

Research on Taiwan's Policies of Innovative Industry Development in Recent Years (2015-2016)

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1. "Five plus Two" Innovative Industries Policy

On June 15, 2016, Premier Lin Chuan met with a group of prominent business leaders to talk about a government project on five innovative industries, which aim to drive the next generation of businesses in R.O.C.. Subsequently the program was expanded to include "new agriculture" and the "circular economy" as the "+2." The program was then broadened even further to include the Digital Economy and Cultural Innovation, with even Semiconductors and IC Design included, although the name of the policy remains 5+2. Speaking at the Third Wednesday Club in Taipei, Premier Lin said the industries require more investment to drive the next generation of industry growth momentum in R.O.C., create high-quality jobs, and upgrade the industrial competitiveness. Executive Yuan has selected the five innovative industries of Asia Silicon Valley, smart machinery, green energy, biotech & pharmaceutical industry, and national defense, which will be the core for pushing forward the next-generation industrial growth and improve overall environment by creating a cluster effect that links local and global industries, while simultaneously raising wages and stimulating employment.

Premier Lin said, regarding industrial competitiveness and investment issues the lackluster economy has stifled investment opportunities, and with limited government budgets, the private sector must play the larger role in investments. Regarding the "Five major Innovative Industries" project, Premier Lin said the National Development Council is currently drafting long-term plan to attract talent, create a thriving working environment, and infuse companies with more innovation, entrepreneurship and young workers. In addition, R.O.C. must also cultivate a strong software industry, without which it would be difficult to build a highly intelligent infrastructure.

The National Development Council said the program possess both the capacity of domestic demand and local characteristics, as the core for pushing forward the next-generation industrial growth. The government aims to promote a seamless synergy of investment, technology, and the talent, in order to develop innovative industrial clusters for furthering global linkage and nurturing international enterprises. In the meantime, the government also aims at achieving the enhancement of technology levels, balanced regional development, as well as realizing the benefits of job creation.

2. The Asia Silicon Valley Development Plan

In September 2016 the government approved the Asia Silicon Valley Development Plan, which connect Taiwan to global tech clusters and create new industries for the next generation. By harnessing advanced technological research and development results from around the world, the plan hopes to promote innovation and R&D for devices and applications of the internet of things (IoT), and upgrade Taiwan's startup and entrepreneurship ecosystem.

The four implementation strategies are as follows:

- (1) Building a comprehensive ecosystem to support innovation and entrepreneurship
- (2) Connect with international research and development capabilities
- (3) Create an IoT value chain
- (4) Construct diversified test beds for smart products and services by establishing a quality internet environment

Taiwan's first wave of industrial development was driven by continuous technological innovation, and the wave that followed saw the information industry become a major source of economic growth.

3. Global Hub for Smart Machinery

On July 21, 2016, Premier Lin Chuan said at a Cabinet meeting, the government aims to forge Taiwan into a global manufacturing hub for intelligent machinery and high-end equipment parts. Upgrading from precision machinery to intelligent machinery is the main goal of putting intelligent machinery industry into focal execution area expecting to create jobs and to maximize the production of production line as well as to forge central Taiwan into a global manufacturing hub for smart machinery. The Ministry of Economic draws up the Intelligent Machinery Promotion Program to establish the applications of the technology and capacity of services that fit the demand of the market. The program embodies two parts. The first is to accelerate the industrialization of intelligent machinery for building an ecosystem. The second is to improve intelligentization by means of introducing the intelligent machinery into the industries.

The execution policy of the Intelligent Machinery Promotion Program is to integrate the intelligent functions such as malfunctions predictions, accuracy compensation, and automatic parameter setting into the machinery industry so as to have the ability to render the whole solutions to the problem. Simultaneously, the program employs three strategies, which are connecting with the local industries, connecting with the future, and connecting with the world, to develop the mentioned vision and objectives. Especially, the way to execute the strategy of connecting with the local industries consists of integrating the capabilities of industry, research organization and the government. At the meantime, the government will encourage the applications of smart vehicles and unmanned aerial vehicles and train the talents as well. The thinking of connecting with the future lies in the goal of deepening the technologies, establishing systematic solutions, and providing a testing areas, which focus on the related applications such as aerospace, advanced semiconductor, smart transportation, green vehicles, energy

industry, whole solutions between factories, intelligent man-machine coordination, and robots of machine vision combined with intelligent machinery applications. The government would strengthen the cross-cutting cooperation to develop machines for aerospace and integrate the system of industrial division to form a cluster in order to create Taiwanese IoT technology. Eventually, Taiwan will be able to connect with the world, enhance international cooperation, expand export trade and push industry moving toward the age of information and digital economy and break the edge of industry technology to make the industry feel the goodwill of the government.

4. Green energy innovations

The government's "five plus two" innovative industries program includes a green energy industrial innovation plan passed October 27, 2016 that will focus on Taiwan's green needs, spur extensive investments from within and outside the country, and increase quality employment opportunities while supporting the growth of green energy technologies and businesses.

The government is developing the Shalun Green Energy Science City. The hub's core in Shalun will house a green energy technology research center as well as a demo site, providing facilities to develop research and development (R&D) capabilities and conduct the requisite certification and demonstration procedures. The joint research center for green energy technologies will integrate the efforts of domestic academic institutions, research institutes, state-run enterprises and industry to develop green energy technologies, focusing on four major functions: creating, conserving and storing energy, as well as system integration. Development strategies include systems integration and finding better ways to conserve, generate and store energy by promoting green energy infrastructure, expanding renewable energy capabilities and cooperating with large international firms.

The emergence of the green economy has prompted the government to build infrastructure that will lay the foundation for Taiwan's green energy sector, transform the nation into a nuclear-free society, and spur industrial innovation. For innovative technology industries, green energy industries can drive domestic economic development by attracting more venture capital and creating more employment opportunities.

5. Biomedical Industry Innovation Program

To facilitate development of Taiwan's biomedical industry, the government proposed a "biomedical industrial innovation promotion program" on November 10, 2016 to serve as the nation's new blueprint for innovative biomedical research and development (R&D). To facilitate development of the biomedical industry, the government proposed a "biomedical industrial innovation promotion program". The program centered on the theme of "local, global and future links," "the biomedical industrial innovation promotion program" includes four action plans:

(1) Build a comprehensive ecosystem

To address a rapidly ageing global population, Taiwan will enhance the biomedical industry's capacity for innovation by focusing on talent, capital, topic selection, intellectual property, laws and regulations, and resources.

(2) Integrate innovative business clusters

Established by the Ministry of Science and Technology and based in Hsinchu Biomedical Science Park, the center will serve as a government think tank on related issues. It is also tasked with initiating and advancing exchanges among local and foreign experts, overseeing project implementation, promoting investment and recruiting talents. Equally important, it will play a central role in integrating resources from other biomedical industry clusters around the country, including Nangang Software Park in Taipei City, Central Taiwan Science Park in Taichung City and Southern Science Park in Tainan City.

(3) Connect global market resources

Building on Taiwan's advantages, promote M&A and strategic alliances, and employ buyout funds and syndicated loans to purchase high-potential small and medium-sized international pharmaceutical companies, medical supply companies, distributors and service providers. Use modern mosquito-borne disease control strategies as the foundation of diplomatic cooperation, and promote the development of Taiwan's public health care and medical services in Southeast Asian countries.

(4) Promote specialized key industries

Promote niche precision medical services, foster clusters of world-class specialty clinics, and develop industries in the health and wellness sectors.

6. DIGITAL NATION AND INNOVATIVE ECONOMIC DEVELOPMENT PLAN

On November 24, 2016, the Executive Yuan promote the Digital Nation and Innovative Economic Development Plan (2017-2025) (DIGI+ program), the plan's main goals for 2025 are to grow R.O.C.'s digital economy to NT \$ 6.5 trillion (US\$205.9 billion), increase the digital lifestyle services penetration rate to 80 percent, speed up broadband connections to 2 Gbps, ensure citizens' basic rights to have 25 Mbps broadband access, and put R.O.C. among the top 10 information technology nations worldwide.

In addition to the industrial economy, the program can jump off bottlenecks in the past industrial development, and promote the current Internet of things, intelligent machinery, green energy, medical care and other key national industries, but also attaches great importance to strengthening the digital infrastructure construction, the development of equal active, as well as the creation of a service-oriented digital government. It is also hoped that through the construction of a sustainable and intelligent urban and rural area, the quality of life will be improved and the people will enjoy a wealthy and healthy life. Over the next 8 years, the government will spend more than NT \$ 150 billion.

The plan contains several important development strategies: DIGI+Infrastructure: Build infrastructure conducive to digital innovation. DIGI+Talent: Cultivate digital innovation talent. DIGI+Industry: Support cross-industry transformation through digital innovation. DIGI+Rights: Make R.O.C. an advanced society that respects digital rights and supports open online communities. DIGI+Cities: Build smart cities through cooperation among central and local governments and the industrial, academic and research sectors. DIGI+Globalization: Boost R.O.C.'s standing in the global digital service economy.

The program aims to build a favorable environment for digital innovation and to create a friendly legal environment to complete the draft amendments to the Digital Communications Law and the Telecommunications Act as soon as possible, foster cross-domain digital talents and

develop advanced digital technologies, To create a digital economy, digital government, network society, smart urban and rural and other national innovation ecological environment in order to achieve "the development of active network society, promote high value innovation economy, open up rich countries of the policy vision.

In order to achieve the overall effectiveness of the DIGI + program, interdisciplinary, inter-ministerial, inter-departmental and inter-departmental efforts will be required to collaborate with the newly launched Digital National Innovation Economy (DIGI +) Promotion Team.

7. “NEW AGRICULTURE” PROMOTION PROJECT

At a Cabinet meeting On December 08, 2016, Premier Lin Chuan underscored the importance of a new agricultural paradigm for Taiwan’s economic development, adding that new agriculture is an integral part of the “five plus two” industrial innovation projects proposed by President Tsai Ing-wen. The “new agriculture” promotion project uses innovation technology to bring value to agricultural, and build new agricultural paradigm, agricultural safety systems and promote agricultural marketing. This project also takes resources recycling and environmental sustainability into consideration to promote agricultural transformation, and build a robust new agricultural system.

This agricultural project is expected to increase food self-sufficiency rate to 40%, level up agricultural industry value by NT\$43.4 billion, create 370,000 jobs and increase portion of total agricultural exports to new overseas markets to 57% by 2020.

This project contains three aspects:

First is “building new agricultural paradigm”: to protect farmers, agricultural development and ensure sustainability of the environment.

Second is “building agricultural safety systems”: Ensuring product safety and quality, and building a certification system which can be trust by the consumers and is consistent with international standards.

Last but not least is “leveling up agricultural marketing and promotions”: enhancing promotion, making the agricultural industry become profitable and sustainable.

Council of Agriculture’s initiatives also proposed 10 policies to leverage agricultural industry, not only just use the passive subsidies measure of the past. These policies including promoting environmentally friendly farming practices; giving farmers that are beneficial(green) to the land payments; stabilizing farmers’ incomes; increasing the competitiveness of the livestock and poultry industries; using agricultural resources sustainably; ensuring the safety of agricultural products; developing technological innovation; leveling up food security; increasing diversification of domestic and external marketing channels; and increasing agriculture industry added value.

In this statutes report, Council of Agriculture said this project will accelerate reforms, create new agricultural models and safety systems, but also build a new sustainable paradigm of agricultural. Premier Lin Chuan also backed this “five plus two innovative industries” program and “new agriculture” project, and asked Council of Agriculture to reviewing the possible legal changes or amendment that may help to enhance the transformation of agricultural sector.