

英文摘要

The Digital Nation and Innovative Economic Development Program (DIGI+) has been promoted by the Executive Yuan since 2017 with the aim of creating an environment conducive to the development of digital innovation. The National Communications Commission (NCC) was designated the authority responsible for the infrastructure division within DIGI+, coordinating with various ministries to achieve the specific goals of the infrastructure division within the DIGI+ program up until 2020. Following this, the Executive Yuan updated and renamed the plan the Smart Country Program (2021-2025) and designated NCC once more as the responsible authority for the infrastructure division to facilitate an environment conducive to the development of a smart country.

With the objective of assisting NCC in its promotion of the Smart Country Program, this research project has been divided into four sub-tasks: Analysis and Management of National Information and Communications Policy; Forward-looking Communications Policy Research Report; Supervision of Communications Integration and Application Policy for the Digital Economy; and Facilitating Exchange of Opinions among Stakeholders. The Digital Convergence Project Office (the Project Office) was established to coordinate implementation and support NCC in completing the inter-departmental examination and coordination of the infrastructure division within the Smart Country Program. With the implementation and integration of the four prementioned sub-tasks, the Project Office assists NCC in implementing the various policy goals of the Smart Country Program, improving communications policy and regulatory framework, facilitating the development of innovative application services in communications, and strengthening the digital economy in Taiwan to enable Taiwan to become a smart country by 2030.

The key results of this research are indicated as follows:

I. Analysis and Management of National Information and Communications Policy

The goal of this section was to support NCC in implementing the promotion of various plans of the infrastructure division within the Smart Country Program. In terms of implementation methods, with the Project Office, serving as the legal and policy staff of NCC, the primary work can fall into three areas—planning and project management, observation of trends and policy analysis, and communications policy.

In terms of planning and project management, during the first half of the year, the Project Office assisted NCC by not only organizing two infrastructure division meetings, but also completing the *2020 DIGI+ 4th Quarterly Progress Report* and the *DIGI+ Program 2017-2020 Phased Achievement Report*, allowing the Executive Yuan to ascertain the results of the implementation of DIGI+ infrastructure division within the Smart Country Program during 2020. Following the approval of the Smart Country Program in May 2021, the Board of Science and Technology Office, in September, decided to continue the implementation progress management and target supervision of the infrastructure division within the Smart Country Program. Consequently, during the second half of the year, the Project Office assisted NCC in conducting two quarterly examinations of the progress of each project so as to ensure that the progress is in line with the expected goals of the Executive Yuan.

In terms of observation of trends and policy analysis, during the first half of the year, the research team conducted various analysis, such as trends of international high-speed broadband development, the organizational structure of KCSC Korea, the examination of forward-looking infrastructure plans and digital construction policies and

achievements, national expressway issues (i.e. the legality of the Telecommunications Management Act for the establishment of the second network exchange center by National Center for High-performance Computing), and the trends of the international network security policy development. During the second half of the year, the research team analyzed the role of the Digital Development Department of NCC, as well as the Fair Trade Commission in Development Policy for the Digital Industry, the international ISO27001 Standards and the experience sharing in certificate examination. A preliminary study was carried out on the promotion of Taiwan Digital Innovation Economic Policy and its effectiveness with view to enhancing information security management, and the benefits of digital innovation and economic policy promotion. Focusing on the observation of trends and policy analysis, policy recommendations for infrastructure, functions, information security, and policy benefits can be provided.

Finally, in terms of communications policy, the Project Office not only shared with students the methods and results of Taiwan large-scale telecommunications policy promotion, but also held the conference "Future is Now! Looking forward to the present and future of NCC." Facilitating such exchanges of opinions between experts and scholars, greater understanding can be gained of suggestions and the plans of future business responsibilities and obligations of the Digital Development Department and NCC. Meanwhile, by visiting at least four telecommunications companies or innovative application service companies, operational and regulatory difficulties, as well as specific problems faced by companies in their business can be understood, allowing us to provide pertinent opinions and suggestions to NCC.

II. Forward-looking Communications Policy Research Report

As the ubiquity of various digital products and platform applications has led to a rapid increase in the demand for bandwidth and data volume, it is still necessary for a central authority to promote the construction of an advanced network construction undertaken by private industry. The research team first observed the promotion of fixed and mobile communications infrastructure undertaken in the EU, the UK, Singapore, and Japan. It was noted that governments have invested in ultra-fast broadband infrastructure by means of subsidies and accelerating commercial promotion, while also emphasizing the deployment of Gigabit broadband in more remote areas and removing barriers to construction. With regard to policymaking strategies for the acceleration of the deployment of mobile broadband infrastructure for 5G, certain regulations have been put in place that allow for infrastructure sharing, as well as trials that can improve the density of 5G base stations in specific areas. Current broadband policies in these countries, as well as others, still attach great importance to upgrading infrastructure and removing barriers to construction. Much focus has also been placed on how to adjust the regulatory framework as the existing broadband coverage becomes almost saturated, so as to ultimately support infrastructure innovation and application.

The research also referred to regulatory development in the US, the UK and Australia in response to the applications and developments of low-earth orbit satellites (LEO). With regard to the 5G LEO satellite market, it can be noted that communications satellite technology continues to evolve; similarly, demand of the mobile market to access this technology is gradually increasing. Connecting mobile vehicles and earth stations in

motion (ESIM) is expected to become a new battlefield for land mobile communications, radio frequency equipment, and regional spectrum markets. In the future, the influence of the LEO satellite broadband market will be concentrated on a few multinational companies, such as SpaceX and OneWeb, and the strategic layout of broadband services will affect government decision-making. Moreover, due to the emergence of new entrants, meeting the commercial interests of the space industry, in terms of spectrum planning and effective means over license conditions and procedures to balance the competition in this market, has become a challenge for these nations.

III. Supervision of Communications Integration and Application Policy for the Digital Economy

In response to the social impact brought by large-scale digital platforms, this section has been divided into two parts. The former discusses the legal countermeasures regarding market competition and platform accountability, while the latter observes international trends and business models of benchmarked companies, and how the authorities adjust the supervision structure to prevent monopolization.

The study first focused on the research and analysis of the discussions undertaken by the international community with respects to control of the digital platform in recent years. An in-depth analysis was conducted on the legal policies of the EU, the UK, and the US. In order to protect Small and Medium Enterprises (SMEs), as well as consumers in the EU single economic market, from the pressure from tech giants, the EU is gradually retrieving the control of personal data usage to the original data subject; specific measures have been taken in order to elevate the legislative level to break the status quo of the digital platform market monopolized by such

tech giants. The drafts of the Digital Services Act and the Digital Markets Act promulgated in December 2020 will also further increase accountability. Following leaving the EU, the UK has still retained its regulations, aligned with the EU, on personal privacy protection and data search; meanwhile, the UK Government has also established a Digital Market Unit (DMU), establishing a corresponding supervision mechanism for digital platform players for strategic market positions. In contrast, as a world power benefiting from export advantages, the US has traditionally lacked a federal-level personal data protection and data circulation structure and has generally adopted a relaxed and laissez-faire regulatory attitude towards the digital economy market. However, in recent years, the responsible authority has also begun to actively file judicial proceedings against the anti-competitive behaviors of corporate giants. With the transfer of power, the antitrust law has become a tool actively used by supervisory agencies. Although the political and economic backgrounds and legal cultures of these countries and region vary, the supervisory mindset of the EU, the UK, and the EU all tend to resemble each other in principle.

The study also analyzed the influence and development of large-scale digital platforms and the digital market, and observed international trends from two major directions — market management and industrial development. The purpose of the first sub-topic was to assess the basis for government to respond to the entry of so-called tech giants into the domestic market; the second compiled case data from companies with digital market monopoly abilities, analyzed business models, reasons for monopoly, preparations for monopoly, as well as response to allegations of monopoly, etc.

Summarizing the discussions on digital platform supervision issues in advanced countries in recent years, it can be noted that despite the differences in the political, economic and cultural aspects of the major

nations, the challenges stemming from the rise of digital platforms are still managed by strengthening supervision.

IV. Facilitating Exchange of Opinions among Stakeholders

As this year (2021) coincides with the Executive Yuan's approval of the proposed law for the restructuring Digital Development Department, the research project assists NCC in responding to subsequent adjustments of the digital transformation, and future communications, or related supporting measures with the Ministry of Digital Development.

In that light, the research project team held the conference "Future is now! Looking Forward to the Present and Future of NCC" conference. Experts and scholars, including Professor Hu Yuan-hui from Chung Cheng University, Professor Chen Bing-hong from the Graduate Institute of Mass Communication, National Taiwan Normal University, Professor Shi Shi-hao from the Department of Law of Donghua University, Professor Hong Zhen-ling from the Graduate Institute of Journalism, National Taiwan University, as well as industry representatives such as the Director of the Digital Transformation Association (DTA) Chen Zhen-ran, discussed how an independent communications regulatory agency in Taiwan could lead the development of communications and learn from the experience of its foreign peers during the transformation in the digital age. The conference also provided an opportunity to gain greater understanding of current trends of communications development so as to be better prepared.

In addition to organizing the conference, the research project team also gained greater insight to the current communications environment in Taiwan through a series of visits to communications industry and pan-communications industry players, as well as innovative application service companies, all of which can provide a valuable reference as adjustments to related information and communication policies and regulations are made.