

貳、英文摘要

This research was conducted with the aim of assisting the National Communications Commission (NCC) in its implementation of the Digital Nation & Innovative Economic Development Program (DIGI+) 2017-2025 (DIGI+ Program) and was undertaken to cover the following four areas of research: (1) policy analysis and project management of DIGI+ Program, (2) research on policies and regulations on communications and the digital economy, (3) exchanges with multilateral stakeholders - participation at workshop and international conferences, and (4) the outlook of innovation of the communications industry. Furthermore, this research was specifically undertaken to help NCC achieve the following objectives: establishing a regulatory framework that accommodates development of the digital economy, improving market conditions of telecommunications and broadcasting industries, promoting digital innovation under the scope of digital convergence, and protecting consumers' rights – all of which can facilitate progress of the digital economy in Taiwan.

The key findings of this research are as follows:

I. Policy Analysis and Project Management of DIGI+ Program

Due to the fact that the working items within the DIGI+ program requires coordination among ministries, the Digital Convergence Project Office (the Project Office) was set up to facilitate communication and implement policies of the DIGI+ program. To assist NCC with relevant projects, the daily operation of Project Office covered three primary aspects: project management, policy analysis, and policy communication.

In terms of project management, the Project Office organized six conferences under the coordination of NCC that pertained to managing plans concerning technology development involved in the DIGI+ program, after which, the “2018 infrastructure development group of DIGI+ Group Progress report” was completed. By means of completing this work, NCC has been enabled to stay informed of the progress of all relevant ministries regarding “Action Plan of

Building Infrastructure for Digital Innovation”. In addition, the Project Office was able to achieve the goals set by DIGI+ program, including facilitating coordination between MOTC and NCC on the project of implementing Wi-Fi in train carriages and collaborating with NDC on improving the Wi-Fi speed rate at Taoyuan Airport.

Turning to policy planning, specific policies and regulations concerning 5G infrastructure, universal services, and digital governance of the US, the UK, Singapore, and Japan, were analyzed for reference. Meanwhile legislative recommendations were given to NCC, with regard to the policy drafts that encourage innovation of telecommunications industry in accordance with the provisions of Paragraph 2, Article 94, of the Telecommunications Management Act.

Concerning policy communication, two workshops and one international forum were held, outlining certain current cases of digital innovation internationally; these events also provided opportunities to gather views and insights from experts. Since the Telecommunications Management Act was promulgated by Presidential Decree, the Project Office has held nine meetings for consultation with multiple industry representatives, including operators, start-ups, and cable operators, to focus on the current development of digital innovation and compile industry feedback. The results of these meetings will be summarized into three policy agendas for NCC for future reference.

II. Research on Policies and Regulations on Communications and the Digital Economy

With the aim of promoting the effective integration of policies with industrial development in Taiwan, two working projects were undertaken: “Analysis of Advanced State Convergence or Digital Economy Supervision Mechanisms and Progressive Policies of Advanced Nations” and “Analysis of Regulatory Trends in Convergence of Innovative Application Services, Establishing a Foundation for the Digital Economy.”

The aim of these projects was to determine the most effective and appropriate

policies pertaining to digital innovation, as well as related supporting measures. The first priority was to ascertain the means of digital transformation being undertaken in advanced nations with view to adjusting the existing regulatory framework, and to analyze the supporting measures and governance trends adopted by these countries. The digital governance strategies of South Korea, Singapore and the United States were compiled and can serve as a valuable reference for the regulatory adjustment of the digital transformation in Taiwan. Moreover, consultations with operators, experts and scholars were conducted to obtain recommendations for the direction of regulatory adjustments to be adopted domestically. The provided recommendations serve as a basis for amendments pertaining to digital convergence to be undertaken on the regulatory framework in Taiwan and specific policies that are suitable for the digital transformation in Taiwan have been proposed.

Turning first to the "Analysis of Advanced State Convergence or Digital Economy Supervision Mechanisms and Progressive Policies of Advanced Nations," the project first focused on the "Smart Nation initiative" as promoted by Singapore. The main core of the Singaporean policy covers the transformation of the digital economy, digital government, and digital society. It was noted that Singapore has also undertaken innovative regulatory approaches for convergence of media and telecommunications markets, as well as for false or fake online content.

Similarly, during recent years, South Korea has not only actively promoted its 5G related policy, but also completed reform and implementation of the telecommunications industry law. South Korea has also proposed corresponding regulation in order to achieve its regulatory objectives of facilitating digital convergence and its consequent innovations. Turning to the US, in the field of digital audio-visual communications, due to the emergence of digital innovation and video platform services, the cable TV industry requires vertical integration of content production and horizontal market consolidation, and has successfully integrated digital communication industries.

Turning to Taiwan, the market conditions of the developing digital economy combined with the release of impending spectrum for 5G may cause the services of various application platform providers to move towards a model of micro-operators creating more diversified innovative application services. Thus, it has been noted that the existing regulatory framework in Taiwan would hinder the development of related industries and services because of unadjusted regulation or insufficient incentives.

Therefore, for the “Analysis of Regulatory Trends in Convergence of Innovative Application Services, Establishing a Foundation for the Digital Economy” consultations were made with the industry on the status quo and business model of the digital economy and feedback on consumer privacy protection, the dilemma, legal issues, and regulatory requirements for the promotion of ICT services was compiled. Certain seminars were also held to exchanges opinions with experts and scholars on these aforementioned areas, exploring the regulation and policy recommendations that can serve as valuable reference. It is expected that the recommendations put forward through this research can facilitate regulatory innovation in Taiwan, boosting overall development of the digital economy, and promoting market competition.

III.Exchanges with Multilateral Stakeholders - Participation at International Conferences

With continued technological advancements, digital innovations have become increasingly commonplace. Thus, in order to promote dialogue and information exchange among relevant stakeholders, the research team organized the 2019 Digital Transformation Trend Forum, an international conference in which experts from organizations such as IDC, Ericsson, Anymind, NextBank, and iKala shared and discussed the most recent developments in technology, as well as emerging technologies and applications and potential policies in response. The forum not only provided participants an opportunity to stay updated of latest digital trends, but also enabled authorities to more effectively utilize strengths of

the industry of Taiwan and establish a foundation for the digital economy.

Furthermore, in order to strengthen ties and coordination between Taiwan and other nations regarding ICT industry development, the research team attended several international conferences, including APEC TEL 59th in Chile and IIC ANNUAL CONFERENCE 2019 in London. During those events, discussions concerning telecommunications regulations and competition policy took place between a large number of international delegates. The research team also attended Interop Tokyo 2019 in Japan and deepened understanding of the latest applications stemming from emerging technologies, such as 5G and big data. By acquiring knowledge from international experiences of both the public and private sectors, more effective policies can be drafted for consideration by the NCC, especially those concerned with the digital economy and innovation.

IV. Outlook of Innovation of the Communications Industry

As the mobile broadband network expands and develops, the digital economy has become one based on well-built infrastructure. One consequence of this has been that telecommunications revenue, particularly of the conventional mobile network operators and cable TV service providers, has been steadily falling as market share is eroded by start-ups and internet enterprises. Facing this inevitable trend and in order to adapt to an operation model that encompasses telecom, broadcasting and technology, the telecommunications industry generally acknowledges the importance of transformation by means diversifying services and mergers and acquisitions.

To satisfy consumer demands, modern service providers are obliged to adopt more flexible approaches and measures than those undertaken by the more traditional telecommunications and cable television industries, especially when considering digital trends and developments, such as big data, internet of things, and AR/VR. It was noted that MNOs are more frequently focusing on digital advertising and self-owned OTT service when undertaking their transformation. Based on these findings, we can also note the trend of MNOs adopting emerging digital technology to innovate services.

Additionally, as subscription-based OTTs have joined the market, the business models of content providers have been facing challenges by certain powerful newcomers, such as Netflix and Amazon. After suffering from a substantial loss of subscribers, the paid-tv industry has been actively seeking means to transform. Thus this area of research focused on the diversified services provided by cable TV industry, including e-commerce, smart family and digital advertising, and conducts a corresponding case study. Moreover, this section also analyzes the most recent OTT market trends and the adoption of innovative technology.