中華電信 Chunghwa Telecom

中文 ENG

Digital Resilience, Smart Empowerment, Sustainable Future

Introduction

Chunghwa Telecom is participating in the Smart City Summit and Expo 2025 guided by its core principle of "Digital Resilience, Smart Empowerment, Sustainable Future." CHT will showcase digital innovation and advanced technologies, driving smart cities to a new era of sustainable development.

At this year's expo, Chunghwa Telecom integrates 5G innovative services with ICT technologies, offering a comprehensive digital resilience solution covering networks, systems, and cybersecurity. Focusing on the key areas of smart transportation, AI-driven smart applications, ecosystem co-creation and empowerment, Net Zero transition, and smart cities, CHT is committed to driving industrial transformation and upgrading to build future cities that embody both technological advancement and sustainable values.

Chunghwa Telecom will continue to drive technological innovation, leveraging digital resilience and smart innovation as its foundation. In collaboration with industry partners, the company aims to create a new paradigm of smart cities for a sustainable future.

Kaohsiung
3/20 - 22

Application

5G Metaverse Innovative Applications

5G Metaverse Innovative Applications

In completing the National Development Council's Plan, Chunghwa Telecom has created the YoCity engagement automation platform with the three main pillars: events and exhibitions, commercial venues, and city guides as service verification and business model development scenarios. This platform includes the promotion of five major service applications: 3D event streaming, real-time modeling exhibition application services, Metaverse OMO Mall exhibition and sales, immersive somatosensory interaction, and 3D site digital collection modeling to achieve expansion and marketing promotion.

Establishment of 5G Network

Three Major Axes	Five Major Applications	Seven Large Venues

Links

- YoCity Official Website
- 「YoCity」APP Google play
- 「YoCity」APP App Store

The goal of Chunghwa Telecom's CHTLand is to create a metaverse platform that facilitates horizontal and vertical integration and alliances to establish a leading brand in Taiwan's metaverse ecosystem. Primarily comprised of internally developed technologies, including "avatar creation and virtual reality technology, voice-driven synchronization, virtual reality 3D real-time modeling and multi-user scene analysis, cloud rendering, and virtual currency payments." Combined with 3D immersive experiences, CHTLand has created Taiwan's own metaverse services platform and smart applications, utilizing innovative technology to establish an open and interactive metaverse platform, metaverse content components and materials database, and 5G O-RAN private network application and communications.

CHTLand One Platform/ Three Application Scenarios/ Three Core Technologies

Three Application Scenarios

Settings	Content	Settings
Digital Twins	Metaverse Shows	Military Drills and Simulations

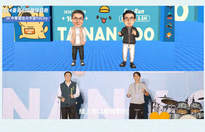
Three Core Technologies

AI Avatar Settings / Settings	Support	Content
Virtual avatar and 3D scenes	edge computing and cloud rendering	e-wallet, ID verification, digital asset trading

One Platform

Support
CHTLand

- Dynamic visual capture technology
  - ✓Visual AI is the core technology that drives virtual characters after analyzing the human body. It utilizes machine learning and computer vision technology to extract human motion information from real-world images, perform skeleton modeling, posture estimation, key point detection and other operations, ultimately mapping human posture to virtual character posture. In this way, high-precision, real-time human motion tracking and driving of virtual character operations can be achieved.
  - ✓Utilizes avatar real-time dynamic visual capture technology, eliminating the need to wear any sensing equipment
  - ✓Application case: 2024 Metaverse Marathon-Tainan 400 National Fun Run



AI Application

AI Multi-Function Law Enforcement

Leading the industry in providing diverse AI-powered video recognition services for transportation and environmental protection, enhancing road safety and environmental quality.

Chunghwa Telecom provides multifunctional enforcement technology services and independently develops AI video recognition technology for use in a variety of traffic and environmental enforcement settings.

Services include identifying alerted exhaust pipes on motorcycles, truck bed identification, haphazard garbage disposal, recognizing the behavior and license plates recognition, all effectively assisting government environmental agencies in monitoring noise, waste and soil contamination.

In the case of identifying alerted motorcycle exhaust pipes, in response to 2025 environmental regulations, exhaust pipe and license plate recognition technology are used to identify non-original or non-certified exhaust pipes and to provide the associated license plate information, allowing environmental protection agencies to effectively secure evidence and increase the efficiency of evidence collection, thereby improving environmental quality.

A new type of environmental violation involves detecting truck cargo beds and detection of black net covering to identify video of gravel trucks, trucks covered but with damaged nets, and trucks with uncovered cargo.

It helps the time and manpower consuming burden of traditional video verification by authorities and improves the efficiency of government operations.

Hi-Fence technology uses lightweight embedded AI edge computing to detect people, vehicles, and people with vehicles in region of interest(ROI), and sends real-time alerts via instant messaging software, raising the efficiency of surveillance.

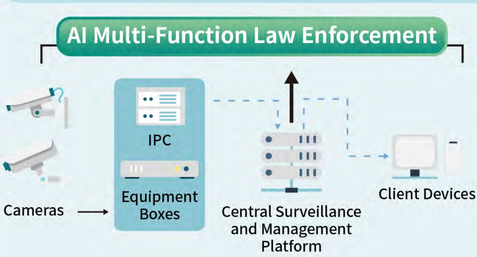
Chunghwa Telecom's multi-functional enforcement provides a variety of environmental and traffic enforcement solutions, improving road safety and environmental quality.

Identifying alerted motorcycle exhaust pipes

Cargo covering net identification for environmental enforcement

Detection of traffic violations

AI Hi-Fence technology (For people and vehicles)



AI Application

Automated Gate System

Using Edge AI recognition and comparison technology, we achieve high-efficiency customs clearance for people, vehicles, and containers in port areas without need for stops.

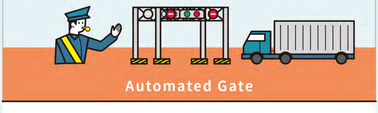
In response to the rapid growth of global shipping demand, countries around the world are committed to building safe and efficient ports, and smart ports have become an important issue. Chunghwa Telecom utilizes AI, 5G, IoT, and edge computing in collaboration with Taiwan International Ports Corporation to implement an automated gate system, ensuring security and access control for personnel, vehicles, and containers entering and exiting major international commercial ports across the country. At the same time, we are developing automated container yard technology to enhance the efficiency and accuracy of operations, including entry/exit management, storage areas, and dockside processes. By integrating cross-system data across port operations, shipping companies, transportation, and customs clearance, we provide a comprehensive shipping and smart port solution, driving the 2030 Smart Port Development Vision.

- Gate Clearance Process Integration: AI vehicle and container image recognition, RFID identification for people and vehicles, and Kiosk personnel control technologies are applied to the automated gate system. This solution provides vehicle, container, and personnel control, multiple clearance processes in the port area, and digital pandemic prevention measures, reducing container truck clearance time from 4 minutes to less than 10 seconds per truck. The system enables 24-hour seamless clearance for commercial port areas and free trade zones. The project was recognized with the Executive Yuan'Public Project Golden Axe Award.
- Container Yard Personnel and Vehicle and Container Identification and Positioning Technology: Integrating RFID personnel access cards, eTag-assisted license plate recognition, container yard positioning and guidance technology, and off-site vehicle prediction technology. This system is applied to automated container yard entry and exit, storage area loading and unloading confirmation, and other operations. The system improves container yard operational efficiency, reduces the time and errors associated with cumbersome manual processes of yard management. This achievement has been implemented at Kaohsiung Port and Taichung Port Terminal, where average operation time is less than 30% of that at other container yards in the same port. This project was recognized by the Ministry of Economic Affairs for industrial innovation, winning the "Process/Workflow Innovation Award".

Container Terminal

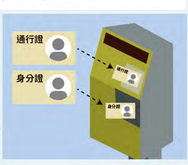
Yard	Terminal Gate
•RFID check-in	•AI+RFID LPR
•ARMG Loading Confirm	•Container recognition
•TOS Collaborate	•KIOSK Gate In/out

Internation Harbor



Automated Gate

- •AI+RFID LPR
- •RFID Personnel Pass
- •KIOSK Temporary Pass



ARMG: Automated Rail-Mounted Gantry
TOS: Terminal Operation System
LPR: License Plate Recognition

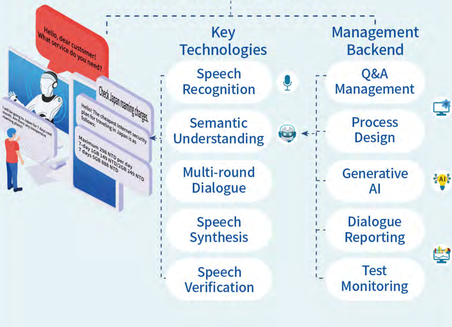
AI Application

Smart Customer Service

Chunghwa Telecom has developed a multi-turn customer service chatbot that leverages AI-powered Q&A and knowledge management technology to deliver fast and accurate responses.

- Features
  - ✓ Supports multiple access channels (web, social media, telephone) while maintaining a unified knowledge base.
  - ✓ Over 15 Q&A models with a recognition rate exceeding 90%.
    - Contextual Q&A: Automatically associates relevant context within conversations.
    - Task-based multi-turn Q&A: Resolves user inquiries through structured dialogue flows.
  - ✓ Comprehensive AI-driven knowledge management system with over 20 functions.
    - Visual AI workflow editor: Enables rapid creation of multi-turn dialogue scripts.
    - Real-time update mechanism: Implements knowledge updates within 10 minutes.
  - ✓ Reduces knowledge base development time by 70% through generative AI assistance.
- Success Stories
  - ✓ Chunghwa Telecom Customer Service
    - Text-based chatbot: Handled over 20 million interactions (2019–2024), achieving an 80% self-service completion rate and a satisfaction score of 4.7/5.
    - IVR navigation system: Facilitated over 17 million successful self-service authentications since 2020, reducing customer service response time by over 19 seconds and achieving cost savings equivalent to approximately 45 full-time agents.
  - ✓ Industry Applications
    - Reservation assistant for Feastogether, Taiwan's largest buffet restaurant group.
    - Registration assistant for Xin O Beauty Clinics.
  - ✓ Government & Enterprise Solutions
  - ✓ Deployed in organizations such as the Ministry of the Interior, the Ministry of Economic Affairs, and Kerry Group, with over 10 successful implementations.
- Awards
  - ✓ Won the National Brand Yushan Award
  - ✓ Won the TCCDA-CSEA Award for Best Intelligent Customer Service System Application
  - ✓ Won the Taiwan Innovation Technology Expo Invention Competition-Patent Gold Medal/Silver

Multi-Channel Service



Smart City

Smart Healthcare

Remote Patient Monitoring System (RPM)

New support for local elderly healthcare

Assisting medical staff to monitor inpatients at home in real time, replacing traditional costly physiological monitoring equipment with medical AIoT devices, integrating video consultation for care, improving the quality of home-based care, and reducing the workload burden of medical staff.

Uploading diagnostic results

- Supports Bluetooth pairing with multiple devices
- Simultaneously displays information on the app and on the backend management system
- Supports photo recognition and manual input

Backend data management

- Case management operations
- Real-time monitoring of physiological values
- Instant alerts for abnormal values

Real-time video

SynDr. CHT Telemedicine Platform

- Real-time video consultations and care
- Virtual clinic SMS notifications with no need for app download
- Supports multiple video functions, ensuring smooth doctor-patient communication

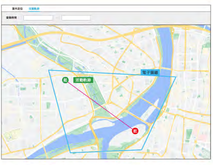
Senior Health and Position Tracking System

Creating a Safe Future for the Elderly

Integrated smart wearable devices at the front-end, health measurement data, and location information of elderly individuals are all uploaded to the backend for case management. Combining health analysis, location-based alerts, and other applications, provides comprehensive health management and safety tracking, bringing a more secure and convenient life to both seniors and their caregivers.

Features 1

Case location management



- Real-time positioning through smart watches
- Activity tracking
- Electronic fencing

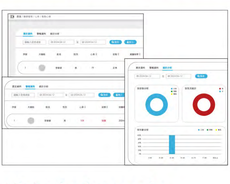
Features 2

Real-time case status management

- Abnormal physiological information alerts
- SOS emergency alerts

Features 3

Physiological measurement records and statistics



- Historical records
- Abnormal alert record
- Statistical information

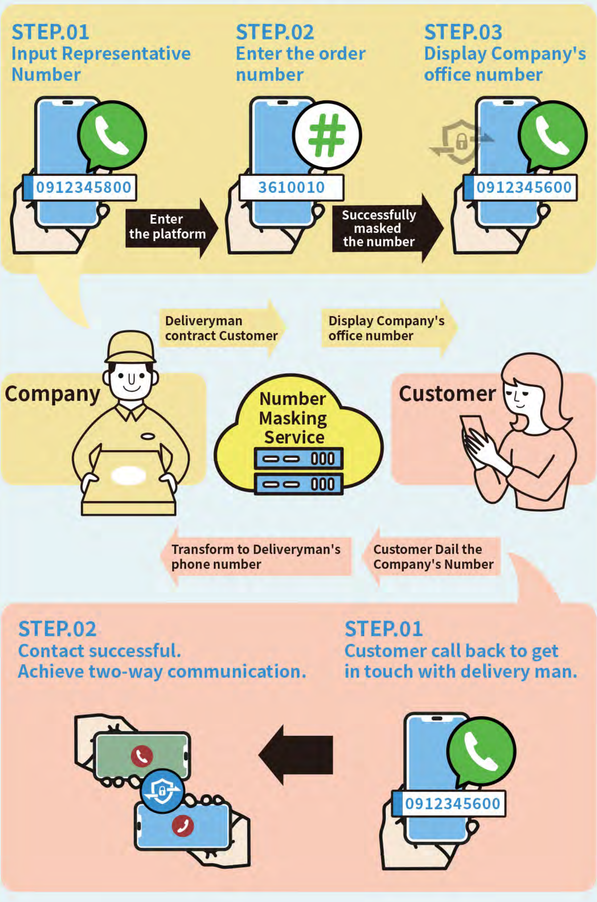
Smart City

SMART Call Number Protection Solution

Use "Smart number protection solutions" number masking technology to build a personal data protection wall

In today's digital era, accessing and transmitting personal information has become more convenient than ever. However, ensuring the proper storage and protection of this information has become a critical issue that directly impacts a company's reputation and value.

- Service Objectives:
  - ✓ Prevent the leaking or misuse of personal information.
  - ✓ Guard against third-party payment fraud.
  - ✓ Provide stable and high-quality voice communications to enhance corporate reputation.
- Features:
  - ✓ Phone number anonymization: Hide the phone numbers of both parties.
  - ✓ API Framework: Easy system integration and quick deployment.
  - ✓ Call recording preservation: Convenient real-time tracking for businesses.
- User Experience:
  - ✓ Using an IVR interactive voice system, users can enter a unique number or scan a QR Code to quickly complete dialing.
  - ✓ Improves interaction between businesses and consumers, enhancing overall service experience.
- Advantages:
  - ✓ Low setup cost.
  - ✓ Prevent misuse of private data, strengthening corporate image.



CHT PowerHub

Use Smart Technologies to Drive Sustainability

In response to Taiwan's 2050 net-zero carbon emission policy, Chunghwa Telecom is actively promoting the electrification of enterprise vehicles. With our experience and local service, CHT offers safe, secure, and reliable electric vehicle charging solutions, bringing green power for environmental sustainability!

- CHT PowerHub Charging Management Platform

Using an AWS cloud architecture, the platform offers a charging dashboard, statistical reports, transaction details, equipment anomaly alerts, and carbon reduction management. It also includes a user-friendly app for EV owners to charge and make online payments easily.

- Platform features:
  - ✓ Independently developed with flexible expansion
  - ✓ Dynamic load balancing for energy efficiency
  - ✓ EMS system for power management
  - ✓ Comprehensive information security protection
  - ✓ Real-time carbon emissions monitoring
  - ✓ Compatible with multiple charging devices

- Target Customers:

The CHT PowerHub solution can be widely applied to government, enterprise and commercial office buildings; construction and real estate companies; residential communities and property management associations; public and private parking lot operators, commercial vehicle fleets; and other flexible applications customized to customer needs.

Chunghwa Telecom's CHT PowerHub Solution consists of five core modules that can be flexibly combined according to needs to create customized solutions:

Infrastructure Planning

Provides on-site surveys, power usage planning, and 3D simulation models for installation recommendations, and applies for electricity application processes with Taipower according to professional practices.

Construction and Installation

Installations are carried out by experienced electrical and mechanical personnel and construction teams to ensure high-quality and safe installation.

System Integration

Integrates multi-brand charging equipment, communication networks, and information security with the CHT PowerHub Solution.

Operations Management

Combines with localized maintenance capabilities and provide 24 hour customer support, operational reports, and payment processing services.

Value-Added Applications

Provides various application services, including multiple payment options, real-time video monitoring, energy management, and energy storage applications.

Smart City

Innovative Integration of Smart Poles and Smart City Management

Weaving New Urban Rhythms with Technology

In this era of digital transformation, the development of smart cities has become a global phenomenon. Across various smart city initiatives, smart poles are integrated with Chunghwa Telecom's CHTCityOS management platform to build a comprehensive smart city solution. This innovation not only surpasses traditional urban management models but also ushers in a new era of smart city development.

Smart poles disrupt traditional street lamps and form the smart nervous system of the city with their innovative multi-functional integrated design. Using energy-saving lighting control technology, smart poles can automatically adjust brightness according to ambient light, time of day and weather conditions, which not only significantly reduces energy consumption but also saves the city considerable operating costs. Through the CHTCityOS platform, administrators can see the operating status of each smart pole, flexibly adjust lighting strategies, and achieve precise energy management.

For traffic management, smart poles are equipped with high-tech law enforcement systems that can accurately detect illegal parking, monitor traffic in real time, and even warn of possible traffic accidents. Through the AI analysis capabilities of the CHTCityOS platform, the system can not only detect anomalies instantly but also predict potential traffic congestion, allowing for proactive measures to be taken in advance. This predictive management significantly enhances the efficiency of urban traffic operations.

Environmental sustainability is a top priority in modern urban development. Smart poles are equipped with built-in environmental monitoring systems that continuously track environmental indicators, including air quality, temperature, and humidity. The CHTCityOS platform uses advanced AI algorithms to analyze historical data and predict future air quality trends, enabling city managers to implement preventive measures in advance. When abnormal environmental indicators are detected, the system can issue real-time alerts to protect the health and safety of citizens.

Equipment management is a highlight of the AI-powered predictive capabilities of the CHTCityOS platform. The system can predict potential failures and enable preventive maintenance by analyzing operational data. This not only reduces maintenance costs but also ensures stable operation of the smart pole system. The platform's intuitive dashboard interface allows managers to monitor the status of all devices at a glance and respond quickly to any anomalies.

Essential to the IoT infrastructure, smart poles interconnect 5G micro base stations, public WiFi, and other communication facilities, while the CHTCityOS platform serves as the core for data integration and analysis. Using a unified management interface, city managers can easily monitor and allocate resources to ensure service quality. The platform's open architecture also supports future expansion, allowing the smart pole system to continue to evolve to meet the needs of urban development.

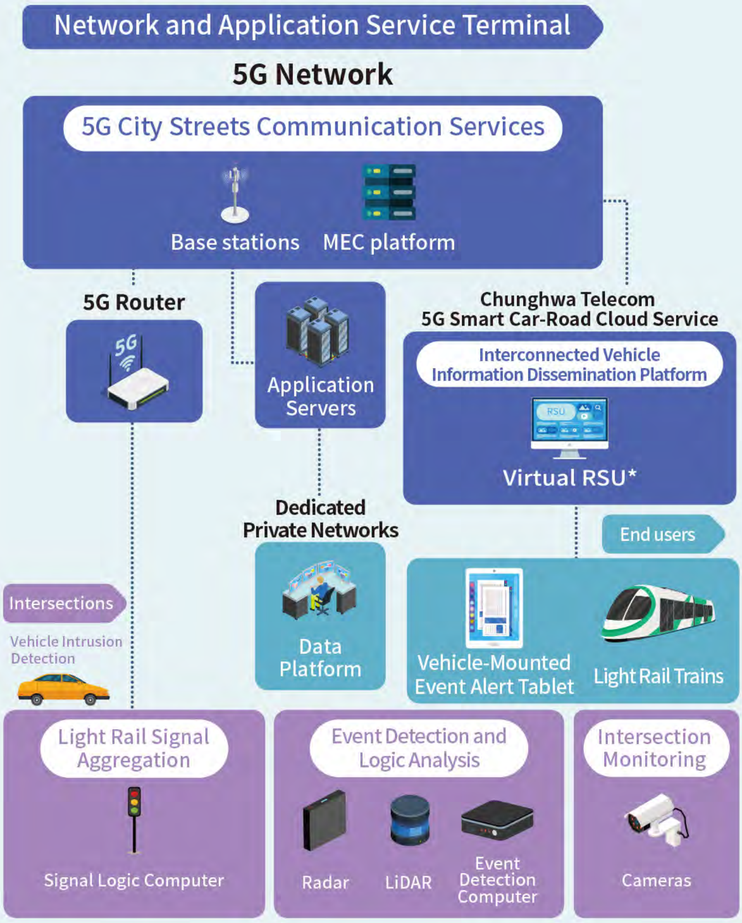
According to operational data, implementing the smart pole solution combined with the CHTCityOS platform not only reduces construction costs by 40% but also improves energy efficiency by 50%. With AI-driven predictive maintenance, equipment failure rates have significantly decreased, cutting maintenance costs by 30%. The system has helped cities reduce emergency response times by 70%, demonstrating remarkable management efficiency.

Looking to the future, the integration of smart poles with the CHTCityOS platform will continue to drive innovation in smart city development. This is not simply a combination of devices and platforms but a comprehensive solution for building intelligent urban environments. With data-driven decision support, AI-powered predictive analytics, and real-time monitoring, we can create safer, more convenient, and more sustainable cities for residents. Let' s work together to usher in a new era of smart cities and create a better urban future.

5G Intelligent Intersection Safety Systems

5G Intelligent Intersection Safety Systems

Because light rail tracks are close to urban roads, drivers frequently mistakenly cross tracks or fail to observe signal violations, resulting in collisions.

By installing LiDAR and radar equipment, car and motorcycle movement are continuously monitored, and predicted intersection violation events are immediately broadcast to the light rail trains.

- This effectively addresses the previous blind spots of light rail conductors and helps them better understand traffic situations at intersections.
- Before arriving at an intersection, light rail drivers receive advance information about the intersection's current signal light status and the remaining seconds, which assists them in making informed speed decisions.