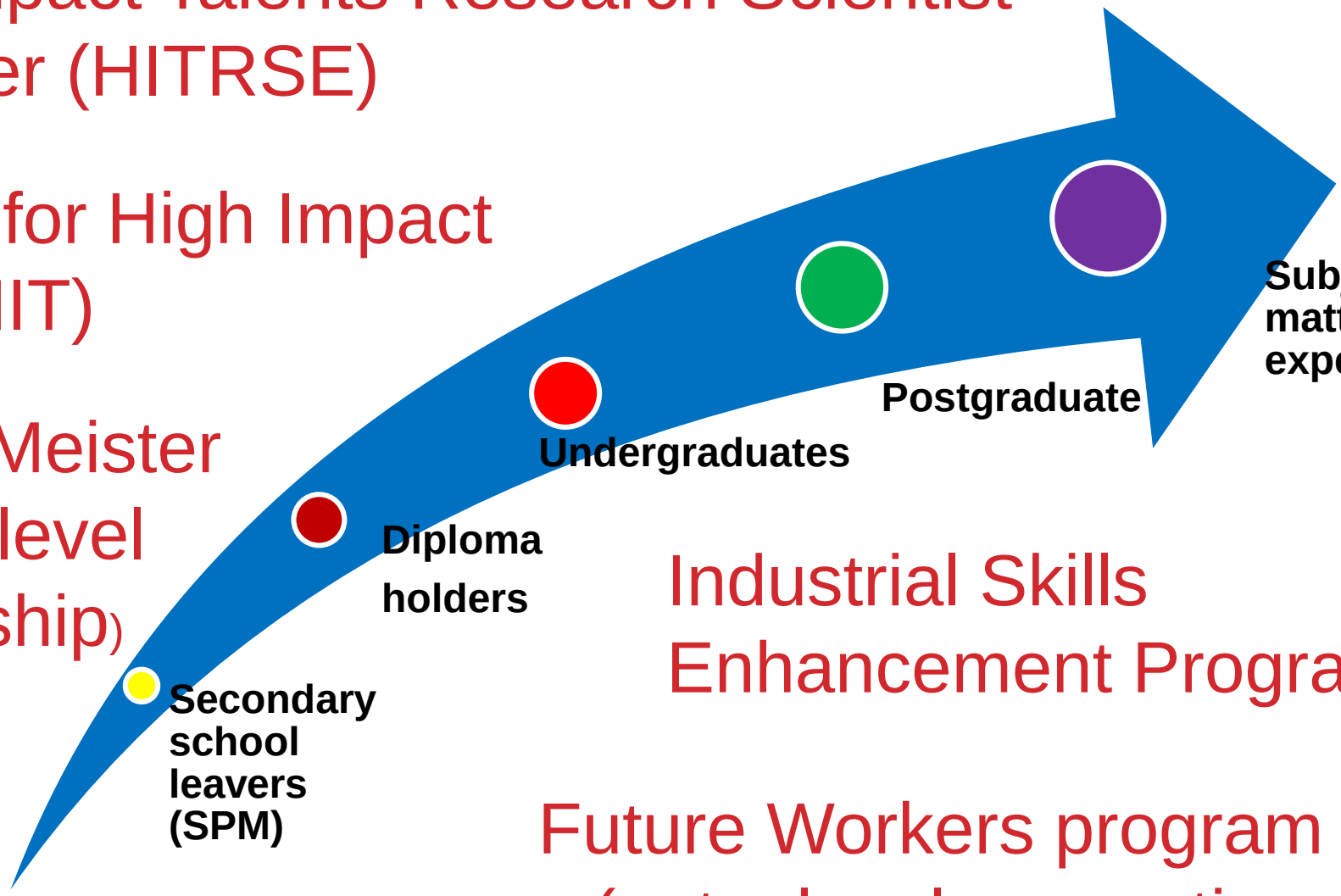


# Strategic Delivery Mechanisms

High Impact Talents Research Scientist Engineer (HITRSE)

Internship for High Impact Talents (iHIT)

Malaysian Meister (advanced level apprenticeship)



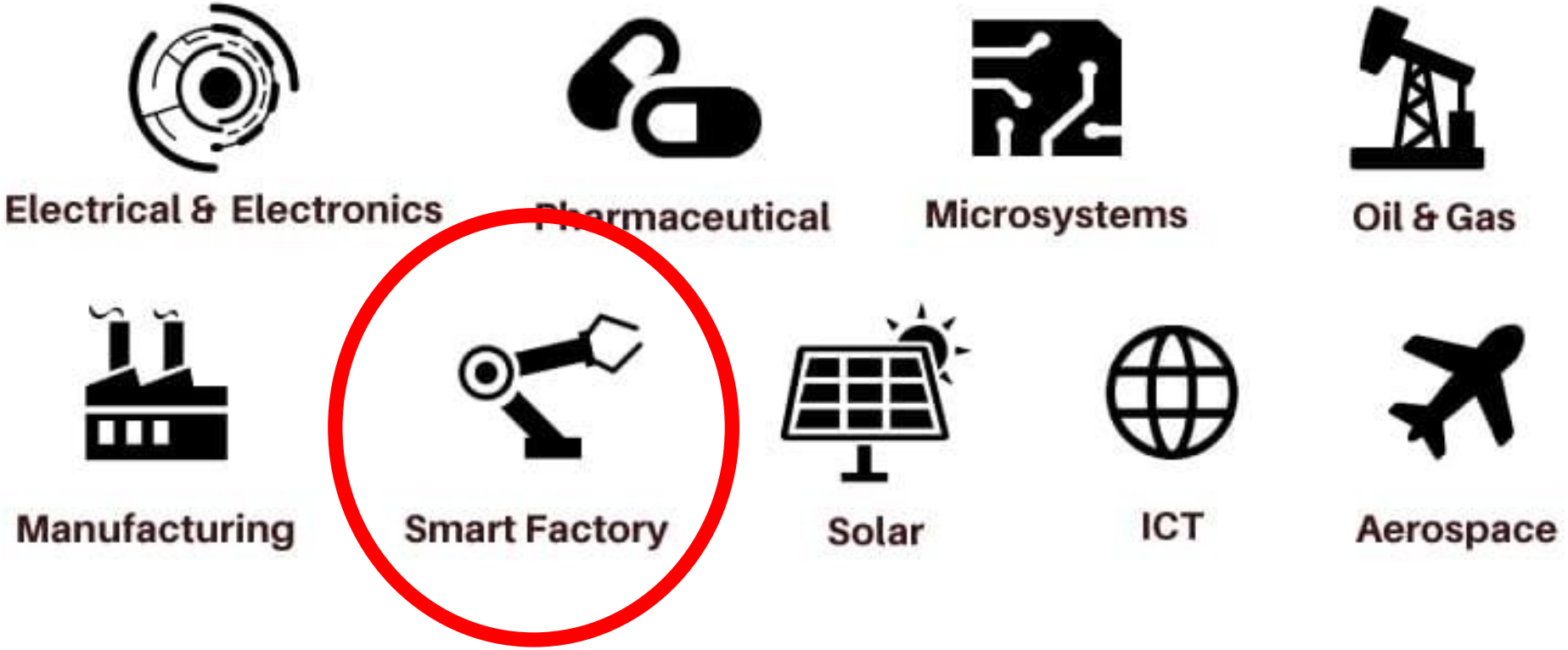

Industrial Skills Enhancement Program (INSEP)

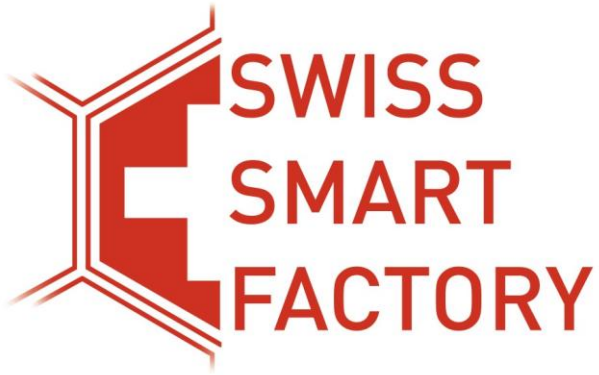
Future Workers program (entry level apprenticeship)

# SKILLS TRAINING & TALENT DEVELOPMENT

**Upskilling | Workforce**

**Pipeline Talent Development | Apprentices and Trainees**



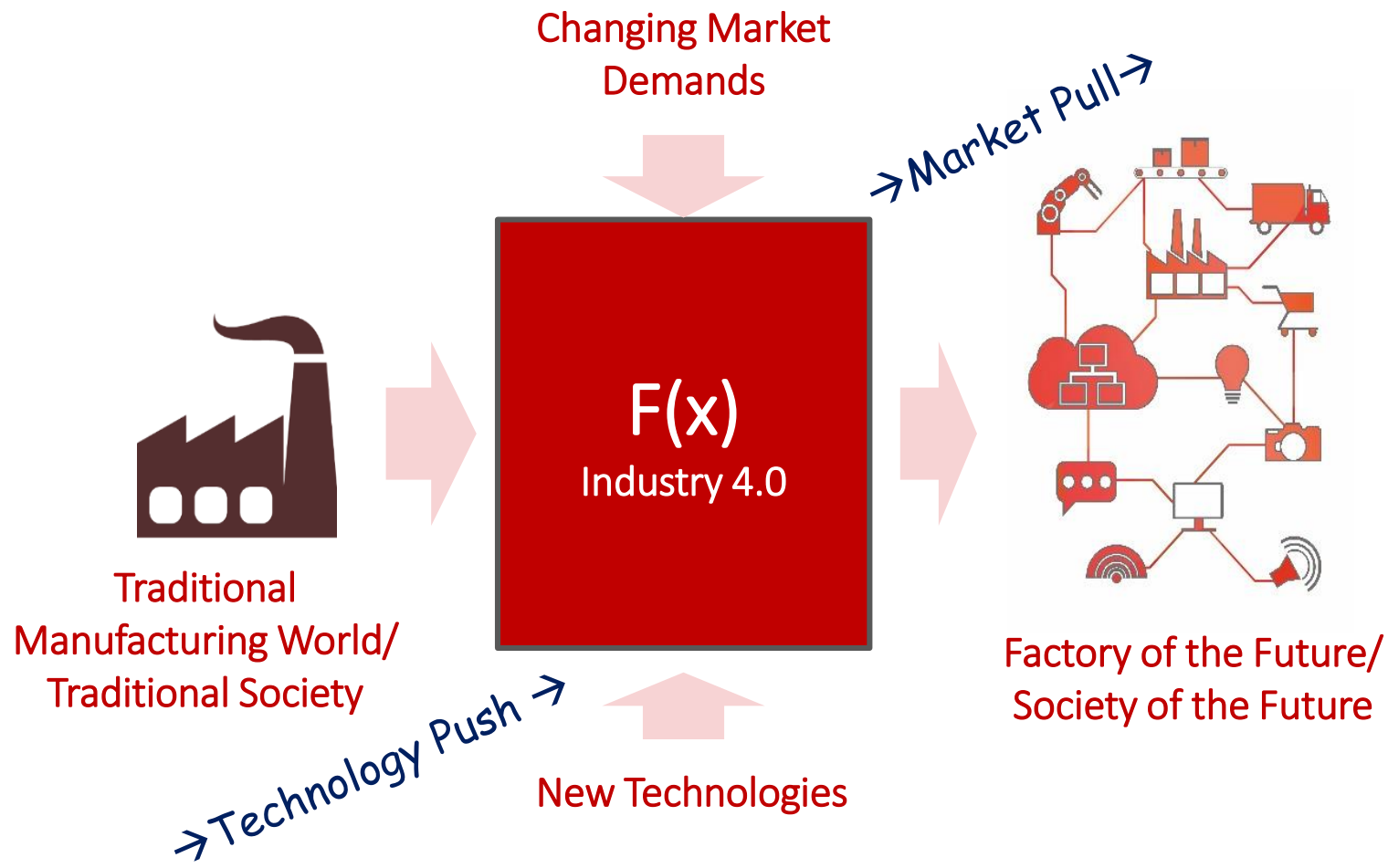




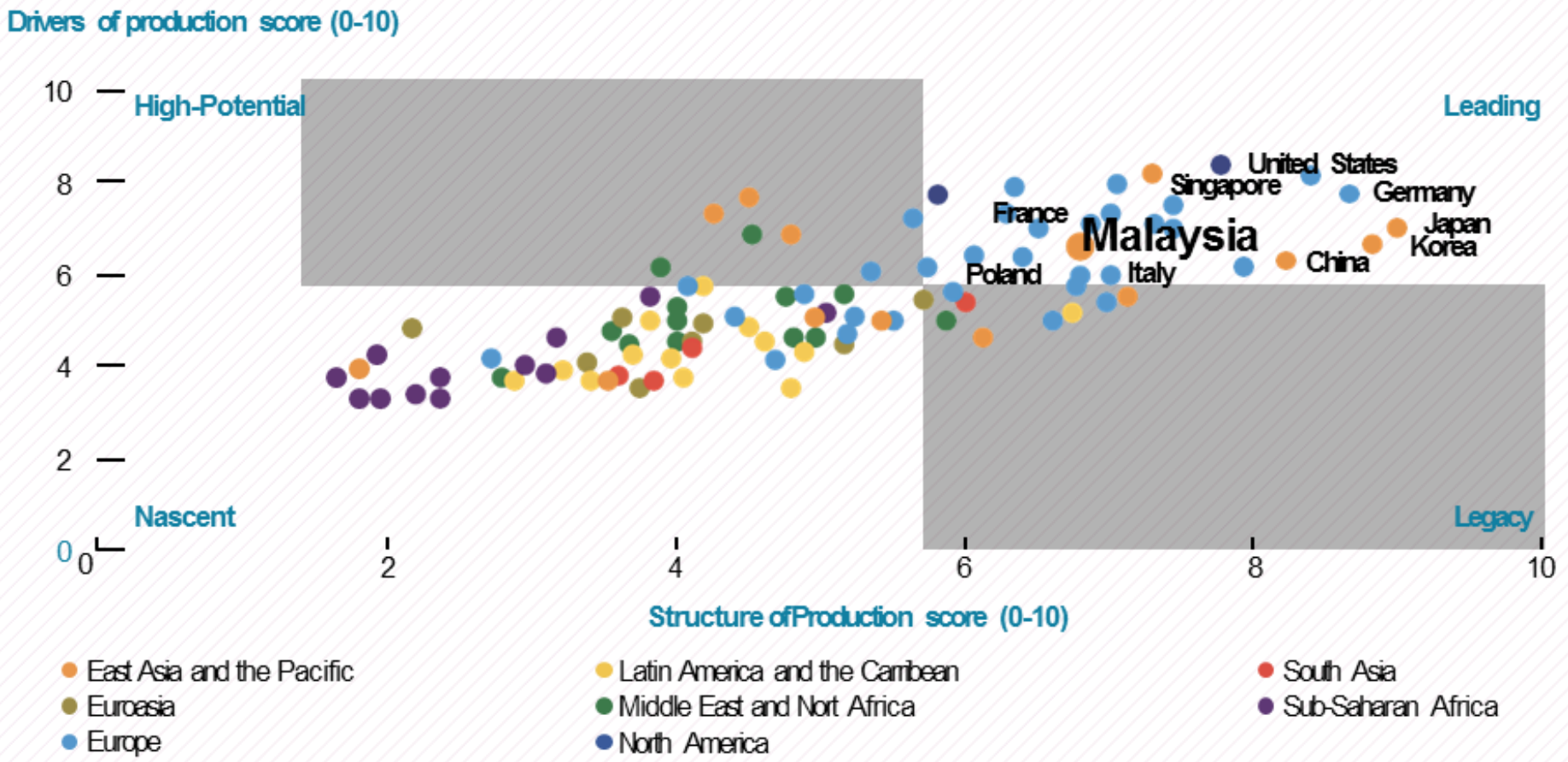
# MALAYSIAN SMART FACTORY 4.0

***SHAPING THE VISION OF INDUSTRY 4.0 TOGETHER***

# Industry 4.0 for Malaysian Companies & SMES
## An Absolute Necessity



# MALAYSIA'S READINESS FOR 4.0




**Note:** Average performance of the top 75 countries is at the intersection of the four quadrants.

**Source:** Readiness for the Future of Production Report, World Economic Forum, 2018

# CHALLENGES

Lack of awareness on the impact of and need for Industry 4.0 technologies, both in terms of opportunities and business model disruption, especially among SMEs.

Few visible success stories of applying Industry 4.0 technologies and processes by local companies

Lack of a centralised and easily accessible information platform to understand best practices and relevant use cases

Ownership of Intellectual Properties due to inter-connectivity and information sharing along the supply chain

Evolving customer expectations and demand for customisation of products and faster delivery speeds

Inadequate understanding of costs vs. benefits and ability to conduct Industry 4.0 business case analysis

Low digital adoption especially among SMEs (~20%) and limited use of automation by manufacturing firms (majority of firms use less than 50% of automation)

Higher cost of adoption and longer payback period for Industry 4.0 technologies and processes

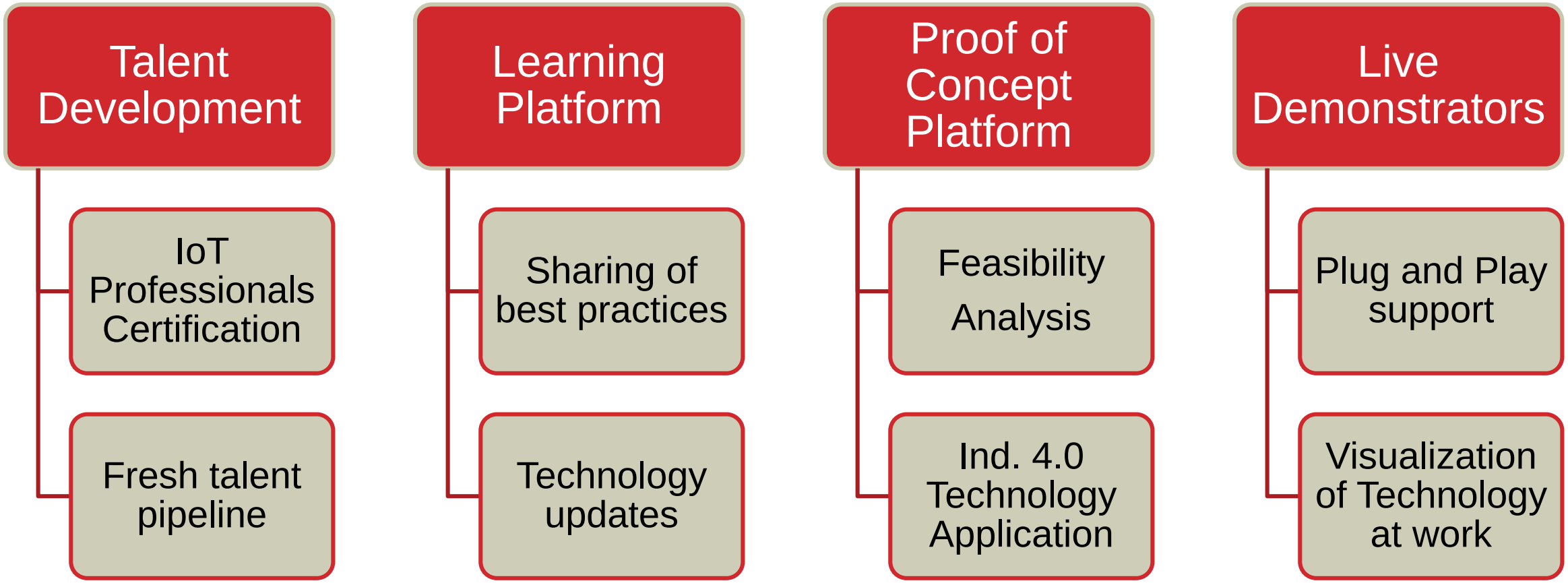
Significant shortage of required talents, skills & knowledge for Industry 4.0, particularly in the areas of IoT, robotics and AI

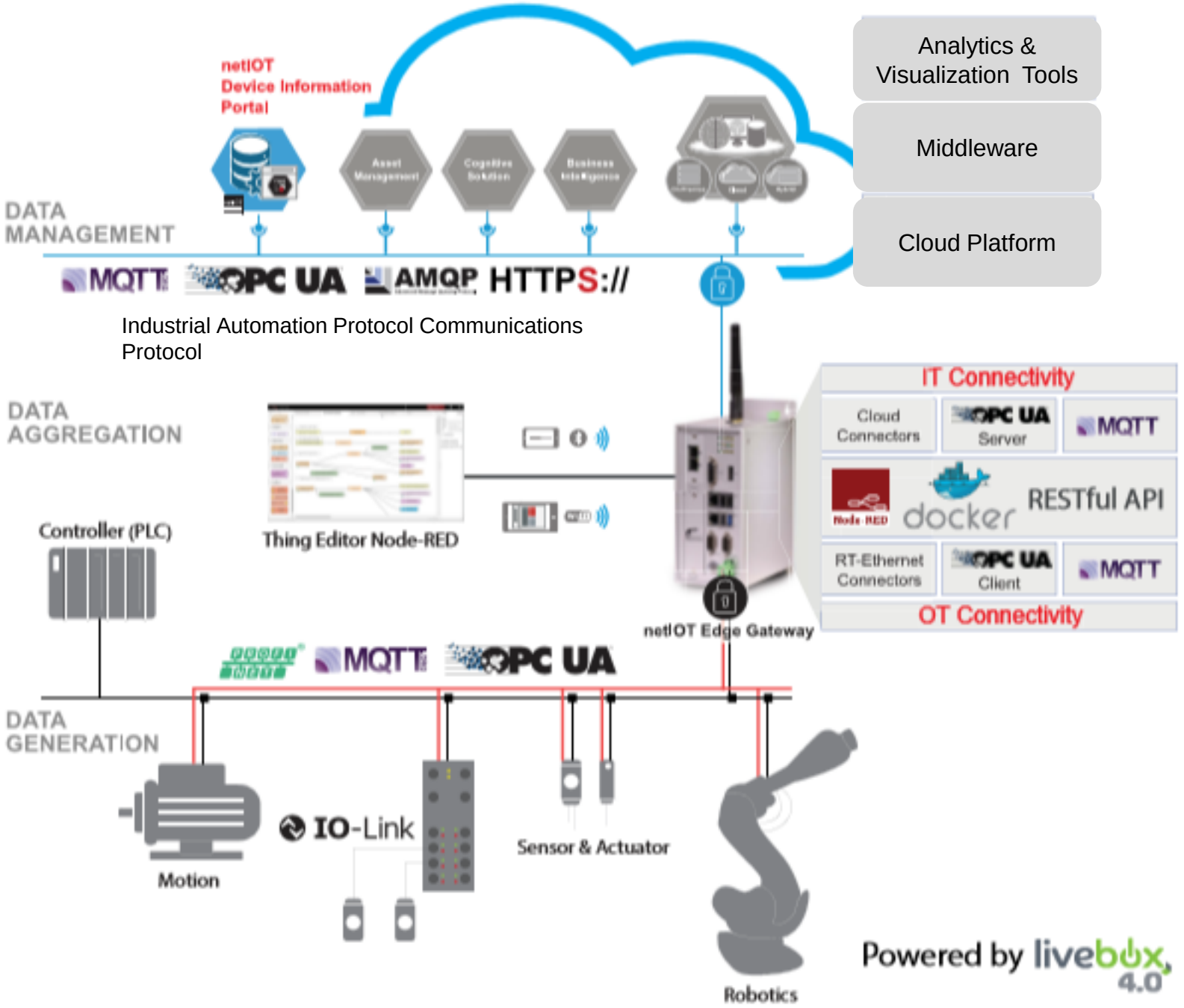
Limited understanding of manufacturing firms of required future skills and expertise and own readiness to embark on Industry 4.0 transformation

Exposure to cyber threats with increased connectivity and new technologies, especially IoT

Lack of integrated and digital approach to data gathering along manufacturing and supply chains

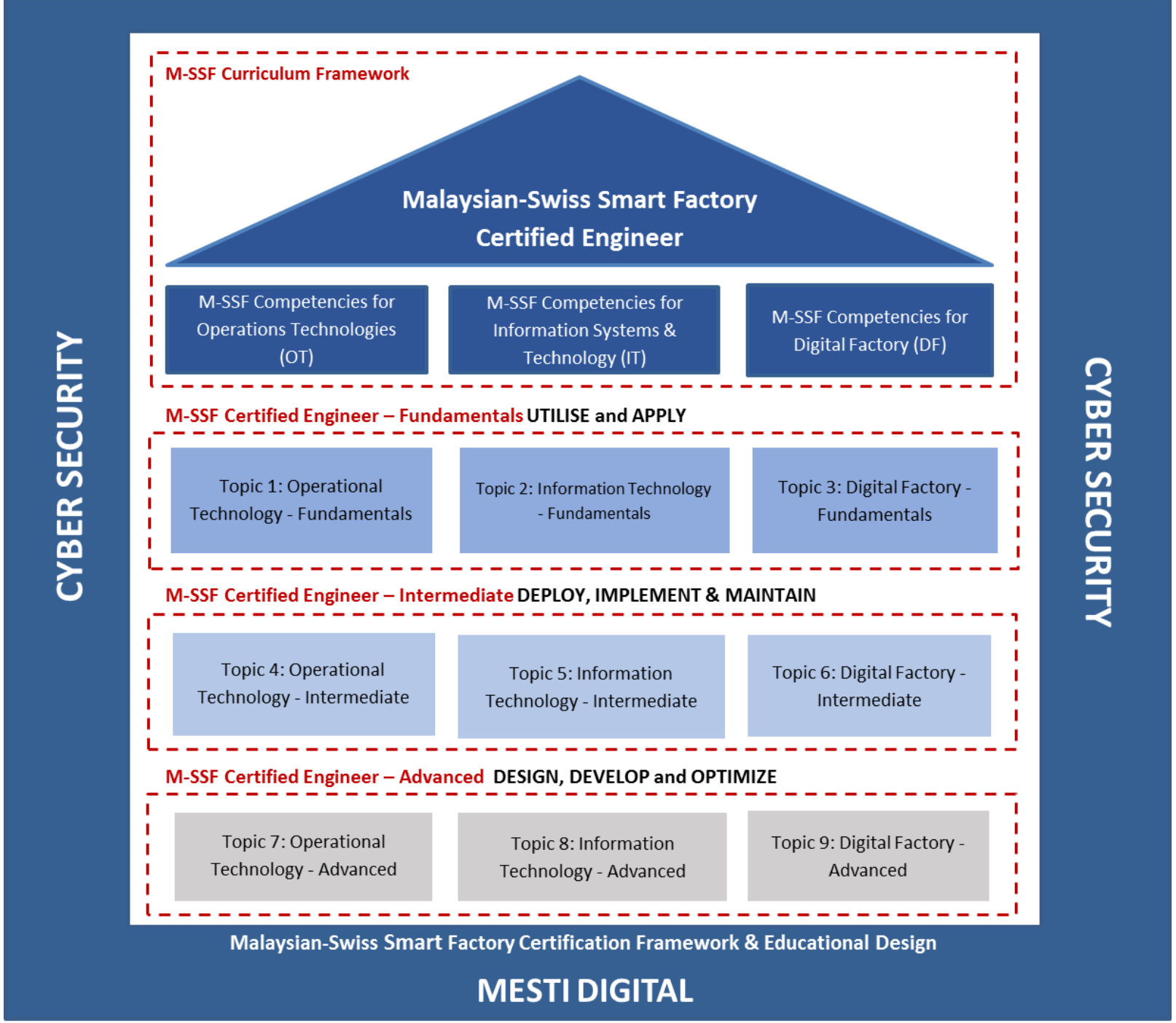
# MSF 4.0 - KEY FOCUS AREAS






## IOT Gateway

- Communications Protocol
- Cloud Connectors
- Container
- RT-Ethernet Connectors
- RESTful API


CYBER SECURITY
M-SSF Curriculum Framework
Malaysian-Swiss Smart Factory Certified Engineer
M-SSF Competencies for Operations Technologies (OT)
M-SSF Competencies for Information Systems & Technology (IT)
M-SSF Competencies for Digital Factory (DF)
M-SSF Certified Engineer – Fundamentals UTILISE and APPLY
Topic 1: Operational Technology - Fundamentals
Topic 2: Information Technology - Fundamentals
Topic 3: Digital Factory - Fundamentals
M-SSF Certified Engineer – Intermediate DEPLOY, IMPLEMENT & MAINTAIN
Topic 4: Operational Technology - Intermediate
Topic 5: Information Technology - Intermediate
Topic 6: Digital Factory - Intermediate
M-SSF Certified Engineer – Advanced DESIGN, DEVELOP and OPTIMIZE
Topic 7: Operational Technology - Advanced
Topic 8: Information Technology - Advanced
Topic 9: Digital Factory - Advanced
CYBER SECURITY
Malaysian-Swiss Smart Factory Certification Framework & Educational Design
MESTI DIGITAL

# COMPETENCIES

## Operation Technologies

- Smart Factory Concept
- Smart Factory Architecture
- Cyber Physical Systems
- Automation Pyramid
- Relevant Communication Standards (OPC UA, MTC, MQTT, Industrial ethernet etc)
- Migration Approaches

## Information Technology

- Cloud Based Services
- Cloud and Edge Connections
- Interoperable IT based communication standards
- Big Data Analytics
- Big Data Process Flow
- Big Data Techniques and Technologies
- Smart Operational technology
- Human Machine Interface and Systems
- Intuitive User Interaction Base Technologies (e.g VR, AR)

## Digital Factory

- Digital Twin
- Digital Twin Representations
- Interoperable Information Models for Description of Digital Twins
- Digital Product Memory
- Cross Value Chain Digital Product Memories
- Interoperable Information Models for Description of Products

# MSF (M 4.0) - Certification Programs

- Executive Perspective of Smart Factory
- Technical Perspective of Smart Factory
- Enabling Technologies for Smart Factory : Data acquisition & generation
- Enabling Technologies for Smart Factory : Data aggregation through IT & OT Connectivity
- Enabling Technologies for Smart Factory : Data Science, Management and Big Data Analytics
- Smart Security and Smart Factory

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# WORKING TOGETHER

- Earmark jobs of the future for your sector
- Identify & build competencies
- Creation of flexible training programs
- Recruit suitable talents & prospects
- Right talent for the right job at the right company at the right time

# THANK YOU

## HOW CAN SHRDC HELP YOU?