Innovative Research

R&D expense

NT$ **3.7** billion

Number of patents

1,071

180,000

participants in
innovation & application contest

S Accumulation of Research Capacity

Research and development capability drives a company to grow. With the rapid evolution of technology and consuming trend, digital service is entering into the era of convergence; as a leader of telecom industry, Chunghwa Telecom continues to uphold its forward looking and innovative mindset and implement multi-screen interaction and co-existence concept in the digital rainforest.

Utilize ICT Core Technology and Activate Smart Life through Integration

We believe that by capitalizing a corporation's unique resources and expertise and infusing into related welfare issues, not only a corporation's competitive advantage is improved, society and corporation as a whole can also be benefited; a matured corporate social responsibility must be incorporated into a corporation's major activities to generate a corporate culture with centralization mindset and stimulated innovation.

With its resources and core competencies, Chunghwa Telecom has incorporated policies such as R&D, product sales and human resource management into strategic CSR planning, while taking internal conditions and external demand into consideration, to come up with a systematic and goal-oriented CSR strategy to providing concrete help and positive influence on social issues. Subsequently, a continuous improvement on efficiency and performance of relevant CSR projects through analysis of performance.

We are determined to contribute considerable resources into the development of ICT industry to establish its core competitiveness, and manage the key technology of network efficiency, operational management and business innovation through innovative development, introduction of domestic and foreign technology and collaboration with industry, government and academic fields.
(1) Broadband network (2) Intelligent network (3) Convergence management system (4) Product and technology of corporate information security (5) Analysis of large data (6) Service and technology of digital life (7) Government and corporate ICT solution, and (8) Eight topics including cloud computing products and technology.

R&D Award Received in 2013

Granter	Awards
Institute of Transportation	Received Excellent for "Introducing Intelligent Transportation System to Tourist Recreation Area-i3 Travel Love Travelling"
Ministry of Economic Affairs	Received 3 Gold, 3 Silver and 3 Bronze in Taipei Int'l Invention Show & Technomart.
Department of Industrial Technology	"Commercial Vehicle Management Platform and Application Service Platform" won "2013 Industrial Innovation Achievement Award" Product/ System/ Service Innovation Award"
Bureau of Foreign Trade	"EARTH" system won "3rd Taiwan Green Classics Award"
Intelligent Society of Taiwan	"RSU-based Real-Time Traffic Database System" won "ITS Application Award", "Real-time Urban Traffic Sensing with GPS Equipped Probe Vehicles" won "ITS Paper Award"

MInnovation and Brand Management

To provide network efficiency, operational management and innovation capacity, Chunghwa Telecom Research Institute was re-named Chunghwa Telecom Laboratories (hereinafter referred to as CHT-TL) on July 2012. The restarted CHT-TL concentrates on innovation and accumulates solid research capacity to facilitate industry upgrade and strengthen national competitiveness, and eventually pave way for Chunghwa Telecom to become the leader of ICT industry. In 2013, a total of NT$ 3.72 billion that accounts for 1.63% of consolidated turnover have been contributed to research and development.
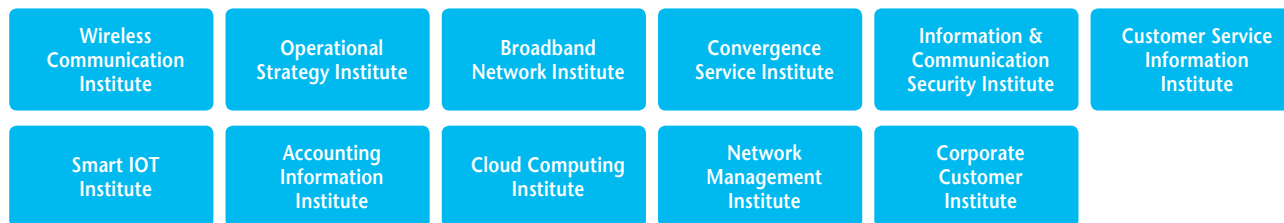
Encourage Internal Innovation

To encourage innovation atmosphere, "Chunghwa Telecom innovation network" was established to encourage employees to develop creative strategies, employees whose proposal accepted by the Company is rewarded handsomely. Once a proposal is adopted and launched, the proposer is entitled a reward of up to NT$ 30 million based on the actual operations.

Talent Sets Key to Innovation

Among over 1,600 employees (accounted for 6.5% of all employees) in CHT-TL, 90% is functioned as R&D. In addition to develop the abilities required for business expansion, Chunghwa Telecom group stresses innovative service, fundamental technology and forward-looking research, and develops convenient but practical services to meet consumers' demand. To ease up complication, Chunghwa Telecom transforms complication into simplicity, allowing consumers to "point and done", in hope to meet "Simple for consumers, Complication stays at Chunghwa Telecom".
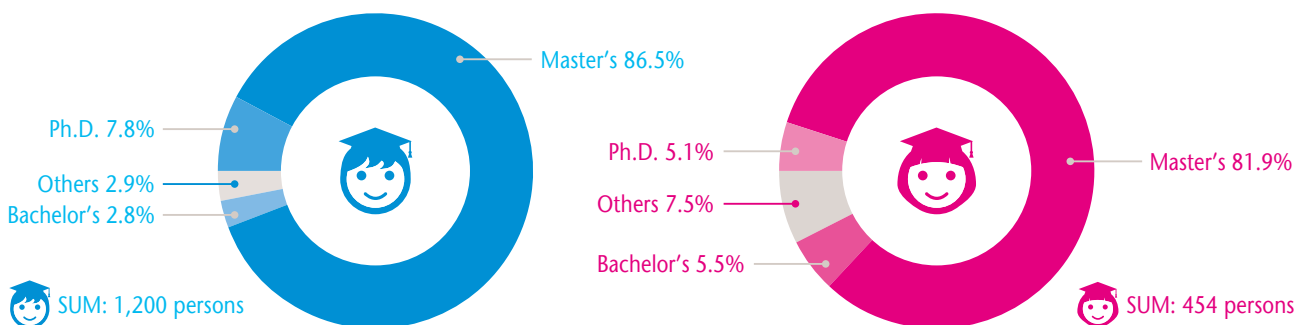
R&D Team

Wireless Communication Institute	Operational Strategy Institute	Broadband Network Institute	Convergence Service Institute	Information & Communication Security Institute	Customer Service Information Institute
Smart IOT Institute	Accounting Information Institute	Cloud Computing Institute	Network Management Institute	Corporate Customer Institute	

In addition to establishing quality promotion team, quality assurance center and engineering process team, Chunghwa Telecom also infuses ISO R&D quality system, Capability Maturity Model Integrated, project management and system development procedure in order to incubate innovative corporate culture. In the meantime, "Chunghwa Telecom Innovation Network" has been established to encourage employees to develop creative ideas.

In recent years, CHT-TL is committed to obtaining patents for product services. There were 139 patents obtained in 2013 (domestic and foreign) as of end of 2013. The accumulated patents has reached 1,071 (965 in Taiwan, 106 in foreign countries), among which, 592 patents remain effective (506 in Taiwan, 86 in foreign countries).

CHT-TL Talent Summary

Master's 86.5%
Ph.D. 7.8%
Others 2.9%
Bachelor's 2.8%
SUM: 1,200 persons

Ph.D. 5.1%
Others 7.5%
Bachelor's 5.5%
Master's 81.9%
SUM: 454 persons

Brand Management

With diversified marketing creativity and channels, Chunghwa Telecom delivers expertise, convenience and a brand image meets consumers' expectation. Among various brand marketing, Chunghwa Telecom proclaimed its leading position in digital brand in TV commercial "Digital Era", and established and implemented digital life to ensure its leading position in digital convergence. With effective promotion of brand management mechanism, with its brand value of NT$ 115 billion, Chunghwa Telecom ranked 384 among the "500 most valuable brands worldwide in 2013". It is the only company in Taiwan included in the list.

* Note: "500 most valuable brands in the world" is a benchmark study by Brand Finance concerning the strength, risk and future potential of a brand relative to its competitor set as well as a Brand Value.

2013 Brand Recognition

- Received 1st place in "Best Brand Award" - telecommunication sector from Business Today for the 6th consecutive years.
- Received Reader's Digest Trusted Brand's Platinum Award -Telecommunication Communications Service
- Received "Golden Service Awards" from CommonWealth Magazine.
- Selected by 2013 Young Generation Brand Survey in 30 Monthly as favorite brand.
- Received 2nd place in "Digital Service Benchmark Corporation" and 1st place in "Information Channel & Communication Industry".

Chunghwa Telecom adopts concentrated brand frameworks that account for individualistic brand presentation. We have a Brand Manager (President) in place to undertake the supervision of all brand creation, design, management, and adjustments in the company. The Deputy Brand Managers for business groups follow the company's overall brand strategies as they undertake implementation responsibilities, as well as flexibly and independently operating their own designated brands under authorized parameters.

- Brand Policy: concentrated strategies that account for the development needs of individual fields.
- Brand Management: the company's Brand Manager is designated to handle the formulation, control, and adjustment of all brand strategies for the company, while subsidiaries are responsible for implementation.
- Brand Structure: concentrated brand structures that account for individualistic brand presentation.

In 2014, we plan to invite top business executives to participate in "Brand positioning and marketing of Chunghwa Telecom and subsidiaries" project, to define Chunghwa Telecom's major business positioning through establishing mutual understanding, enhancing efficiency and quality of decision making, while facilitating consumers' brand awareness, image and nature through diversified analysis. These efforts will enable Chunghwa Telecom to deliver an ideal corporate and business image to enhance brand image and corporate value, and pave way for subsequent product and marketing planning.

For You, Always Ahead

For years, Chunghwa Telecom has uphold the brand spirit of "For you, always Ahead", in addition to winning 1st place in "Outstanding Strategy Awards" and "Outstanding Innovation Award", Chunghwa Telecom received 1st place for both "Outstanding Brand Awards" and "Outstanding Strategy Awards" in" Agency and Advertiser of the year 2013. This recognition proves that Chunghwa Telecom never stops listening to consumers and improving service quality. While improving innovative soft power in digital convergence, the Company continues to provide consumers with better and more convenient ICT life. As a pioneering company, Chunghwa Telecom vows continuous forward-looking and innovation for you, always ahead, as promised.

A Cloud Development

To welcome the digital convergence era, Chunghwa Telecom develops cloud computing business (SaaS CRM, ERP, POS, etc.) through cloud technology to provide cloud computing services and solution, at the same time, promoting various Hami value-added services to provide multi-screen contents and services including personal clouds, video, music, bookstore, news, weather, travel and payment. Furthermore, through the continuous integration of internal resources and enhancing multi-screen services, Chunghwa Telecom introduced consumers with brand new experience in digital life by providing more differentiated digital convergence multi-screen integration service that is personalized, location-based and cross-serviced.

Hami+Personal Cloud

Chunghwa Telecom's Hami+Personal Cloud provides multi-screen, storage, sharing and exchange services, combines HiNet, emome, MOD platform value-added service to provide consumers with personalized digital convergence experience. It allows consumers to enjoy diversified and convenient digital life through "multi-screen & one cloud" by way of collaboration with software providers including promoting digital book with Chun Shui Tang and providing multi-screen cloud music with KKBOX.

Mobile Payment

As a pioneer in the industry, we started working with international and domestic industries from 2007 to try out mobile payment services. In terms of NFC mobile payment service, we have established a joint venture "TSM Company" with six partners including MRT card and peer companies and started to provide services in early 2013. To further our diversification in mobile payment, we pioneered the industry by obtaining patent for QR Code mobile payment in 2013 to build a more convenient digital life experience for users and service providers in Taiwan.

HiNet IOT

HiNet IOT is the foundation of future smart life. Through the integration of broadband networking with sensing devices as well as digital monitoring services such as iEN, UCam and Smart Home, we implement the vision of smart family and green corporation.

Ucam plays an important role in security guarding. In 2012, Chunghwa Telecom worked with the New Taipei City Police Department to construct "Cloud Road Video Rental Service" to provide critical video record and effect police manpower management. For "Intelligent Energy Network Service", we have accomplished the "Taoyuan Main Canal Remote Sensing Project ". By utilizing the concept of IOT, a more comprehensive water management, disaster prevention, auto surveillance and water gate remote functions is available. As for the three-in-one cloud function of "Smart Home", an integrated access control intercom, situational control, energy management and environmental monitoring is made available.

hicloud

Chunghwa Telecom's hicloud service introduced hicloud CaaS, hicloud VPC, hicloud Box^e and hicloud Mall to fulfill different cloud application needs of the corporations. For example, the hicloud VPC adopted by"WebPro Securities and Futures Market Video Network" of Taiwan Stock Exchange is able to efficiently deploy and support the expansion of bandwidth and support operational efficiency and competitiveness. With target marketing toward the Taiwan ICT industry and Small and Medium Enterprises, Chunghwa Telecom aims to facilitate the development of cloud industry and making Taiwan a cloud exporting country.

Corporate Cloud

Chunghwa Telecom's corporate cloud service (hicloud VPC/ Box^e/ S3) provides dynamic expansion and flexible cloud computing resources to construct the exclusive cloud data center that corporation demanded while, with the advantages of fast, flexible, security and low cost, supplying corporate headquarters with comprehensive solution of unified management computing

resources, storage services, networking services and information security services and achieve a better operational efficiency and competitiveness. To expedite the formation of ecosystem of cloud software and hardware industry in Taiwan, we cooperated with cloud hardware strategists to establish domestic-made Virtuoso Appliance and launched integration products in 2013 to create digital opportunities.

With the vision of "Developing cloud services of tomorrow", we donated 3 Virtuoso Appliance main engines to the Ministry of Education to support its "Information Technology Software Academy", contributing to the education of students on the core technology of cloud application and the cultivation of innovation capacity, hoping to effectuate commercial use in different aspects and create an ideal environment for the Taiwan cloud industry to grow.

SaaS

With cloud structure design and integrated services, Chunghwa Telecom penetrates into the market by providing hicloud CRM, hicloud POS and hicloud ERP, and aims to provide one stop service ICT and cloud service to corporate customers.

With the strategy and ambitious of developing cloud service in the digital rainforest, Chunghwa brings together a number of quality information software providers in Taiwan to develop corporate application cloud and logistics cloud, to meet the needs of ICT operation, in hope to become the leader of SaaS cloud services in Taiwan. In addition, Chunghwa Telecom has won Technology Innovation Awards in 2012 Taipei International Electronics Show (TAITRONICS) and Innovation Awards issued by Cloud Computing Association in Taiwan.

HiNet Travel Cloud

Provide services to those who love to travel in Taiwan and schedule traveling plan online based on attractions, transportation and accommodations. Travel cloud is a platform lies between industry and consumers to provides a full range of integrated travel services for an interesting digital travel life.

By cooperating with travel agency, accommodation, food & beverage, souvenirs, transportation and logistics industries, HiNet travel cloud provides online travel package booking, accommodation booking and restaurant reservation. Besides, travel cloud estimates travel time based on vehicle used for a better travel experience.

The rise of mobile device and its integration with ICT technology make easy for consumers to schedule travel plan, for example, download travel plan by scanning QR Code or combine with local mapping information to estimate vehicle-based travel time. The potential revenue created by travel cloud is difficult to estimate at this point, Chunghwa Telecom's role is acting as a platform that combine with local travel service provider to develop a tourism and travel electronic commerce and help partners to integrate more payment platform.

R Pioneering Smart City

Chunghwa Telecom believes that urban development is not stereotypical, different cities should live up to its own beauty. With comprehensive network infrastructure, along with software and hardware integration of 4G and cloud, Chunghwa Telecom is fully equipped with the ability to help Taiwan's urban development and transformation, by constructing "distinctive and innovative" smart cities, quality of life is improved and tag along industry upgrade.

In different stages of city development, Chunghwa Telecom is always here with you!

When a city grows into maturity, the inhabitants start to ask for better environment and quality of life, hoping for a better life.

In the stages of city development, what inhabitants need is industry and life-related facilities.
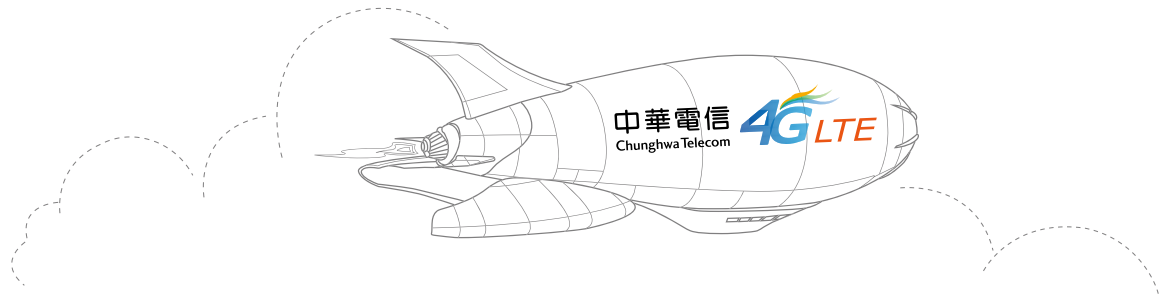
GPS

Wi-Fi

Digital City

Traditional City

Provide Fast Network, Voice Mail
- The foundation is to construct computer,
- Utilize broadband network to facilitate the
- Capitalize sensing, global positioning,

Provide the Establishment of Basic Network Facilities
- Planning and design of basic equipment
- Establish basic information management

At the same time when a city is maintaining current functions, it also start to develop its distinctiveness, to meet the ever-increasing needs of the industries, technologies, societies and inhabitants, and upgrade itself into a smarter city to provide better life quality to its inhabitants.

Smart City

Utilize ICT Function to Provide Customized Smart City Solution
- Digital City + IOT +Cloud Computing
- To deploy sensor into city infrastructure to form an IOT
- Realize integration of IOT by way of cloud computing, to provide analyses and management of smart city

and Information Transmission Service

multi-media and mass storage technology.

digitization of city information

geographical information system technology to utilize city digitization

T Developing Industry Transformation

With the advantages of network infrastructure, telecom value-added service and integration of software and hardware, Chunghwa Telecom is acting as a pioneer to drive the transformation and upgrade of ICT industry in Taiwan, and provide consumers with comprehensive customized cloud and value – added solutions. We expect to lead and drive the transformation and development of ICT industry in Taiwan to achieve the following three goals: 1. Become the cloud computing leader in Taiwan. 2. Promote the cloud computing industry. 3. Work with strategic partners to create innovative cloud computing services.

Lead Cloud Computation

Simply put, cloud computation consists of cloud servers, terminals, networks, and services. Cloud "networks" and "services" are part of Chunghwa Telecom's industry and two of its advantages which connect the "cloud" to the "terminals" and provide people and businesses with convenient cloud computation services. Currently, in addition to providing customers with services such as relationship management services, computing cloud, cloud anti-virus and anti- hacking, cloud storage, etc., we are also promoting the six primary services of the personal, storage, business, travel, circulation and health clouds with partners from different industries. At the same time, we are actively strengthening cloud infrastructure through cooperation with strategic cloud partners such as Microsoft, Intel, Fujitsu, Trend Micro, Quanta, Show Chwan, etc. to drive the development of the cloud computing industry in Taiwan.
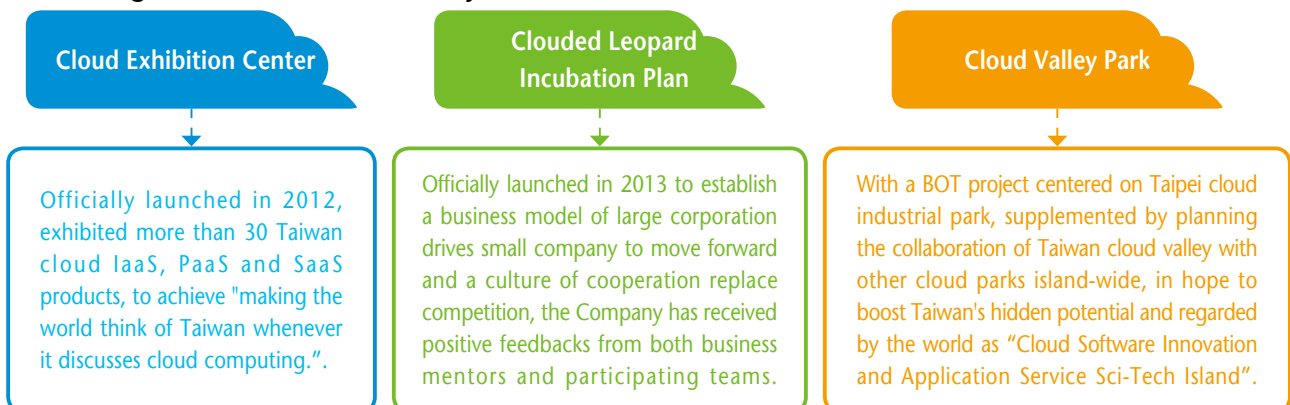
Four Centers, One Platform, One Marketplace

Chunghwa Telecom's cloud computing layout follows the strategic framework of "four centers, one platform, one marketplace" to gradually move forward. Four centers refer to an R&D center, test center, operations center, and experience center. In addition, Chunghwa Telecom has built a large capacity "cloud service creation platform" focusing on cloud software developers to build a "Chunghwa Cloud Marketplace' and provide business customers with one-stop shopping, buy to rent, on-demand, safe, and stable cloud application services. From this we hope to expand cloud application use and build the largest cloud settlement in Taiwan.

Expedite Taiwan Cloud Valley

In 2010, Chunghwa Telecom united 64 service providers including telecom, software development, industry research and design and manufacture of computing system to form "Taiwan Cloud Computing Consortium" and established "Cloud Computing Association in Taiwan" with President of Chunghwa Telecom as the Chairman. With members exceeded 110 companies, Cloud Computing Association in Taiwan has become the medium of value enhancement for the value chains of Taiwan cloud computing industry, creating a matching platform for industrial, academic and research circles to conduct development, integration, verification, commercial and output. Besides, through the association, Chunghwa Telecom is able to plan and expedite the birth of "Taiwan Cloud Valley", allowing Taiwan cloud computing industry to enter the world stage of "Inter-Cloud".

Three Stages of Taiwan Cloud Valley

Cloud Exhibition Center	Clouded Leopard Incubation Plan	Cloud Valley Park
Officially launched in 2012, exhibited more than 30 Taiwan cloud IaaS, PaaS and SaaS products, to achieve "making the world think of Taiwan whenever it discusses cloud computing.".	Officially launched in 2013 to establish a business model of large corporation drives small company to move forward and a culture of cooperation replace competition, the Company has received positive feedbacks from both business mentors and participating teams.	With a BOT project centered on Taipei cloud industrial park, supplemented by planning the collaboration of Taiwan cloud valley with other cloud parks island-wide, in hope to boost Taiwan's hidden potential and regarded by the world as "Cloud Software Innovation and Application Service Sci-Tech Island".

Cloud Computing Association in Taiwan has initiated the 1st finals of the "Taiwan Clouded Leopard Incubation Plan", in 2013 with Mr. Kunming Lin, Chairman of Taiwan Venture Capital Association along with 9 other senior executives from venture capital industry to conduct evaluation, a total of 10 cloud vendors participated in the competition. The final winner took away one million NT dollar prize was MeWorks, a company providing Taiwan designed and corporate cloud solution services and is mentored by Chunghwa Telecom.

Collaboration of Industrial and Academic Creates Mutual Benefit

Chunghwa Telecom is committed to develop ten technologies including future network, network energy efficiency, network security, large data, cloud effects, smart directory, Telematics, health management, near field communication and mass information system. To expand the depth and communication interface of technology research and development, we have worked with universities in Taiwan to conduct technology research, strategic cooperation and participate in International Organizations for Standardization/island wide organizations and associations.

We have cooperated with Center of Innovation and Synergy for Intelligent Home and Living Technology (iNSIGHT) to conduct industrial and academic research. The user interface redesign of Chunghwa Telecom's MOD APP remote control combines the design of iNSIGHT, the program development of Chunghwa Telecom, and the function of set-top-box. Furthermore, we are also working on mass data issues – "Traffic cloud mass data business", and accumulating experiences through actual cases.

Innovation & Application Contest – Incubate Innovation Seeds

Starting from 2011, Chunghwa Telecom consolidated "Network Contest" and "Value-added Software Contest" into "Telecom Innovation & Application Contest", this is the largest innovative and digital learning contest targeting elementary school, junior high school, high school, college and non-students. The selected works will be presented on Hami, MOD, HiNet, and FunPark.

2013 Telecom Innovation & Application Contest differs from past contests in the addition of "MOD interactive micro-film" and "Travel report", while the Apps designed by student team and non-student team are worth watching, they are now available to download on Hami Apps. 6,000 applications were submitted and 90% of the colleges island wide with a total of 119 students and 688 design works participated. Total participants exceeded 180,000.

Chunghwa Telecom Creative Cloud Salon, Irrigate Digital Rainforest

Chunghwa Telecom aware that the development of cloud industry requires the talents of more creative thinking and entrepreneurship, whereas the innovation requires to think outside the box and connect through different areas of expertise to bring out different ideas and create new industry value.

In this regard, Chunghwa Telecom promotes" incubating of innovative talents from internal + External environments" with business philosophy of "Emphasizing on Professions, Focusing on Expertise, Enhancing Efficiency, Affecting Service". In response to the changing times, Chunghwa engages in emerging social networks, provides innovative products and services on the continuous basis to show positive momentum to lead the industry into tomorrow land. In 2013, we proposed a "Think beyond – i cloud" initiative, with 4 I (Love), namely i connect, i develop, i interchange, i support" to promote the thoughts and culture of cross-boundary innovation and entrepreneurship, encouraging those endeavor to engage in innovation, creativity and entrepreneurship to think out of the box and exchange ideas with different social network to bring out more creativity.

There are over 700 participants and 20 participants from different industries visited 2013 Creative Cloud Salon, over 2,000 views on social network, besides, we also cooperated with "Shanghai Cloud Base" to form "Cross-Strait Cloud Platform Exchange Forum", deepen cooperation and exchange.

Creative Cloud website: https://www.youtube.com/channel/UCOyoKcXK91gNOTfVzihIqdQ

Telecom Innovation & Application Contest: http://innovation.hinet.net/news.html