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# Challenges and Opportunities from Digital Convergence

## Preface

With the blooming of IT technologies, the term of “digital convergence” represents the whole atmosphere at this moment. “Digital convergence”—means that after telecommunication and broadcasting systems are following the IP based framework, contents and services, those were easy to define, turn to be confused. Relying on the uniform platform, operators are able to provide services to different systems. Services containing VoIP, IPTV or the latest terms of “Multi-screen Ecosystem” and “Connected TV” are all involved in the “digital convergence” notion. Today, no matter the service of “check in” or “watching TV programs on Smartphone,” any figures about multiple services on different devices are presenting the “digital convergence” effect.

On the consumer side, “digital convergence” brings a fascinating imagination of life. Time and space are no more limitations to people for getting information. Consumers select services only depending on the quality of each service. However, the fascinating imagination of customers becomes a pressure to the relative industries. In the past, because of distinctive transmission technique, services of television, internet and information were regarded as in different industries. Effective competitors only appeared in the same industry. However, today “digital convergence” effect results in crossing-industries competition and customer immigration. To accommodating and pursue the new trend, only unique ideas and novel services can help incumbents to survive.

“Digital convergence” brings not only a challenge but also an opportunity. Today, user-friendly application services are cumulatively created and accommodated in the mature broadband network. For examples, high quality entertainment services occur after communication and multimedia broadcasting techniques are improved, “Near Field Communication” technology rising causes new types of cash flow services. Otherwise, Cloud Computing technique enables people easily to access tele-healthcare services and Telematics services. Certainly, digital convenience accelerating industries transformation and value-added services is now taking place around us. According to ITU reports, every 10% increase of broadband infrastructure extension might cause 0.255 to 1.38% GDP growth rate. High penetration of broadband infrastructure might lead a significant influence on economy growth. Take South Korean experiences as an example, by owing a complete broadband infrastructure, on-line game industry and national digital content industry in this country are individually possessing \$8.3 billion and \$ 3.4 billion output value.

By sensing the potential possibilities, governments in different countries propose their own national industry policies, including American government proposed “National Broadband Plan”, the “Digital Britain White Paper” formulated by United Kingdom, “Hikari no Michi”(光の道, which means fiber superhighway) in Japan and the “Ultra-Broadband Convergence Network Plan (UBcN plan)” in South Korea, moreover, the “Tri-networks Integration Plan” in China. And Taiwan does not absent in this moment. In order to stand firmly in this trend, we also formulate “Digital Convergence Development Program 2010-2015 (DCDP 2010-2012)” in 2010. Below, we are going to make a briefly and neat description of “DCDP 2010-2012”.

## 1. INTRODUCTION

For assisting national relative industries to smoothly transform and enhancing Taiwan’s international competitiveness, Executive Yuan admitted the “Digital Convergence Development Program 2010-2015 (DCDP 2010-2015)” in 2010. In this program, there were six main goals containing: (1) complement the broadband superhighway infrastructure; (2) initiate the convergence of telecommunication services; (3) accelerate the process of Television digitization; (4) develop emerging internet video services; (5) improve communication industries; and (6) establish an integrity regulation framework, as well as twenty-one improving tactics and seventy-eight measures for crossing- administrations cooperation and negotiation to be declared. Otherwise, Executive Yuan also established DCTF to be responsible for coordinating every effort from every administration and facilitate digital convergence tasks. Latter, we will make further descriptions for the six main goals, we just mentioned above:

### A. Complement the broadband superhighway infrastructure

According to the Global Information Technology Report 2010-2011, proposed by World Economic Forum (WEF), Taiwan on the Network Readiness Index (NRI) item was been ranked at 6th place and at 5th place on another item of highest FTTH/FTTB penetration. However, though our coverage of broadband network was high, the total bandwidth was still insufficient to contain all the new creating services. To resolving the shortage of bandwidth, including Ministry of the Interior (MOI), Ministry of Economic Affairs (MOEA), Ministry of Transportation and Communications (MOTC) and National Communications Commission (NCC) were convened to extend the national fiber coverage and facilitate the installation upgrade.

Regarding wireless broadband construction, administrations including MOEA, MOTC and NCC were under obligation to energetically detect the latest developments of wireless telecommunication technologies as well as proposed guidelines from other countries, concerning about the allocation of spectrum, telephone numbers and IP address resources.

Through crossing-administrations cooperation and coordination, in December 2011, the total of national subscribers applying fiber network service had achieved 3.31 million houses, besides, there were 24.58% houses in Taiwan possessed 100Mbps broadband network services. Totally, there were 7.88 million wireless broadband accounts being applied.

### B. Initiate the convergence of telecommunication services

Smartphone booming brought an emerging mobile entertainment life style, furthermore, it also accelerated the rising of mobile value-added application services. To this trend, administrations containing MOEA, Financial Supervisory Commission (FSC) and NCC all devoted to establishing a constructive environment, with providing assists and building up a complete regulation framework. For examples, up to the end of 2011, national telecommunication operators had signed a memorandum with EasyCard Corporation to develop a mobile cash flow platform, which allows cash flowing through the Internet, for giving people a more convenient experience.

### C. Accelerate the process of Television digitization

Within various emerging application services, "Television digitization" might be the most important one in people's life. "Television digitization" service brought not only a higher quality experience of watching programs, but also created extra demands of relative application services. Furthermore, increasing demands also brought an improvement to the industry and simultaneously accelerating the development of digital content industry.

Nationwide terrestrial TV signal switching program, a fully signal switching from analog to digital, has accomplished in July 2012. In order to achieve 90% coverage rate of digital signal transmission, accommodations containing Council of Indigenous People (CIP) and NCC were not only devoted to establishing a Digitization Improvement Station, but also attempt to integrate all signals from original terrestrial TV stations into one satellite to transmit. To accomplish this signal switching program, government had cultivated for many years and try to increase people's acceptance level of high definition (HD) TV service. Before receiving this success, NCC had spent a long time devoting itself to integrating containing every effort from many administrations and associations, such as the local governments, national industry associations and operators of household application, moreover, as well as Public Enterprises, including Taiwan Power Company, Chunghwa Post Corporation and Taiwan Water Corporation to popularizing this program.

Nevertheless, about the digitization program of cable TV, up to 2010, though there were already 60% of houses in Taiwan possessing cable TV service, only 5.55% of cable TV houses switched into digital. As a result, we found that no incentive measures might be the crucial reason. To reverse the impasse, our strategy was to amend the current laws, through adjusting the regulation framework we could facilitate the market into effective competition.

In addition, to accelerate the cable TV digitization process, government also regarded the Olympic relaying in England as a turning point to create the demands of HD TV service. After getting the franchise, people are able to watch Olympic Games through any platforms, including terrestrial TV, cable TV and even IPTV. As the demands arising, it would also encourage operators to produce more HD programs afterward.

### D. Develop emerging internet video services

Digital convergence effect also caused the emerging internet video services booming. In order to encourage the crossing-platforms video services and achieve 50% user rate in 2015, there were three guidelines been proposed. The first one was emerging video service regulation reforming, the second one was facilitating integration between emerging accessing approaches and distribution channels, and the third one, developing a rational regulation on contents management.

In synchronism with terrestrial TV signal switching program, emerging internet video services were also assigned to provide HD Olympic Games programs. In that period, the subscribers of Chunghwa Telecom's MOD (Multimedia on Demand) service were able to watch the Olympic Games relaying on 14 free HD channels and 1 free 3D channel, which is provided by ELETA TV. Moreover, they could also receive the programs on demand through internet or Smartphone. Afterward, from the collected data, we found that even though the rate of new subscribers only had a few rise, an obviously rose presented on the turning on rate. Depended on those data, we believe that people had already been more familiar with IPTV and HD programs. Besides, this relaying program totally attracted 95 individual advertising and the total revenue from advertising was NT\$ 80 million dollars.

### E. Improve communication industries

Producing prolific contents is the key element for attracting customers and stabilizing the development of digital convergence industry. To facilitate the contents producing, DCDP proposed three elements to be improved: fund, talent and marketing. And the tasks of these three elements were including investment facilitation, marketing skill reinforce, personal training as well as culture protection, consumer's right protection, technique standardization and transnational cooperation. To assist in industries transformation, MOEA focused on promoting the APP design and upgrades. Recently, measures provided by MOEA, such as transformation counseling, R&D subsidies, drive-by VC investment, personal training and even the R&D loan had already taken effect. In addition, to create a virtuous investment circles in contents industry, government also considered to release more subsidies to encouraged those superior producers and movie makers.

### F. Establishing an integrity regulation framework

Digital convergence effect accelerated the competition in the market, including communication or relative contents industries were enter a transformation era. In this period, it was essential to have a practical and integrity regulation framework. Recently, NCC hastened to undertake the amendments of three Acts, containing Radio and Television Act, Cable Radio and Television Act and Satellite Broadcasting Act. Actually, the expectation of this undertaking was to adopt the adjustment of digital convergence in 2014. In addition, Fair Trade Commission (FTC) and Intellectual Property Office (IPO) would also continue to observe the digital convergence influences in 4C (telecommunication, cable television, computer network and e-commerce) and contents (copyright) industries.

### 2. Second Edition of DCDP and Primly Policies Indicators Advance

Since DCDP was launched, it has caused a tremendous response. Nevertheless, rapidly advanced ICT technologies inspire people's expectations. Recently, it has already overtaken the anticipations of used DCDP. Therefore, to formulate a prescient version, Executive Yuan adopted the second edition of DCDP 2010-2015 in May 2012. In the second edition, an item of "producing prolific TV programs" is added to be the seventh main subjects, in addition, there are five extra items added in the improving tactics part; moreover, the number of measures increased to 107 items. Digital convergence indicators are also reformulated. First, 100Mbps wired broadcasting service should achieve 100% in 2013, and the second, accomplishing 100% digitization of cable TV in 2014. To achieve these indicators, relative administrations decide to accelerate the network infrastructure complementing process and cable TV digitization process. Simultaneously, they also consider extending their regulatory scale from emerging internet video services to the connected TV industries, and enhancing superior programs producing by policy making.

In point of accelerating network infrastructure complementing process, a complete broadband network is a foundation of digital convergence industry. However, a "complete" network indicates not only the non-discriminatory access to the hardware, but also mention about having

reasonable prices to access broadband services. By considering of Telecommunication operators and cable TV operators are both provides of broadband services, the digitization issue of cable TV industry is also concerned in the DCDP. As a primary enemy to Telecommunication operators in the convergence market, cable TV operators' competitiveness does not come from the their large share on the cable TV market, but from their possession of wide spread cable network.

Otherwise, various new creating contents and application are also encouraged in the DCDP. With "Smart TV," "HDTV" and "Connected TV" booming, "TV" has transformed from a passive receiving media to an information transport. Although, those emerging broadcasting techniques might threaten the traditional television industry, they bring positive influences to the media industry. By considering a well-run development must building on a integrity and friendly regulation framework. DCTF, an office established by Exclusive Yuan, will also take its responsible to assist NCC on the digital convergence regulatory issues.

### 3.Conclusion

Digital convergence effect to us is a turbulence but also a moment. Today, this effect, which originally comes from the techniques convergence, has detonated in different nations and various places; crossing-industries competition turns to be more and more common around the world. To accommodate our nation to this trend, the primary strategy proposed by government is to integrate administrations' effort. Through policies making, including DCDP upgrading and validly relative regulation frameworks amending, every relative industry is able to restore enough energy and seize the moment, further, naturally turns to be a domain of market competition.

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