Industry 4.0 Roadmap

OVERALL STRATEGIES

Facilities and Services
- Establishment of an Industry 4.0 Demo Lab/ Factory demonstrating *Industry 4.0 Architecture*

Human Resources
- Capability building on Industry 4.0
- Embedded / ladderized program for Industry 4.0 architecture thru business/finance undergraduates
- Industry 4.0 upskilling course for STEM graduates
- Development of modules on SCADA to accelerate connectivity and automation
- Certify IR 4.0 CSAs (Certified SIRI Assessors) for industries
- SIRI assessment of electronics industry companies
- Secure MOU with manufacturers for standards development, test lab co-development program, and apprenticeship program

R&D Technologies
- Assessment / Scoping analysis of industries / SMEs' Industry 4.0 Readiness in cooperation with DTI and UNIDO
- Development of systems for degradation, performance, and predictive maintenance
- Advancements in shop floor connectivity, automation and intelligence
- Application of Internet of Things and Smart Systems
- Integration of vertical and horizontal value chains
- Development of the asset administration shell as the interface of the digital and real machines;
- Development of a generic cloud-based Manufacturing Execution System for smart manufacturing
- Development of SCADA or automation system that can connect factory equipment
- Develop digital transformation model for electronics industry companies
- Process visualization through AR/VR
- Development of cyber-physical production systems
- Development of collaborative diagnostics and decision-making

S&T Policies
- Development and implementation of international standards (e.g. Industry 4.0 Architecture, RAMI 4.0, SIRI, SMMI)
- Incentive systems for industries with Industry 4.0 certification through the CREATE Law
- Utilization of Smart Industry Readiness Index (SIRI) for Inclusive Innovation Industrial Strategy (i3S)

R&D SOLUTIONS

200 M

Establishment of an Industry 4.0 Demo Lab / Factory; Product life cycle study; Integration of vertical and horizontal value chains; Development of the asset administration shell (AAS) as the interface of the digital and real machines; Development of generic cloud-based Manufacturing Execution System (MES) for smart manufacturing; Development of SCADA or automation system that can connect factory equipment; Development of modules on SCADA to accelerate connectivity and automation; Develop digital transformation model for electronics industry companies

300 M

Process visualization through AR/VR; Development of cyber-physical production systems; Development of networked production and collaborative diagnostics and decision-making

50 M

Development of Sensors and Actuators; Capability Building on Industry 4.0 Architecture; Certification of CSA's and SIRI Assessment; Development of systems for degradation, performance, and predictive maintenance; Advancements in shop floor connectivity, automation and intelligence; Application of Internet of Things and Smart Systems

2024

2023

2022

…2021

Predictive analytics and maintenance; Decision support system adopted by its partner industry

Sensors and actuators; Systems for degradation, performance, and predictive maintenance; Systems for shop floor connectivity, automation, and intelligence; Architecture Analytics and intelligence; Connectivity, Data and Cybersecurity; Integrated simulation and synthesis

2025

Industry 4.0 demo lab; AAS applications; MES for smart manufacturing; SCADA or automation system; Digital transformation model

2026

2027

Advanced production processes utilizing AR/VR; Industry 4.0 Architecture adoption for pilot factories in the regions; High-level Cyber-Physical Production Systems; Self-configuring, self-adjusting, self-optimizing systems; Intelligent Applications AI for industrial design Information Processing

2028…

VISION

Create and foster a flourishing innovation ecosystem for Industry 4.0 in the country

MILESTONES

OVERALL OUTCOME

A solution space for Industry 4.0 available and accessible to our industries and SMEs.