

Pioneering Smart Service



Strategy Continue the investment in R&D, the introduction of advanced technologies and the joint ventures with the government and academic circle.

Management Establish the quality improvement task force, quality assurance center, and business process task force for introducing ISO R&D quality system for integration with the development of competence, project management and system operation.

Action Continue to present innovative products and service through R&D to create a smart city, including ITS smart transportation and smart home.

Response Please refer to page 51 "2014 Year in Review and 2015 Prospects"

Short-term Continue to pool momentum for research and development and launch new products for the creation of a smart city.

Long-term **2015~2018** earn 600,000 paid accounts for 4G smart city service, assist governments to create smart city.

CHT **3.5** billion in R&D investment

CHT **1,528** talent in R&D



Sustainable Products and Services

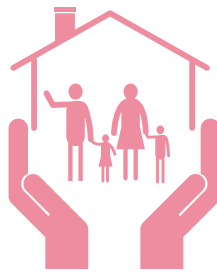
R&D and innovation capacity is the engine driving the perpetual growth of an enterprise. The rapid development of technology and consumption trends drives digital life services into the era of digital convergence. Being a leader in telecommunications, Chunghwa Telecom is spirited in vision and innovation and was conceived with the notion of sharing and the joint prosperity of the industry that materialized into an environment of plenty.

Chunghwa Telecom has fully developed network Infrastructure. With the advantages given by the integration of the hardware and software of 4G and cloud, Chunghwa Telecom can assist the counties and cities of Taiwan for further development and transformation so as to build up the smart city to "Intermingle features and innovation". This will also bring benefits to industrial upgrading and improvement of the quality of living for the people. The goal is sustainable corporate development driving forward the sustainable social development.

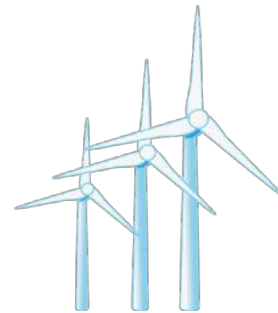
Smart city building is a perpetual process without end. We believe that the city itself is an organism with opportunity and is engaged in change over time under the demands of the people and the vision of leaders. Every city has its challenges. As such, a city also needs to evolve without pause and develop with wisdom in order to tackle problems and challenges. From 4G to IoT, from technology to application, from vision to realization, Chunghwa Telecom will assist you in designing a blueprint for the building of a smart city and development of business opportunities in smart services.



Infrastructure of Smart City



Safety and Health



Green Energy and Sustainability



Technology Innovation

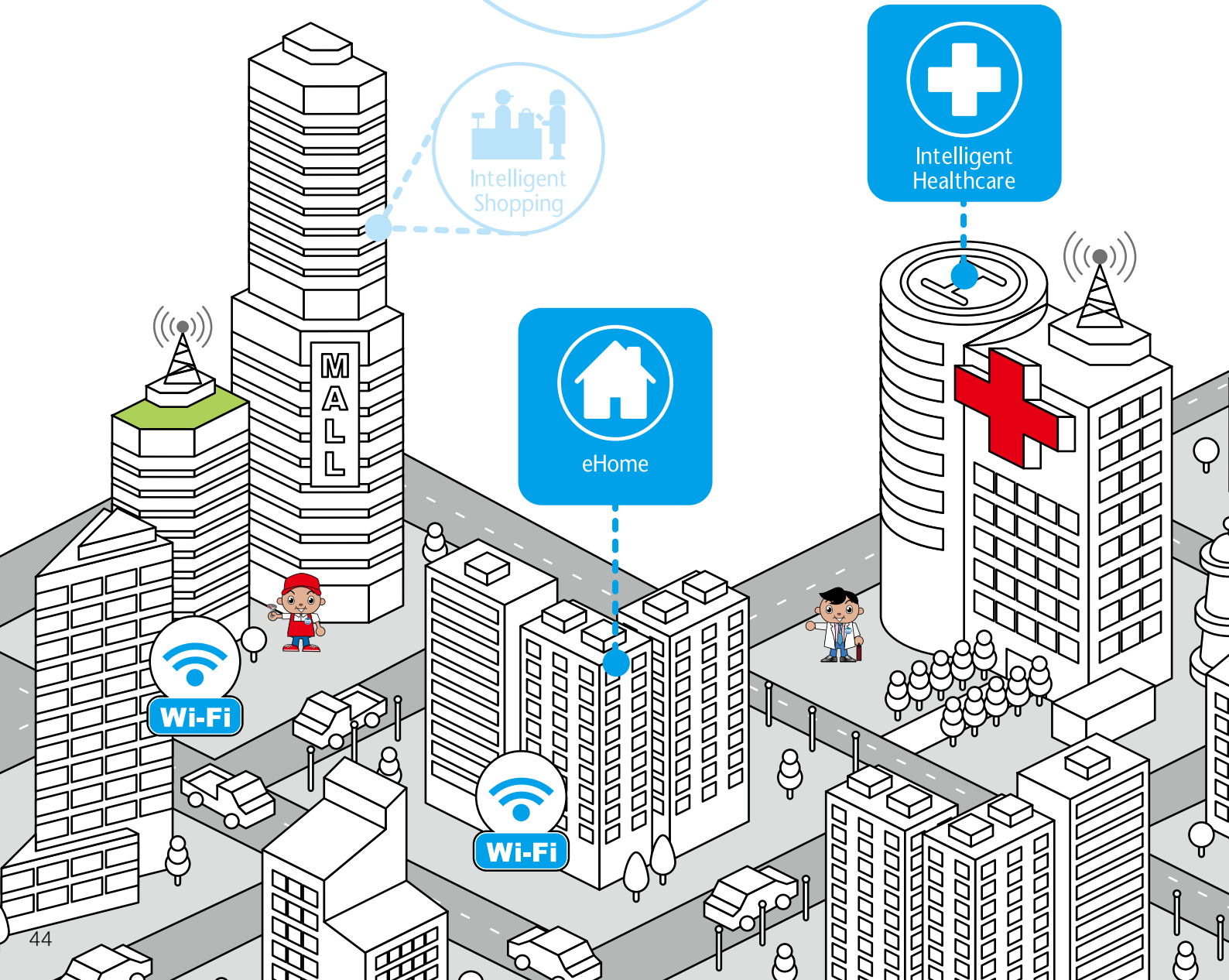


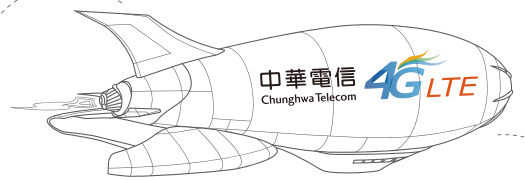
Industrial Development



Cultural and Tourism

4G Leads Smart City





Data Security Service

Mobile Payment Service

Electronic Invoices Service

eHome

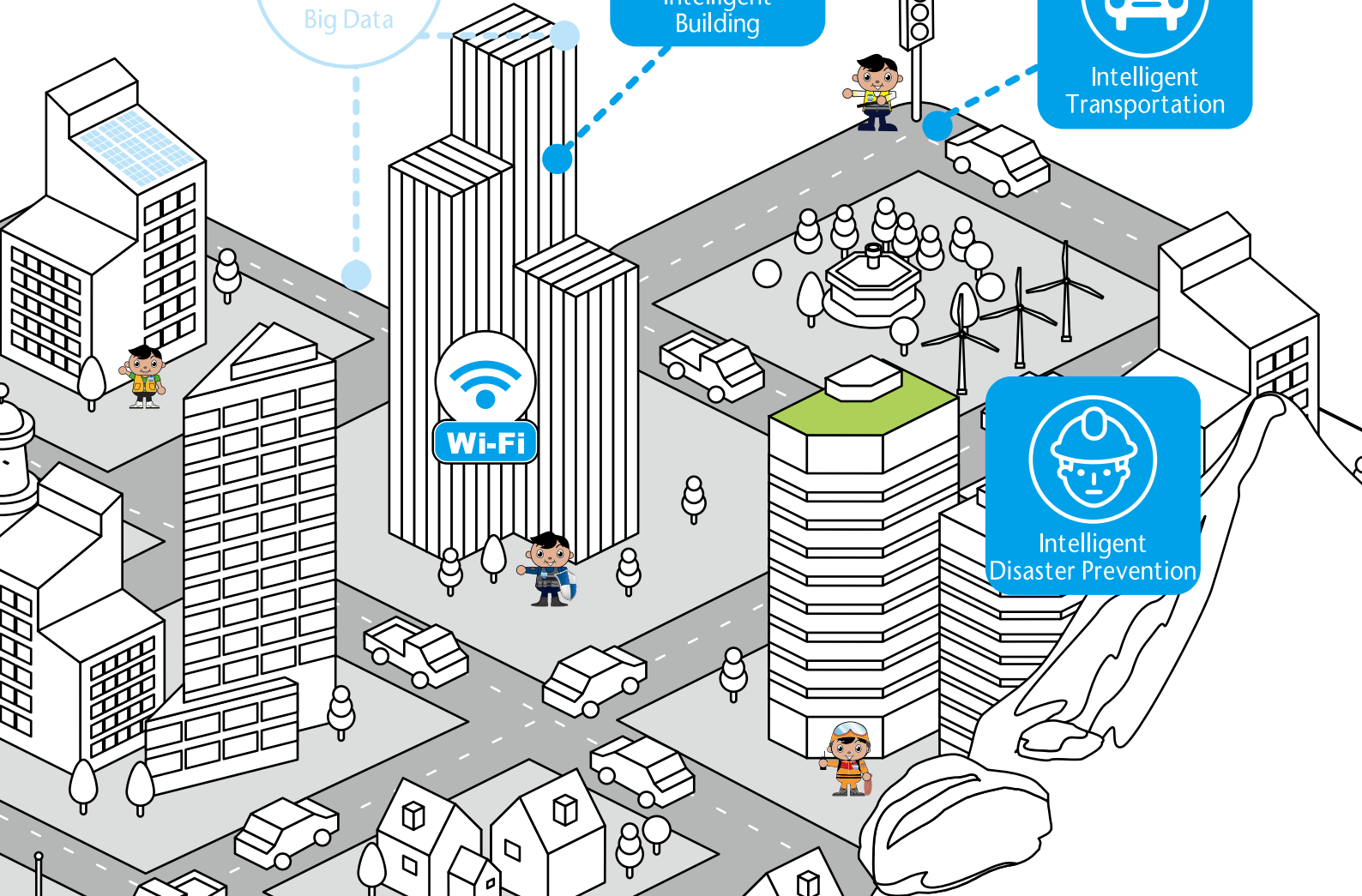
Big Data

Intelligent Building

Intelligent Transportation

Intelligent Disaster Prevention

Wi-Fi



2014 Performance Highlight

iEN - Intelligent Energy Service

iEN provides enterprises a full-range of technical services in energy saving and developing an environment of optimal energy management so as to effectively upgrade system operations and cost reduction in business. This service has been successfully applied to hospitals, schools, government agencies, aquaculture and fisheries, and superstores ever since its launch in the market, and has been highly acclaimed. In 2014, we had revenue amounting to NT\$1 billion from this service.

For example, Chunghwa Telecom completed the "Taoyuan Da Zhen Watergate Remote Control Project" in 2014. With the use of the concept of IoT and integration into web pages and the mobile App detection function, this project provides proper management of water resources, disaster prevention, and automatic monitoring and water gate control.

Intelligent Transportation System (ITS)

"Fleet Management Express" combines cloud technologies such as GPS dual communication, personalize door plate positioning technology and fuel management to effectively reduce cost of message transmission and enhance business efficiency.

One year after importing the service, average vehicle fuel consumption is reduced by 6.6%, average vehicle idle time is reduced by 31%, total fuel saving is amounted to NT\$ 4 million, equivalent to 307 metric tons of carbon emission. "As of the end of 2014, we have improved operational efficiency of the system to support daily service of 50,000 calls, meanwhile, by working with 12 fleets, we helped 3,500 taxis to reduce dispatching time by 56%, increase daily occupancy rate by 28%, and reduce vacant hours by 48%, which is equivalent to reducing 7.7 kg of carbon emission.

Thundering in the Cloud Through the Integration of Conventional Technologies

The "hicloud Render" cloud computing service of Chunghwa Telecom provides a brand-new cloud technology and creative process for the digital content industry of Taiwan so that the artistic and cultural creation and audiovisual industry can prepare good quality content at low cost and efficient for penetration into the international market.

"The ARTI-The Adventure Begins", is a 3D animated movie that first introduced the commercial use cloud computing service to movie. Through the cloud patching processing feature, the massive and burdensome computing inherent to animated movie can substantially be reduced.

Traditional Mode

With traditional computing solution, it takes 1.7 million hours to produce 3D+4K film and all the special effects.

CHT Contribution

Reduce the workload significantly by more than 50% in the filming and allow the film to complete in 4 months which otherwise would take 10 months.

Chunghwa Telecom helped the Oscar Award Winning Director Li An to complete the special graphic effects of the film "The Life of Pi" in 2012. Since then, Chunghwa Telecom has been contracted for performing related duties in special effect computing in the production of numerous films.

In the future, Chunghwa Telecom will combine cloud storage service and the broadcasting HD OTT viewing platform to provide total solution for the digital content of Taiwan from production, post-production to circulation, and to show the outstanding performance of artistic creation of Taiwan to the world.

Sustainability in Innovative R&D

Chunghwa Telecom incorporated its product R&D, production and sales, and human resources management research and development policies into a strategic CSR plan on the basis of its resources and core competence. Through the gathering and analysis of information on performance, Chunghwa Telecom continues the improvement of related CSR plans for better efficiency and performance.

Chunghwa Telecom continues to invest in relevant resources in research and development works for laying a solid foundation of core competence in the data communication industry in order to control the key technologies in network performance, operation management, and business innovation.

For this reason, Chunghwa Telecom has changed the name of the CHT Institute to CHT Laboratories in 2012 to assist the company to emerge as a leader in data communication service, promote industrial upgrading, and bolster the competitive power of the country. In 2014, Chunghwa Telecom invested approximately NTD 3.5 billion in research and development, which accounted for approximately 1.55% of revenue. It also applied with the Intellectual Property Bureau of MOEA for registration of 178 cases with 162 being approved.

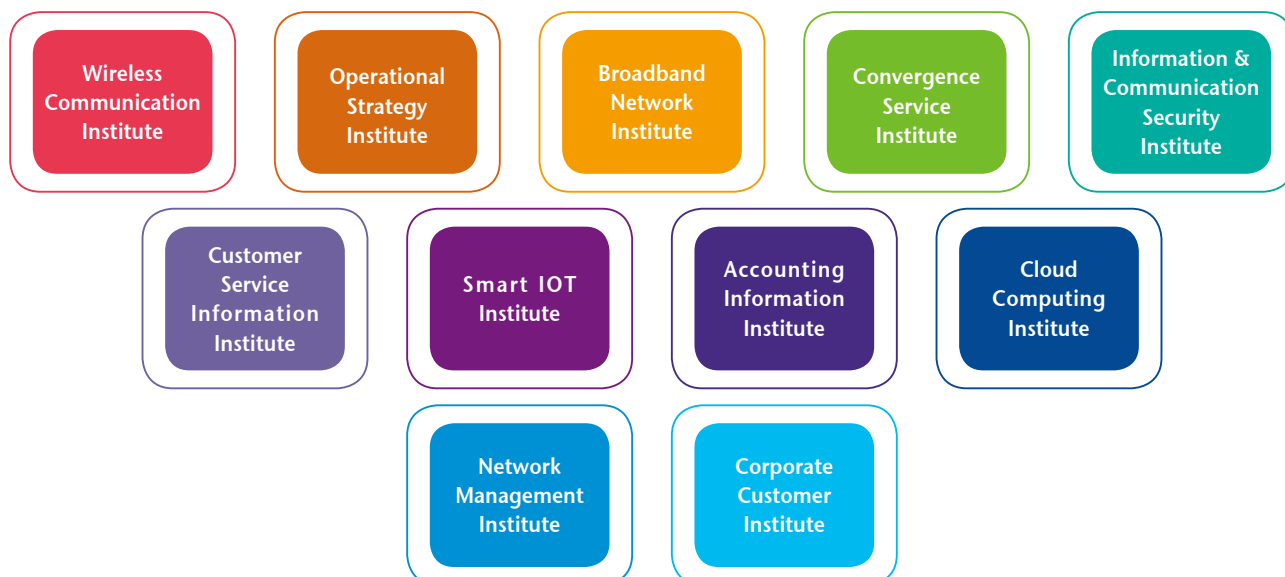
Encourage Internal Innovation

For nurturing the corporate culture of innovation, Chunghwa Telecom has established a quality promotion task force, quality assurance center, and business process task force at the CHT Laboratories. Proposals being accepted will be rewarded. If a specific proposal has been validated, developed, and launched to market, the proposer will be entitled to a prize of up to NTD 30 million depending on the actual status of operation.

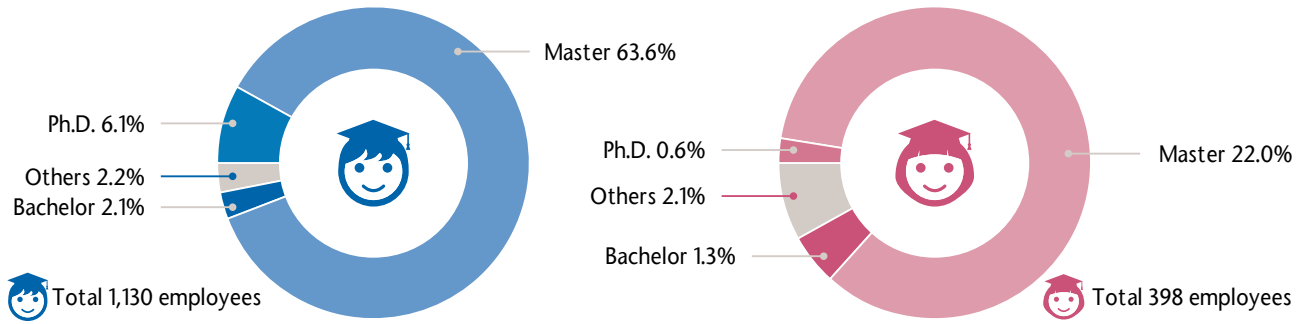
Talent Sets Key to Innovation

Among over 1,500 employees (accounted for 6.4% 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".

CHT-TL Talent Summary



CHT Laboratories' Talent Overview



Credentials of the CHT Laboratories

| Award presented by | Name of Award |
|--|--|
| Ministry of Economic Affairs | "Environment ARTificer THeurgy won the EPIF 2014 International Green Classics Awards – Honor Award |
| | Winner of 3 Gold, 5 Silver, and 1 Bronze awards from Taipei International Invention Show & Technomart |
| | Winner of the 2014 TAITRONICS-Technology Innovation Awards 1.Outstanding product award on cloud IoT: Environment ARTificer THeurgy 2.Big Data Security Log Analysis System 3.Outstanding product award on broadband communication: Smart Communication Service |
| ITS Taiwan | <ul style="list-style-type: none"> 2014 smart transportation application award: "Smart Vehicle Service Sharing Management System" 2014 Smart Transportation Essay Award: "Scaling the Real-time Traffic Sensing with GPS Equipped Probe Vehicles", and the "The Method for the Assessment of Transportation Information on the Basis of Cell Network Data" |
| IT Month | The "Quick Access to Road Information - Smart Traffic Information Service" won the "2014 IT Month Top 100 Innovative Products Award" |
| Chinese Society for Management of Technology | The Convergence Service Institute of CHT Laboratories won the "16th Technology Management Award - Corporate Teamwork Award" |




2014 Year in Review and 2015 Year in Prospects

| 2014 | 2015 |
|--|--|
| <ul style="list-style-type: none"> ● Focused on the study of the characteristics of the millimeter wave channel and conducted assessment through computer simulation before installing the network on the feasibility and system performance. This saved time and cost to provide the users top quality wireless broadband service. ● With the use of Software Defined Network (SDN) technology to optimize Wi-Fi Quality of Experience (QoE), this substantially reduced the cost of monitoring the locations and operation maintenance. ● Big Data Gathering function: The use of SDN/NFV (NFV: Network Function Virtualization) for centralization of the structure can reduce the number of data centers, machine cabinet space, power, and complexity in maintenance. ● Launched data security value added service: through the SDN optimized structure, reduce the cost and upgrade the expandability of data security service. ● Chunghwa Telecom participated in the Super Computing held at New Orleans, USA. and showed the SDN data security value added service; we also participated in APNOMS 2014 and joined the ONF. These enhanced our international visibility. ● Our EyeQuila and LiveDump data security services can quickly dig out malicious events and proceed to automatic identification to reduce possible data loss. This saved the time for big data analysis by 94% and the time for big data search by 96%. ● We upgraded the capacity of IRMAS and iServer at terminal protection for realization of data security policy. This IPAM system incorporated 6,769 network sections of the company to save external procurement cost by at least NTD 100 million and annual maintenance fee by NTD 15 million. | <ul style="list-style-type: none"> ● Effort will be committed to the R&D of the 5G mobile communications. Millimeter wave allows for broader bandwidth and more antennae for super high-speed and high-precision transmission. It can also trigger the possibility of many things in the future such as help to reduce time and cost of installation. ● Our Wi-Fi Gateway virtualized Proof of Service (PoS) helps to condense the time for installation significantly. Economically, it can reduce the number of hardware equipment effectively. At the social level, this upgrades user experience, satisfied the needs of the consumers and social expectation, and reinforces brand identification of the consumers. In environmental protection, energy efficiency could be improved. ● Kick off the Virtual Customer Premise Equipment and SDN Virtual Private Network PoS services for enterprises. ● We will continue to reinforce the function of EyeQuila and control the server activities from the terminal point in order to provide the tool for the identification of data security events, disclose the threat and respond from the terminal point to contain the dispersion of the situation and feedback to the data security protection system. |

Developing Industry Transformation

With the advantages of network infrastructure, telecom value-added service and integration of software and hardware, we expect to lead and drive the transformation and development of ICT industry in Taiwan to achieve the following three goals:

-  Become the cloud-computing leader in Taiwan.
-  Promote the cloud computing industry.
-  Work with strategic partners to create innovative cloud computing services.

Lead Cloud Computation

Cloud computing is the totality of cloud server, terminal, network, and service. "Network" and "service" are the advantages inherent to Chunghwa Telecom as a communication service provider. Further to providing consumer relation management, computing cloud, cloud anti-virus service, and cloud storage, we also proactively work in cooperation with partners such as Microsoft, Intel, IBM, Trend Micro, Wiwynn for jointly promote cloud services so as to reinforce the infrastructure of cloud and advocate the development of cloud computing industry in Taiwan.

Four-center, One-platform, One-marketplace

Chunghwa Telecom develops its cloud computing in accordance with its four-center one-platform one-marketplace strategy framework. Four centers are the R&D Center, Test Center, Operation Center, and Experiment Center.

In the project for "Cloud Service Application for Small and Medium Enterprises of New Taipei City", Chunghwa Telecom provides a high capacity "Cloud Platform" and built up the "CHT Cloud Marketplace", linking all cloud industries of Taiwan and helps the enterprise to save cost by "daily big saving", and provides the cloud station, SaaS CRM marketing guru, cloud mobile business opportunity, cloud server, cloud database, and corporate eChannels.

Some 5,200 small and medium enterprises joined the project since 2014. New Taipei will be the city with the highest population of corporate cloud service and the best performed city in Taiwan.

Taiwan Cloud Valley Program

For encouraging industries to develop cloud innovation and application service, the Cloud Computing Association of Taiwan officially launched the "Taiwan Cloud Leopard of Cloud Valley Incubation Program" (known as Cloud Leopard Incubation) in April 2013. This program is the convergence of the momentum of the powerful members of the association for soliciting the development of the platform for cloud service with the formation of a tutorial team.

In 2013, Chunghwa Telecom participated in the 1st Cloud Leopard Incubation Program. Divisional Manager of HiNet acted as the corporate tutor of Meworks who turned out to be the champion and was awarded a prize of NTD 1 million.

In 2014, Chunghwa Telecom again participated in the 2nd Taiwan Cloud Leopard Incubation Program. Divisional Manager of HiNet acted as the representative corporate tutor and supervised four teams, and the Public Social Enterprise won the fourth place and was the first social enterprise being awarded.

Innovation & Application Contest

Chunghwa Telecom worked in conjunction with students for the development of Innovative telecommunication service for encouragement of network application and digital learning. The Innovation & Application contest, which has been held for 13 years, helped to Identify many good ideas in the applicable of multiple screens, cloud service, and cultural creativity. The contest is consisted of 5 programs, including the "Hami Apps software development and supplier contest", "MOD micro film creation contest", "hicloud creation contest", "FunPark creation story" and "HiNet Digital Learning Contest".

"MOD Micro Film Contest" has been widely applauded and has attracted renowned figures of different social sectors and creative gurus to participate. This program has the largest number of contestants, among other contests. The "Hami Apps software development and supplier contest" is the only contest where the works will be exhibited on the shelf of the biggest App market in Chinese language -Hami Software. The "FunPark Creative Story and Digital Creation Contest" is the first of its kind that avails the platform for digital drawing of the children that help to develop children book writers. There were 3,500 contestants with the participation of 153 schools.



Join the Taiwan Intelligent Aerotropolis Association (TIAA)

In supporting the government in the realization of the "Taoyuan Aerotropolis Program", Chunghwa Telecom voluntarily invited the pilots in Taiwan and foreign countries in the ecosystem of smart aerotropolis to form the Taiwan Intelligent Aerotropolis Association (TIAA). The objective of TIAA is to "Construct an International Gateway to Taiwan and Build a City of Industrial Technology". We presented a far-sighted innovative smart application service development strategy for the construction of Taoyuan Aerotropolis.

TIAA was officially established in 2013, with the Chairman of Chunghwa Telecom acted as the 1st Chairman. Through the operation of the organization, we can demonstrate leadership position in "smart aerotropolis" and "smart city".