

Smart Machinery Promotion Program

1. Preface

In response to the global production trends of non-mass production with diversity, as well as smart manufacturing with real-time analysis of big data, the government has started up the “Smart Machinery Industry Promotion Program” since July 2016, by implementing Industry 4.0 technologies, such as Cloud Computing, Big Data, IoT, Intelligent Robots, and so on. With 3 main strategies, Link Local, Link Future and Link Global, Taiwan is expected to be upgraded from precision machinery to smart machinery, to increase employment rate, to expand export of whole plant / whole production line, and eventually to become a global RD / Production Center regarding Smart Machinery and key components for high-end facilities. Thus all industries are expected to go through smart transformation at national scale. With efforts from the industries and the government, the output value of Taiwan's machinery industry broke through the trillion NTD benchmark in Year 2017, and reached NTD 1.2 trillion in Year 2018 as a record high.

2. Visions

The brand new smart machinery ecosystem is constructed on the base of achievement of precision machinery promotion and existing ICT capacities, with smart technologies implemented, in order to enable Taiwan a global RD / Production Center regarding Smart Machinery as well as global supplier of total solutions for demand-end applications.

◆ Smart Machinery as an industry

To develop smart machinery solutions as well as to construct smart machinery industry ecosystem, smart technologies, such as robots, IoT, Big Data, CPS (Cyber Physical System), Lean Management, 3D Printing, sensors

and so on, are implemented on base of precision machinery.

◆ Industries with Smart Machinery

To offer assistance for key industries with smart solutions, smart machinery is implemented in order to increase productivity, as well as innovation, customization, or smart products & services.

3. Three main strategies

◆ Link Local

(I) To build up a smart machinery city

In September 2018, Smart Manufacturing Trial Operation Site for rapid proofing & mass production trial is established, to demonstrate mixed model production lines with facilities made in Taiwan, and to provide services of rapid proofing & mass production trial. According to individual needs in various stages, there are optional solutions regarding different levels for manufacturers on their ways to upgrade. So far in total it is visited by 1,400 enterprises / 3,800 person-time. Besides, “Smart Machinery Counselling Team” was established by Ministry of Economic Affairs to offer advisory & diagnosis services. So far in total it has come out with investment around NTD 860 million from enterprises, and speeded up industry upgrade and smart transformation.

(II) To integrate human resource of industries / academia / research units

Survey for manpower demand from Smart Machinery is proceeded, and then “Smart Machinery University Alliance” is established. To cultivate talents / professionals, there are courses of AI / IloT as well as trainings for footwear clothing, textile, and food industries. Cross-school / cross-domain training alliances were established, so were Smart Machinery Institutes for Manpower Cultivation / RD Implementation.

◆ Link Future

(I) To enhance digitalization for SMEs

To promote SMB implementation for SMEs, smart transformation of 8 traditional industries, such as Metal Parts, Machinery Equipment, Transport Vehicle Parts, Plastic Products and so on, are carried out by upgrading production lines from traditional to digitalized with high technologies. As a result, production efficiency is enormously improved. In Year 2019, 1,500 more units of SMB will be implemented to help more enterprises to improve digitalization.

(II) To activate capacities of remarkable enterprises for smart transformation

For remarkable enterprises which have realized digitalization, smart manufacturing is their next goal. Smart solutions with smart parts / components, stand-alone, whole production line or whole plant are constructed with joint efforts from remarkable enterprises, such as SI, or printed circuit board, textile, metal vehicle, machine tool, semi-conductor manufacturers and so on.

◆ [Link Global](#)

(I) To enhance international collaboration with Europe / The USA / Japan

To demonstrate Taiwan' s smart manufacturing technologies & capacities , and to offer sufficient optional solutions for domestic manufacturers, advanced Industry 4.0 manufacturers, such as Rockwell Automation (The USA), Siemens (Germany), Dassault Systems (France), and Mitsubishi Electric (Japan) were invited to station in Smart Manufacturing Trial Operation Site.

(II) To promote international collaboration with New Southbound partner countries

To lay a foundation of New Southbound market for Smart Manufacturing, and to develop supply chains of New Southbound partner countries, networked machines or total solutions from Taiwan are to export to Thailand, Malaysia, and other south-east markets.

4. Draft amendment: Statue for Industrial Innovation

In order to encourage devotion from the industries as well as return of overseas Taiwanese business, and shows determination of government to promote Smart Machinery related policies, the Executive Yuan passed the draft amendment to the “Statue for Industrial Innovation” on December 20, 2018. The enterprises, who are to invest up to NTD 1 Million within one single year during Y 2019 - Y 2021, could get 5% deduction from their Profit-seeking Enterprise Income Tax; while within 3 years, 3% deduction. Aiming to increase willingness to invest and accelerate steps toward upgrade to Smart Manufacturing, the effective date can be traced back to January 1, 2019, after passed the third reading at Legislative Yuan.

5. Conclusion

With the rapid development of the IoT, 3D printing, artificial intelligence, robotics, biotechnology, the fourth industrial revolution has quietly arrived. In response to the advent of the era of great change, Smart Machinery Promotion is a key strategy for industries in Taiwan regarding transformation and upgrade. It is also the industry, which has come out with the fastest advancement and upmost concrete result for the time being referring to the government’ s “5+2” industrial innovation plan. It is expected to expedite global competence of Smart Machinery industry from Taiwan as well as to enable more humane and comfortable life for citizens, with joint efforts from government together with industries.