11 Information Infrastructure

Devoted to infrastructure construction required for an intelligent city, the Taipei City Government has been action-oriented to offer its city residents convenient, thoughtful and efficient services. The fruitful results have been widely recognized by the international community. Its "Love @ Taipei, A Smart City" won the Public Sector Excellence Award from the World Information Technology and Service Alliance (WITSA) on October 23, 2012. The "1999 Citizen Hotline" again won the Outstanding e-Government Prize from the World e-Governments Organization of Cities and Local Governments (WeGO) on November 13 of the same year. Such recognition is rewarding and inspiring for the city administration.

11/ Information Infrastructure

The popularity of Internet and mobile phone applications drove the needs of Taipei citizens for internet infrastructures and various convenient information-based citywide administrative services. To satisfy the demand, the Taipei City Government officially changed its Information Management Center on September 18, 2012 to the Department of Information Technology to provide enhanced services for local residents. Different departments and offices are working together for long-term information development in Taipei City by constructing convenient optic fibers and wireless bandwidth Internet infrastructures and promoting mobile convenient cloud services to consolidate an intelligent life.

Part 1 e-Government

To promote a ubiquitous and intelligent city, the Taipei City Government stipulated the "(Secondary) Master Plan for Promoting Intelligent City Infrastructures" in 2011, which includes twenty-nine action plans and three major strategies: e-Government, e-Community and e-Business, and e-Life. The construction of an e-Government is meant to strengthen the efficacy of common information systems through information resource integration and introduction of mobile applications and, accordingly, to boost the quality of citywide administrative services and public satisfaction.

1.e-Disaster Prevention and Resource Integration

(1) Normalizing Disaster Rescue Network

To enhance disaster rescue and first-aid performance, the Fire Department purchased seventy-eight smart mobile carriers equipped with a wireless data network, GPS, and a programmable system interface in 2012. The agency installed the carriers on ambulances at individual fire stations and a number of firefighting vehicles to replace the existing GPS equipment with maintenance time limits and limited flexibility. In addition, database interfacing between the management system for disaster rescue ambulances and the computer-aided intelligent dispatch system of the Fire Department becomes available simultaneously to allow dynamic control over disaster rescue status, the real-time location of rescue vehicles and their duty status. By the end of 2012, the rescue vehicle data network availability had reached 80%. In the future, efforts will continue to be placed on the control over disaster rescue ambulances through GPS in order to enhance the dispatch goal of the 119 Command Center.

Rescue Ambulance Management System-Dispatch Information

(2) Establishing a Fire Rescue Command Simulation Training Field

In 2010 the Fire Department began planning the three-phase "Disaster Scene Rescue Command Operation and Simulation Training System" (for fire rescue). These include the "Command Staff Operation Training System," "the Command Officer 3D Simulation Training System" and "Dazhi Command Simulation Training Field." The latest 3D virtual reality effects are combined with the hardware at the Dazhi Command Simulation Training Field and integrative data of the 119 computer-aided intelligent dispatch system not only to accommodate operation and utilization by command officers and staff at rescue sites, but also to simulate fire scenarios through

3D images for standard and responsive types of training to enhance the command capability of officers at all levels on site and boost performance levels of fire rescue operations. The system is expected to be completed by the end of October 2013.

2.Historical Land Administration Data Digital Archive

The Department of Land completed the scanning and filing of all manually-processed registration books at individual land administration offices at the end of 2011. The Department further planned the establishment of the "Taipei City Land Administration Historical Data Inquiry System" in 2012 to import various scanned historical land administration data into the system. The system is expected to become operative in early 2013, which will greatly shorten the length of time needed for land administrators to retrieve data, thereby enhancing their work efficiency. In the future, efforts will continue to be made to digitize records spanning early land administration laws and regulations, regulatory monthly reports, expropriation of private agricultural land and sectional expropriation as well as to expand services of the Ministry of the Interior in issuing land administration artificial transcripts through cross-county/city land administration offices and cross-institutional (e.g. courts, taxation offices) online retrieval mechanisms. Hopefully, these actions will comprehensively improve land administration service quality and consolidate implementation of the policy to waive written certificates and transcripts.

Separate log-in screen for the new-version personnel service website

3.New-Version Personnel Service Website

To solve the issue of discrepancy in how the personnel management information system operates and simplify the log-in process for users, the Taipei City Government has been configuring a new-version personnel service website since January 2012 that will replace the features of the original network by January 2013. The new version combines the overall personnel database and works with a single log-in mechanism for employees of the Taipei City Government. It also consolidates and upgrades the existing personnel operation & service network by simplifying the procedures for personnel institutions at all levels to provide data in a shorter processing time-frame. In addition, it is connected to the leave of absence and the designee data of the WebITR system (national-level version) and applies it in calendar maintenance and management. Meanwhile, a personnel service zone is being specially developed and shared among individual departments and offices in order to strengthen the scope of e-services on personnel operations.

4.Information System Mobile Platform

The Taipei City Government established the mobile public administration information platform in 2012 to facilitate the receiving and sending of public administration messages through mobile phones or tablets, among other mobile devices, and personal computers. These services are not restricted by the location of offices, allowing employees of the Taipei City Government to access online real-time inquiries, multi-media data transmission and sharing, online positioning, tracing and sharing, and integration of the information system while on the move. This platform is the first of its kind among administrative authorities in Taiwan to introduce mobile real-time communications technology on a large scale for use in public administration. The development takes advantage of the state-of-the-art cloud computing cluster platform with benchmark significance. Efforts will continue to be made to consolidate information systems

among our departments and offices to create an e-Government with enhanced administrative efficiency and night quality services provided to our citizens.

Part 2 e-Community and e-Business

To keep its people safe, the Taipei City Government has installed video surveillance systems and adopted the use of visualized crime analysis and investigation tools, digital verification laboratory equipment and facial recognition systems, etc. The City Government makes use of neighborhood watch mechanisms to create an environment with no safety blind spots and zero tolerance for security threats. Moreover, it has continued to provide labor safety education training programs that combine technology and humanity to minimize occupational hazards. Meanwhile, the Phase 3 ICT Industry Development Zone program has been implemented to consolidate the diversified resource developments of shopping districts, thereby creating a living environment where people feel safe and happy.

1.A Safer Community

(1) Installing Video Surveillance Systems

To update existing video surveillance systems and make the city a safer place, the Taipei City Government achieved its Phase 1 goal with the installation of 13,699 cameras by November 19, 2012; all of the equipment was able to send back images successfully. Phase 2 of the policy, comprising the expansion of the network by an additional one thousand and five hundred cameras, is slated for completion in the second half of 2013. Since the project's trial period in August 2010, numerous crime cases have been successfully resolved with these newly installed video surveillance systems, such as a throat cutting case at Shizhilin Building in Wanhua District, a gunshot case on the Breeze Plaza,

TV wall in the Taipei City Video Surveillance System Center

and the Taiwan Business Bank armored truck heist. In addition, the number of violent crimes in 2012 dropped by fifty-two cases; this showed a year-on-year decline. The incidence rate plummeted 11.98% while the clearance rate rose by 9.18%. The year 2012 also showed a year-on-year decrease of 1,293 cases of theft-the-incidence rate dropped 11.91% and the clearance rate increased 11.55%. The project has proven effective in preventing crimes and boosting the clearance rate.

(2) Establishing Visualized Crime Analysis and Investigation Tools, Digital Verification Laboratory Equipment and Facial Recognition Systems

The Police Department began working on plans to establish visualized crime analysis and investigation tools, digital verification equipment and facial recognition systems in January 2012 to quickly and effectively contrast and compare information in a visualized way. Digital evidence for cyber crimes is collected, analyzed and filed. Digital technology allows for the restoration of blurry images for investigative analysis, helping to produce credible and legally binding identification reports and digital evidence. This technology enhances cyber crime digital identification levels

Home Page of Taipei Safety and Health College

by strengthening the detection of-as well as the protection against-technology crimes and the fight against cyber crimes. Visualized crime analysis and investigation equipment connection tests have been completed on June 25. These systems are now available for individual investigation units.

(3) Building Community, Village and Neighborhood Communication Mechanism

Interfacing between the public opinion reporting system and the e-public administration information system was completed on July 1, 2012. This consolidated various local data and helped neighborhood chiefs report, screen and forward public opinion cases to respective departments and offices at the Taipei City Government. On October 1, the function to transmit data in real time to the public administration opinion network was added to the system. Public opinion cases reported by communities and neighborhoods are received along with data reported by the public through different channels (e.g. the print media, the 1999 system, individual complaints); these different sources of information are later analyzed

Opening Press Conference for Guanghua Digital Plaza's 4th anniversary

and compiled via data warehousing and pre-warning management systems for authorities' reference, expediting grassroots opinion processing and enhancing the public's satisfaction with the City Government.

2.Creating a Safer Working Environment

To realize its vision of "Labor Safety and Zero Disasters," the Taipei City Government initiated the "Labor Safety and Health Institute" systematic plan and completed the installation of the "Labor Safety and Health Educational Training Information Service Platform" in February 2012. These effectively integrate resources at government agencies, enterprises, commercial groups, communities and schools, etc. Online learning is thus available for workers who also get accreditation for hours spent on courses. It adds to the depth and width of disseminated labor safety and health knowledge, benefits more workers and serves to prevent occupational hazards.

3.Akihabara-like 3C Shopping Paradise in Taipei

The Guanghua Digital Plaza was built during the Phase 1 Project of the ICT Industry Development Zone promoted by the Taipei City Government. The complex features primarily retail shops of information products, and is currently a popular site for well-known domestic

and international information magnates (e.g., Microsoft, Intel, Acer, Asus) for new product launches. Since its opening in 2008, the Plaza has so far attracted a headcount of over 10 million people. The average monthly crowd comprises a headcount of more than 350,000 people. The Phase 2 project involves the development and operation of the Taipei Information Park and the facility's parking lot. The project is slated for completion at the end of 2013 and will be fully operative in 2014. The Guanghua Digital Plaza, together with the facilities described in Phase 2, are expected to drive the overall development around the Bade Shopping District and jointly form a digital shopping paradise for 3C products.

Citizen using Taipei Free Internet service at a hot spot

Part 3 e-Life

The Taipei City Government has continued its effort in building a comprehensive information and communications infrastructure by promoting free wireless broadband Internet access and Fiber to the Home (FTTH) service in Taipei. The City also promotes e-learning to minimize the digital gap as well as providing real-time traffic information, citywide guided tours and a citywide administration service network one-stop window, among other measures, to provide the public with 24/7 services.

1.Information Infrastructure

(1) Promoting Taipei Free Public Wireless Internet Access

Taipei City began offering free wireless Internet access in 2011. The scope of access was expanded in 2012 to include additional indoor and outdoor public areas, such as the City Hall Building, the twelve administrative centers of Taipei, Taipei City Library, Taipei City Hospital, MRT Stations and MRT malls, health service centers, sports centers, household registration offices, land administration offices, municipal schools, traffic transit stations, parking lots, bus waiting booths, incinerators, parks, markets, tourist night markets, public rental houses and jointly operated buses, et al. In addition, the same account can also be used to access services such as iTaiwan (the free wireless service for public indoor areas at central administrative agencies) and Newtaipei (wireless connection provided by the New Taipei City Government). This accomplishes the goal of connecting the networks of Taipei City, New Taipei City and the rest of the country for users through a single account. The account application for international users with a valid mobile phone number became available on a trial basis starting July 31, 2012 (users from mainland China were able to apply starting August 1, 2012). The two services reported a membership total of 1,650,153 accounts on December 31, 2012. The average user headcount of 1,812,295 and a monthly growth rate of around 106% exceeded the figures from the same period in 2011. The accumulated number of accounts opened by international travelers reached 55,725.

(2) "Fiber to the Home" Service

The City Government finalized a 25-year-long contract for the "Outsourced Construction and Operation of Fiber Optic Network in Taipei City" with Taiwan Intelligent Fiber Optic Network Co., Ltd. on December 30, 2011. Fiber optic cables are to be added to the city's public facilities, as outlined in the contract. The contractor is responsible for the construction and operation of the network and shall bear gains and losses on its

Passenger using Taipei free wireless Internet service at an MRT station

Promotional campaign for outsourcing the fiber optic Internet project of Taipei City

Taiwan Intelligent Fiber Optic Network Co., Ltd. ground-breaking ceremony to demonstrate its techniques

own. The National Communications Commission (NCC) granted the permit for the preparation of citywide internet services on September 26, 2012. The Fiber-to-Home service is expected to link up 400,000 households in the city within four years, that is, an 80% household coverage rate. Services will be offered at a rate which is 11% lower than those available on the market. By combining the active management of a private business and the free wireless access in the public areas of Taipei City, a seamless Internet user environment will be created to provide citizens with low-price, speedy fiber optic services.

2.Digital Learning to Minimize Gap

(1) Promoting Digital Learning through the Taipei e-Campus

The Taipei e-Campus website combines online and physical training programs. Collaborating with the Department of Information Technology, the Taipei e-Campus APP has been integrated with the “Love Taipei APP.” The three major features-Goodies, Learn Everywhere, and Cool Life Knowledge-are updated on a constant basis. In addition, through cooperation with city government agencies and external institutions and groups, fine teaching materials are planned and produced while marketing and promotional events are organized. The “e-Campus Meets Love and Brightens Life” learning promotion was organized between June and July 2012, while the summer life education essay competition “Read Online with enthusiasm and Love” was held jointly with Taipei Municipal Zhung-Lun Senior High School from July to September. The efforts of the Taipei e-Campus team were recognized with certification and awards from the e-Learning Quality Service Center and the American Society for Training & Development (ASTD). Taipei e-Campus is not only a professional digital training platform for the City Government, but also an optimal choice for people who are interested in online learning.

(2) Establishing the Intelligent Library and FastBook-Automatic Book Stop (ABS)

FastBook - Automatic Book Stop in Taipei Main Station


Intelligent Library in Taipei Municipal Bailing Elementary School

The intelligent library adopts RFID technology, allowing users to borrow and return books on their own. With the addition of the Bailing Intelligent Library and the Intelligent Library in the MRT East Metro Mall in December 2012, there are currently six intelligent libraries throughout the city, providing neighborhood residents with convenient book information services and comfortable reading environments. The automatic book stop (ABS) "FastBook" is equipped with the strengths of an intelligent library and requires only four pings (1 ping = 3.305785 m^2) of space. This helps cut down construction costs and is suitable for places with a high turnover rate of visitors and high space/land cost. One was already set up in April 2011 at the main site of Taipei Public Library. Two more stations were added in January and December 2012-on the first floor of the Taipei Main Station and Taipei City Hall, respectively. The commissioning of intelligent libraries and ABSs not only enriches the spiritual life of Taipei residents but also helps shape a brand new reading aura.

(3) Establishing an e-Classroom and Promoting the Mobile Learning Experimental Program

To build a better learning environment for information education, the Taipei City Government will upgrade specialized classrooms in schools to e-classrooms by adding computers in these classrooms. Meanwhile, library functions are enriched by the establishment of teaching resource centers in libraries. These facilities allow teachers and students to make better use of the convenient teaching environment and diversified ways of learning. As of December 2012, the student-computer ratio at individual schools in Taipei City was roughly 4.06:1; the projector-class ratio at municipal schools was around 2.3:1. Schools have been responding well to the e-classroom program and are very capable of integrating information technology into professional subjects through group activities and interactive teaching as a brand new teaching model. An additional forty classrooms that joined the program in 2012 bring the total number of e-enabled classrooms to six hundred and ninety-one. In the same year, eleven more school libraries added teaching resource centers, raising the total number to thirty-eight.

The mobile learning experimental program, on the other hand, takes advantage of mobile devices, curricular research and development, as well as in-service education for teachers, to incorporate information in teaching and enhance learning efficacy. A total of thirty schools participated in the experimental program in 2012. They include Taipei Municipal Fuan Elementary School in Shilin District, the Affiliated Experimental Elementary School of Taipei Municipal University of Education in Zhongzheng District and Taipei Municipal Nangang Elementary School in Nangang District. These schools are the model teams of the "Ministry of Education's Integration of Information Technology in Teaching Innovation

Learning becomes more attractive with information-integrated courses using OR code.

"Digital Feast – Dreams Come True" Donation Press Conference

2012," with widely recognized accomplishments.

(4) Subsidizing Low-Income Households to Purchase Computer Equipment and Provide Information Education and Training

The Taipei City Government has been subsidizing financially disadvantaged citizens in the purchase of computers since 2003. The availability of the subsidies was expanded to seven hundred and fifty computers in 2012, including two hundred and twenty-five self-purchased computers (with subsidies increased to NT$11,000 per unit) and five hundred and twenty-five units from private businesses at preferred prices. As of the end of 2012, five thousand and eighteen low-income households benefited from the program, allowing more than ten thousand financially disadvantaged students to realize their digital learning dreams. To express gratitude to enterprises that have been active sponsors of the charity business over the years, the City held the "Digital Feast Makes Your Dream Come True" donation ceremony press conference on August 28, 2012. Written feedback was collected from beneficiaries in 2011, including Thank-you cards that were given to the sponsoring enterprises. In addition, the Low-Income Household Information Education Training Program continued in 2012. Additional and diversified courses were added (e.g. computer basics, Internet application, photo data processing, Introduction to Word and Excel) to encourage beneficiaries to hone their computer skills and to enhance their employment competitiveness.

Written feedback from beneficiaries

(5) Organizing Free Internet Training for the Public

To further enhance Internet education, the Taipei City Government offers free Internet training programs for citizens (e.g. computer for beginners, email, primary image processing, advanced image processing, Internet resource application, WORD for beginners, EXCEL for beginners, Taipei-Free wireless Internet). Classes are available for both beginners and more advanced users. In addition, members of the public can also sign up for diversified online courses (e.g. the Chinese input method for Taipei e-Campus, WindowsXP, MSN, Skype, blog, WORD, EXCEL and PowerPoint presentation software, et al.) As of December 2012, the number of people taking the courses reached 390,000.

3.Quality Traffic Service

(1) Shared Traffic Information

In light of the rapid development of cloud

technology in recent years, the Department of Transportation proactively promotes real-time traffic information services and enhances intelligent transportation. One of the actions undertaken by DOT is to have opened up Taipei's traffic information databases to government agencies, academic institutions, and both for-profit and non-profit organizations since February 2009. Real-time traffic information, such as the "Taipei City Parking Guidance and Information System," the "Taipei City Traffic Control Center Database," the "I Love Bus 5284 Database" and the "Taipei City Traffic Accidents Database," are just a few among a total of sixteen entries for traffic information organized into four categories: parking, traffic control, bus and traffic accidents. As of December 2012, seventy institutions established links to access this information over interfaces such as mobile phones, computers, digital TV sets, GPSs and display bulletins, etc. On average, 27.48 million traffic inquiries are made on a monthly basis through service providers.

(2) Improving the Taipei e-Bus Service

To achieve the goals of e-operation, e-supervision and e-management of buses, the Taipei City Government completed the installation of a backend audit system for buses in June 2012. The system monitors factors that affect service quality such as the punctuality of buses and the number of rounds offered by bus operators. It also updates and integrates with the audit systems of various competent authorities in order to gain an overall control over vehicle status and abnormal operational events for a better bus service. In addition, the Bus Information Voice Inquiry System, first established in 2006, was updated in September 2012 to greatly reduce the unfavorable recognition rate and to add a search feature for bus routes in New Taipei City. This helps to enhance the efficacy of and satisfaction with the traffic information services in the Greater Taipei Area. In order to provide convenient system services, one hundred and ninety-seven intelligent bus stops will be added in 2012 and 2013. Once completed, the total number of intelligent bus stops throughout Taipei City will reach eight hundred. The Taipei e-Bus Service will offer multi-lingual search options, connecting with its counterpart in New Taipei City and interfacing with the highway bus information system for better service.

4.Improving the 1999 Citizen Hotline

Effective January 1, 2012, the "1999 Citizen Hotline" sign language service for the hearing impaired now provides 24/7 services. In addition to the original forty-seven video conference sites at district offices across Taipei City, twenty-seven more were added in 2012, including twelve sites at libraries, eight at art museums, welfare centers for the disabled and the different branches of Taipei City Hospital, three at MRT stations and two at visitor centers. All facilitate connections between 1999 sign language specialists and hearing impaired users who do not have Internet access or video conference equipment at home. The launching of a press conference for the 1999 hotline team comprising visually impaired staff members on August 9 was meant to increase

Mobile phone access to the Taipei e-Bus Service System

Intelligent bus stops along the Xinyi Line of the MRT

1999 visually impaired operator demonstrating how to operate the system

Mini MOTA kiosk in a hotel

the willingness of government agencies to hire visually impaired phone operators. Between the period from June 1, 2010 through December 31, 2012, a total of 11,701 sign language services were provided, with positive feedback from the hearing impaired.

As of December 31, 2012, the 1999 Citizen Hotline answered 9,328,431 phone calls, handled 568,219 complaints and assigned 1,155,168 tasks since its operation began on July 3, 2008. On average, 172,749 phone calls were answered, 10,523 complaints were handled, and 21,392 tasks were assigned per month. The overall service satisfaction was above 88%.

5.Mobile Application in Life and Citywide Guided Tours

To provide citizens and tourists with rich and diversified information, development efforts continued for the MOTA-City Travel Guidance Service in 2012. The latest includes the release of Fun Taipei Android Chinese App in March, offering information on bus routes, Taiwan Railway schedule, Taiwan High-Speed Rail schedule, flights, weather, MRT routes, sightseeing spots voice guide. Interfacing with the Point of Interest (POI) in New Taipei City was completed in August, allowing the service to provide information on sightseeing and life in Taipei City and New Taipei City. The English version of MOTA for mobile phones was introduced in September, featuring a search engine for cultural exhibitions and performances, a transportation fee calculator and a theme-based sightseeing guide. The MOTA external decoration design competition was also held to promote the service and create a new image for MOTA.

6.An Open Data Platform

The Taipei City Government Open Data Platform became operative on September 1, 2011. Featuring primarily everyday-life applications, the city's open data resources are integrated on a single platform, including cultural express, parking lot information, free wireless access spots in public areas throughout Taipei, Taipei travel network and water rationing information, etc. This platform uses cloud computing technology to conduct data searching, file downloading and data interfacing, and other functions. It not only enhances information transparency for Taipei City and encourages the participation of citizens; it also serves to inspire individuals with business potential, enterprises and organizations to develop new knowledge assets in a joint effort to boost the competitive edges of the city. The version was updated on January 13, 2012. As of December of the same year, a total of one hundred and fifty-nine entries of data and eighty-six interfacing services were provided. The data were used 2,410,469 times, i.e., an average of 150,654 times per month.

7.Three-in-One Municipal Affairs Service

The Taipei City Government introduced the "Love@Taipei-Cloud Computing Assisted Municipal Affairs Service" in 2011. This service

MOTA Kiosk external design contest award presenting ceremony

enables people to access integrative municipal affairs information on the cloud platform through smartphone, TV and computer, realizing the so-called "three screens and one cloud." In 2012, more contents meeting the needs of our citizens were introduced, including information on employment, traffic, healthcare, recreation and entertainment, daily life and disaster prevention, and more. There are a total of eight categories with twenty-five entries of services at present and this will be increased to sixteen categories with sixty-four entries of services in the future. Meanwhile, in combination with the popular Fiber-to-the-Home broadband Internet access, smart life technology is further applied in "Smart Home and Healthy Life" to bring into being an intelligent and friendly city.

8.e-Bill Management Platform

In order to make Taipei citizens' various applications easier to use and more convenient, as well as to offer diversified payment methods, e-Citizen Services added the options of making inquiries and payment through convenience stores. Effective September 24, 2012, the public can inquire about the processing status of their applications and make payments through multi-media kiosks (MMK) at 7-11, Family Mart, Hi-Life and OK convenience stores. A total of six hundred and three online applications and online payments were made through e-Citizen Services in 2012, accounting for 23% of the overall number, i.e., 2,579. In terms of payment options, besides ATMs, online banking, personal visits to banks, and barcodes or MMK at convenience stores, credit card payment service was also added on July 5. As of December 31, 2012, a total of thirty-eight departments and offices used the service.

9.Digital Medical Imaging Service

Taipei City Hospital implemented a digital physical examination system on July 23, 2012. The new system not only eliminates the possibility of data errors due to manual input but also reduces the amount of paper used and further perfects image data backup, storage and management. Physicians no longer have to wait for slides or borrow them when seeing patients. They can also communicate with the patient directly through video over the Internet, reducing the patient's waiting time. By linking images and text-based diagnosis reports with the Medical Image Service Center at Taipei City Hospital, the process makes the one-stop inquiry about cross-campus medical images and reports on physical examination possible. People can now enjoy multi-campus joint medical services by making only a single stop; this is a better and more efficient way to utilize manpower and medical resources.

The "Love@Taipei–Cloud Computing Assisted Municipal Affairs Service Summer FUN Gifts" event

Part 4 Application of Geographic Information

In 2012, the Taipei City Government consolidated its Graphic Data Center Common Platform and geographic data warehousing in an attempt to reinforce the management, integration, exchange and service of graphics data. It streamlined operating procedures and enhanced geographical information service

quality and administrative efficiency. The Platform was evaluated at the TGOS performance rating held by the Ministry of the Interior on August 15 and stood out from the crowd with outstanding performance in integrating geographic information resources, promoting common services and enhancing geographic information application. It won the "National Geographic Information System (NGIS) Supply System Award."

1.Real Estate Information and Living Service Integrative Portal Site

To eliminate the asymmetry of information involving buyers and sellers in real estate transactions and to provide integrative real estate information services to secure real estate transactions, the Real Estate Information and Living Service Integrative Portal Site was introduced on August 1, 2012. This site utilizes the information and data from three services-Taipei City's Graphics Data Center Common Platform, geographic data warehousing system and Google Map. Besides offering access to the Department of Land's Taipei City Real Estate Digital Database and the Department of Urban Development's Taipei City Living Service Platform, the site also offers additional services to facilitate inquires about information on real estate properties, housing and land expropriation, etc. People can make online texts or graphic searches for legal real estate agencies. The website also offers knowledge and information required to trade real estate properties. This site seeks to reinforce information transparency of the real estate market, thereby protecting the rights of both buyers and sellers.

Taipei City Real Estate Transaction Price Inquiry Service

2.The 1999 Assignment System

To reinforce the application and analysis of assignment data from the 1999 Citizen Hotline and support related policy-making, the Research Development and Evaluation Commission and the Department of Information Technology jointly developed the 1999 Geographic Information System. The system is able to locate the coordinates of reported cases and produce a distribution map through its statistical module, which helps to improve assignment performance. Results of the analysis can also serve as reference for policy makers.

3.Water Pipeline Geographic Information System

The Taipei Water Department proactively adds to the value of the water pipeline geographic information system by expanding its features. The agency integrates engineering-related management systems to enhance operating efficiency. It also continues to promote GIS-related services to better serve the public. Features such as the property topic-based database, annual statistical reports, distribution of water meters whose OD is to be changed and inspection of reported cases were added in 2012. On June 27, the system won the "Golden Graphics Award-Best Promotion of Services" at the eighth session of the Taiwan Geographic Information Society for "geographic information planning and configuration," "GIS integration and application," "extended service and application for the public"and "integration of cross-institutional resources."

4.Building Information Model (BIM)

In light of the popular concept and application of BIM initiated by the world's major cities in recent years, the Construction Management Office began researching computer-aided audits and applications of building licenses in 2012.

Quantitative and non-quantitative data was analyzed in accordance with laws and regulations and used for establishing a regulatory, object-oriented and attribute-based logic database. Criteria for the contents and formats of data submitted regarding BIM graphics and labels were also established. In addition, computer programs are used to automatically compare and produce audit tables and forms to simplify data and reduce processing time. This creates a regulatory audit operation that is information-based, open and standardized, thereby enhancing the efficiency of the building license review process.

5.Terrain Reproduction with 3D Surveyed Data

To provide precise and reliable map information, the City re-surveyed digital terrains at various proportions in the north, central and south districts of Taipei between 2010 and 2012 through the TWD97 system. The survey produced highly precise and high-resolution color ortho-rectified image files. A systematic modification and update mechanism was also implemented to serve as a historical database, helping to reduce false decision-making as a result of discrepancy between the map and the actual site. Results will support cross-county/city applications in the future. In collaboration with the private sector, value-added applications regarding map information will also be promoted as a part of the open government information policy; this will create a win-win-win situation for the people, the public sector and the private sector.

3D Model of Neihu Science Park produced with surveyed images

6.3D Information Display System for Vitalization of the Tamsui River

The 3D Display System for Revitalization of the Tamsui River became officially operative in September 2012. By combining 720-degree static and dynamic surround views and creating a powerful, realistic interactive setting, the system presents the accomplishments related with the cleanup of the Tamsui River on the computer screen, including riverside parks, recreational piers, six theme-based bike trails and waterfront designs. Through this approach, users will feel as if they were visiting these places in person. With the help of professional photography equipment, the feature “Looking at Taipei from above the River” creates 3D dynamic surround views, simulating a flight route along the Blue Highway. Users have the choice of choosing the itinerary, seeing for themselves the magnificent views along the river.

Revitalization of Tamsui River graphics and data platform

7.720˚ VR Religious Architecture and 3D Geographic Information System

In 2012, the Department of Civil Affairs completed the 720°VR multimedia and the 3D module for thirty-five religious buildings in Taipei City and recorded the building data through digital archiving. The agency also makes use of the geographic information system to display data in their entirety, providing a convenient platform for people to conduct information searches online. The 720°VR multimedia can be converted into the

crystal ball-like data format to be seen on Google Earth or ShowTaiwan, helping to promote the religious architecture to viewers around the world.

Longshan Temple 720° VR demonstration

Part 5 Exchange and Promotion of Information

In light of the trend of global digitalization, Taipei City successfully reinvented itself as an intelligent city through innovative technology and efficient services. The City uses cloud technology to provide great services to local residents. These fruitful results are showcased before the citizens at the annual ICT Month events. Taipei's innovative policies are also widely recognized by the international community, having won multiple awards.

1.Internationally Recognized Intelligent City

The Taipei City Government is devoted to building an environment with wireless Internet access to offer 24/7 integrative municipal affairs services. The results have been fully recognized. On October 23, 2012, the World Information Technology and Service Alliance (WITSA) announced that "Love @ Taipei, A Smart City" won the Public Sector Excellence Award at the World Conference on Information Technology, making the Taipei City Government the only entity from the public sector to have won the award twice to date.

The 1999 Citizen Hotline of Taipei City integrates e-services to offer year-round phone services emphasizing professionalism, innovation, fast and convenient services, and friendliness. With just one phone call, the caller can choose from among a list of services offered by one hundred and sixty-one Class 1 or Class 2 government agencies. It greatly enhances the administrative efficacy of the government. This accomplishment won the "Outstanding e-Government Prize" awarded by the World e-Governments Organization of Cities and Local Governments (WeGO). This achievement is a highly remarkable recognition and honor to the Taipei City Government.

2.2012 ICT Month

Focusing on the theme of "Intelligent Life on Cloud," the Taipei City Government showcased various intelligent applications for day-to-day living at Exhibition Hall 1 of the Taipei World Trade Center from December 1 to 9, 2012. The five zones at the exhibition included 'Intelligent family,' 'public transportation,' 'mobile learning and classroom,' 'convenience store' and 'community health care.' These zones introduced visitors to the new strategies and services the city government is working on, such as fiber optic infrastructures, Taipei Free wireless Internet, MOTA, APP services, digital learning, online applications and payments through convenience stores and tele-home care. Visitors were able to experience these convenient and considerate services. On December 1, the opening day of the ICT Month, Vice President Wu Den-Yih and Minister of Economic Affairs Shih Yen-Shing visited the Taipei City Government Pavilion in the company of officials from the Department of Information Technology. As many as 115,282 people visited the very successful ICT Month events.

3.Innovative Software Competition

To encourage the development of value-added applications of the Open Data Platform, the Taipei City Government organized the International ICT Innovative Services Contest 2012, the 2012

Opening Ceremony for International ICT Innovative Services Contest 2012

Taipei International Digital Content Awards and the 2012 Yahoo! Open Hack Day. Participants were encouraged to base their works on the available open data to further mobile application developments and innovative Internet services, as well as paving the way for collaboration among the public sector, industries, investors and designers for a better quality of life.

Vice President Wu Den-Yih and Minister of Economic Affairs Yen-Shiang Shih visiting the Taipei City Government Pavilion

Conclusion

With "Intelligent City and Quality Life" as its vision, the Taipei City Government has been constantly improving its administrative efficacy, consolidating a better living and working environment, and creating various convenient and thoughtful services through e-Government, e-Community and e-Life. To keep up with the trends in the development of cloud technology in recent years, the Taipei City Government has gone all out to promote fiber optic infrastructure for the city. The development of the Akihabara-like 3C Shopping Paradise in Taipei and the Neihu Cloud Industry Park will further propel our information and communications industry, helping to build Taipei City into a digital technology hub.