華康智雲
ENNOWELL

Success Cases ebook

Leading the Way to Smarter Buildings and Greener Futures

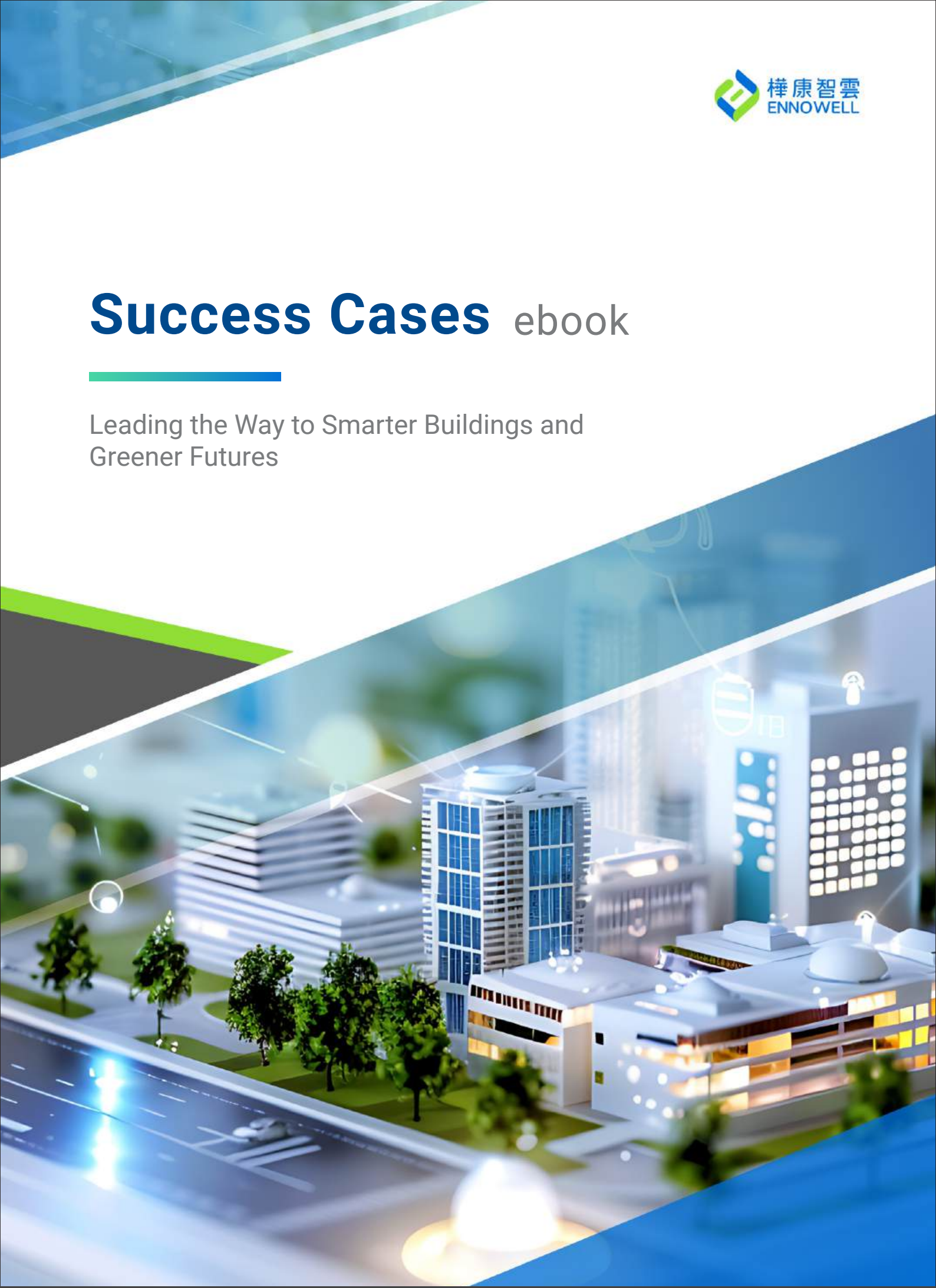


Table of Contents

01 Company Profile 04

02 Product Overview 06

03 Successful Cases 12

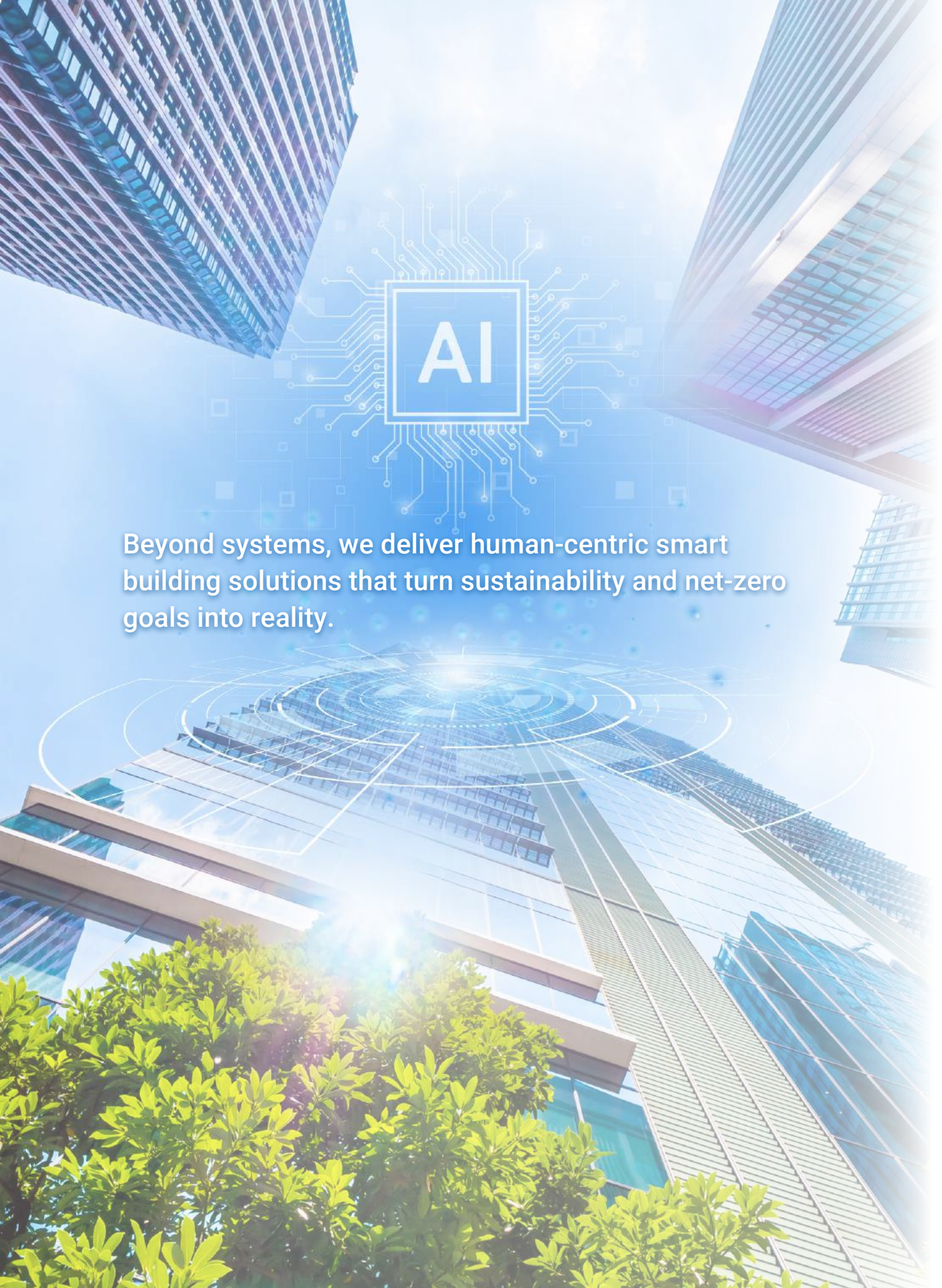
Real Estate Management 13

Electronic Technology.....19

Healthcare 23

Retail.....25

Education.....27



Beyond systems, we deliver human-centric smart building solutions that turn sustainability and net-zero goals into reality.

Company Profile

Ennowell is a pioneer in smart building solutions, specializing in AI-driven energy optimization. Our technology enables precise energy insights, supporting ESG goals and driving sustainable transformation for enterprises and governments.

One-Stop Smart Building Solution for ESG Transformation

Ennowell delivers four core solutions based on the BLC architecture: Smart Building Management, Building Digital Twin driven AI, Smart Energy Management, and Smart Facility Management, powered by AI to enable intelligent, efficient, and sustainable operations.

Driven by Innovation, Proven at Scale

Backed by a strong R&D team, Ennowell develops fully in-house technologies with multiple patents, awards, and seven Smart Building Material Certifications, proven across major projects.

Expanding Globally, Powering Smart Cities

Ennowell supports finance, healthcare, education, and government sectors, extending its expertise into Southeast Asia market to drive digital and green transformation.

Our Advantage

01

Professional smart building team delivering tailored one-stop solutions

02

Flexible, scalable system integration

03

Cross-brand system integration that saves time and costs

04

Dual security certifications ensuring data protection

Product Overview

By connecting data across the entire building lifecycle, from design and construction to operation and sustainability, Ennowell's smart building solutions transform buildings into energy-efficient, comfortable, and sustainable smart spaces.

Smart Building Ecosystem

A One-Stop Smart Solution from Building Lifecycle to ESG Operations

By integrating AI and big data, Ennowell transforms complex data into visualized insights. From facility management to energy optimization, empowering buildings with a "smart brain" for smarter operations and sustainable future.

1 Plan and Design

Digital Twin- Building Carbon Management

Carbon Prediction Across the Building Lifecycle

Ennowell's digital twin adopts AI & physical model to simulate and predict building carbon emissions across design, construction, and operation, including lifecycle performance based on materials, HVAC, and occupancy.

- Precisely quantify future energy performance
- Track carbon reduction and enhance management efficiency
- Reliable and auditable carbon data
- Enhance building design and long-term carbon management
- Carbon simulation achieves carbon management of BLC

Product Details

2 Construction

Smart Building Management

Empower Your Building: Comprehensive Control and Efficiency

Leveraging IoT and smart energy technologies, Ennowell enables seamless integration of all existing subsystems for automated monitoring and comprehensive control, improving energy and management efficiency.

- Seamless integration of existing software and hardware
- Smart alarm integration system
- Real-time big data monitoring management
- Equipment performance optimization
- AI & Digital Twin technology enables 10% annual energy and carbon savings

Product Details

3 Operation Management

Smart Energy Management

Smart Monitoring I Proactive Energy Saving I Energy Efficiency

A flexible and scalable smart energy management system powered by AI for consumption analysis, anomaly detection, and optimized energy efficiency.

- Compiles with ESG and ISO 50001 standards
- Seamless integration of existing equipment
- Multi-site energy consumption overview
- Proactive energy saving strategy to reduce consumption and labor cost
- Supports enterprise carbon management
- Helps achieve LEED certification and Intelligent Building Label standard

Product Details

4 Energy Optimization

Building Digital Twin driven AI

Precise Energy Consumption Prediction I Smart Energy Optimization

Powered by an IEA-recognized energy simulation model, the digital twin integrates AI for energy analysis, environmental monitoring, and automated temperature control to optimize energy efficiency and comfort.

- AI-driven HVAC control achieves near-zero energy consumption
- Multi-objective control model for optimal comfort and near-zero energy efficiency
- Real-time data monitoring and analysis
- AI predicts building operation and maintenance risks
- Enhance management efficiency, saving time and labor costs

Product Details

5 Sustainable Management
Enterprise Carbon Management

Greenhouse Gas Inventory Platform

Built on ISO 14064-1:2018 and GHG Protocol standards, our cloud platform delivers one-stop carbon inventory with integrated tools and expert support for effective carbon management.

- Digitalization of corporate information
- Built-in international factors database
- Multi-site ID management
- One-click duplicate template, filling in data quickly
- ISO 14064 compliant, ensures verification readiness

bsi.

Product Details

Carbon Footprint Calculation Platform

Based on ISO 14067, the platform calculates the full lifecycle carbon footprint of products or services, identifies emission hotspots, and supports supply chain optimization and carbon reduction management.

- Integrated product data, eliminates repetitive input
- Automatic emission calculation, fast and efficiency
- Real-time progress tracking
- ISO 27001 certified
- One-click report generation, compliant with ISO 14067 and verified by SGS AUP

SGS

Product Details

6 Community Building Management
Smart Facility Management

Asset I Service I Facility Management Optimization

Integrating BIM, BA monitoring, and AI models streamlines equipment lifecycle, asset maintenance, and facility operations, improving efficiency and enabling smart facility management.

- Instantly identify equipment location
- AI-powered fault detection & alerts
- Equipment Lifecycle & Maintenance Tracking
- Integrated ESG data collection and carbon inventory management
- Real-time on-site monitoring
- A unified dashboard for smart multi-building performance management

Product Details

Smart Community, Smarter Living

The E-Life Smart Community Management Platform seamlessly integrates community and building operations. By offering cloud-based management and resident services via web and mobile apps, it enhances operational efficiency and quality of life to build a truly connected neighborhood.

- One-stop operations management
- Transparent and efficient financial oversight
- Smarter parcel logistics for effortless admin & resident delivery
- Clear property & asset tracking
- Intuitive, user-friendly interface

Product Details

Successful Cases

Discover how Ennowell drives smarter operations and business growth.

Powering Smart Operations Through Digital Integration

Customer Background

Shin-Kong Life Real Estate Service has over 30 years of experience in facility management, serving a wide range of properties including high-rise buildings, office complexes, shopping malls, hospitals, and residential communities.

With strong expertise in large-scale integrated property and community management, the company delivers safe, comfortable, and sustainable environments.

Industry
Real Estate Management

Location
Taiwan

Customer
Shin-Kong Life Real Estate Service Co.,Ltd

Solution
Smart Facility Management System

Requirements & Challenges

Shin Kong Life Real Estate Service manages over 200 buildings. However, aging equipment and traditional management methods have gradually affected operational efficiency.

- Most equipment data is stored in paper records, making it difficult to manage and update.
- Patrol, maintenance, and repair processes are time-consuming .

Maintaining service quality while integrating building and equipment data and ensuring transparent, traceable management is a key challenge for smart facility and sustainable operations.

Solution

To address these challenges, Ennowell developed a smart facility management system for Shin-Kong Life Real Estate Service, digitalizing equipment data and integrating HR and financial systems into a unified platform for centralized management.

Key Features :

- Digital Integration : Centralized management of equipment data, lifecycle, and maintenance records.
- Patrol Inspection : Real-time mobile inspections and anomaly reporting
- Efficiency Enhanced : Reduces labor costs and improves management efficiency.

Results & Benefits

- Data-Driven : Monitor operations and equipment status via dashboard and report.
- Process Optimization : Automated workflows and e-forms reduce workload.
- System Upgrade : Strengthened asset management and improved efficiency.

The solution helps Shin-Kong Life Real Estate Service create a safe, comfortable, and sustainable operating environment, setting a new benchmark in smart facility management.

Smart Technology Delivers High Service Quality via Smart Facility Management

Customer Background

Fubon Property Management has extensive experience in property management, overseeing Fubon Group assets across residential and commercial properties, with a focus on long-term value, sustainability, and strong risk control.

Built on digital management, it applies systematic and transparent processes to support ESG goals, delivering a smart property system that ensures safety, privacy, and user-friendly experience.

Industry
Real Estate Management

Location
Taiwan

Customer
Fubon Property Management Co., Ltd.

Solution
Smart Facility Management System

Requirements & Challenges

Fubon Property Management focuses on group asset management, aiming to continuously improve efficiency, service quality, and long-term sustainability.

As the portfolio grows, traditional operations face challenges in managing complexity and meeting higher standards

- Data Integration : Centralizes multi-site operations for better asset management and decision-making.
- Data-Driven Planning : Uses operational data to optimize design, resources, and space use.
- Smart Building Standards : Ensures compliance for long-term smart management.

Solution

Ennowell assisted Fubon Property Management implement a smart facility management platform, enabling phased digital transformation across :

- Digital Asset Management : Structured framework for optimization and data use
- Service Workflow Management : Digitized user and vendor workflows for efficiency
- Smart Operations Scheduling : Standardized processes for better resource utilization

Results & Benefits

- Improved Efficiency : Streamlined processes reduce rework, workload, and operational costs.
- Service Upgrade : Data-driven integration of assets and operations improves management efficiency.
- Sustainable Development : Systematic data management supports smart building certification and enhances energy efficiency.

Empowering Fubon Property Management with a data-driven smart system to boost efficiency and drive sustainable, long-term success.

Integrated Energy & Carbon Management for a Net-Zero Future

Customer Background

Far Eastern Resource Development Co., Ltd., founded in 2003, focuses on integrating the Far Eastern Group's property assets and development resources. The company specializes in real estate development, leasing, and property management across industrial parks, commercial, and residential projects, with a mission to enhance asset value, optimize resources, and maximize investment returns.

Industry
Real Estate Management

Location
Taiwan

Customer
Far Eastern Resource Development Co., Ltd.

Solution
- **Smart Facility Management System**
- **Enterprise Carbon Management**

Requirements & Challenges

Far Eastern Resource Development manages large-scale property assets and developments. As ESG and net-zero demands grow, turning fragmented energy and equipment data into actionable insights has become a key challenge for sustainable transformation.

Solution

Far Eastern Resource Development partnered with Ennowell to integrate facility operation data with a GHG inventory platform, enabling real-time monitoring and tracking of building energy use and carbon emissions.

Key Features :

- Data Integration : Consolidates water, electricity, and facility data for comprehensive energy and carbon insights.
- Automated Processes : Cross-system integration reduces manual effort and errors.
- Carbon Tracking : Generates standardized reports for review and carbon management.

Through integration and automation, Far Eastern Resource Development enables real-time monitoring of energy use and carbon emissions, supporting data-driven sustainable operations.

Results & Benefits

- Enhanced Efficiency : Reduces carbon reporting time by over 50% through automation.
- Compliance Support : Supports ESG and regulatory reporting requirements.
- Transparent Management : Visualized data enables carbon tracking and decision-making.

Through data integration and automating, Far Eastern Resource Development turns insights into actionable decisions, strengthening sustainable management and long-term performance.

AI-Powered Real-Time Fault & Detection

Customer Background

For long-term multi-site factory management, TSMC centralizes maintenance data into a unified platform, enabling asset reuse and advanced development.

AI-driven analytics enable anomaly prediction and proactive diagnostics, supporting real-time intelligent operations and improved M&E management.

Industry
Electronic Technology

Location
Taiwan

Customer
TSMC
(Taiwan Semiconductor Manufacturing Company)

Solution
- **Smart Facility Management System**
- **Building Digital Twin driven AI**

Requirements & Challenges

Before AI adoption, facility management systems mainly served as equipment alert and diagnostic tools, relying on manual rules and experience, with limited flexibility and adaptability to diverse maintenance needs.

Solution

To address maintenance challenges, we developed an AI-driven alert and diagnostic model using operational and maintenance data, replacing rule-based systems with data-driven insights from integrated facility monitoring.

Three core analytics modules includes :

- Baseline Modeling : Establishes normal operating patterns to detect anomalies early
- Root Cause Analysis : Automatically analyzes data to identify causes of anomalies
- Solution Recommendation : Provides optimal actions based on maintenance records, turning expert knowledge into actionable insights management.

Results & Benefits

- Proactive Alerts :
  Detects around 360 potential issues monthly with up to 99% accuracy, improving service quality.
- Early Intervention :
  Reduces incidents by 50% through proactive handling, improving customer satisfaction.
- Automated Recommendations :
  Reduces resolution time by over 60% and saves approximately NT$3.6 million in labor costs.
- AI Learning :
  Continuously learns from operations, enabling knowledge transfer and reducing training costs.

Building Digital Twin AI Technology Empowering Energy Efficiency

Customer Background

To efficiently manage hardware development teams in Taiwan, Google leased two buildings (TPKD and TPKE) in Tpark and adopted a whole-building management approach. Google also implemented a facility management platform with centralized monitoring and AI applications.

This whole-building management model differs from traditional partial-floor leasing management, creating a stronger demand for energy efficiency optimization.

Industry
Electronic Technology

Location
Taiwan

Customer
Google LLC

Solution
Building Digital Twin driven AI

Requirements & Challenges

To achieve ESG and sustainability goals, Google aims to optimize the HVAC systems of two buildings in Tpark to improve both comfort and energy efficiency, including :

- WELL Standard Requirements : Ensure environmental health and comfort while meeting staff needs.
- Enhanced Energy Efficiency : Optimize energy use and reduce waste to maintain a comfortable environment.

Solution

Ennowell applied building digital twin driven AI technology, integrating real-time weather data with AI analytics to optimize both comfort and energy efficiency for Google.

- Weather Data Integration : Connects weather stations and APIs to monitor environmental changes in real time.
- Simulation & Prediction : Simulates and analyzes the impact of weather on building energy use to predict HVAC demand.
- AI Optimization : AI automatically calculates optimal control logic to balance comfort and energy efficiency.
- Smart Control : Integrates with existing central monitoring systems to enable rapid smart management.

Results & Benefits

As of the first half of 2025, the implementation of Ennowell's building digital twin technology has delivered the following results :

- Maintained Comfort : Indoor PMV reached -0.055, ensuring occupant comfort.
- Improved Energy Efficiency : Achieved an average daily energy saving of 17%, effectively reducing energy consumption.

This technology enabled Google to optimize HVAC control within the existing building management system, balancing comfort and energy efficiency while delivering strong smart building performance.

Building Digital Twin AI for Hospital Comfort and Energy Efficiency

Customer Background

Tzu Chi Hospital Hualien Medical Center is a long-term partner of Ennowell, actively promoting green healthcare. The hospital has implemented indoor air quality management, AI-driven environmental control, and smart facility management systems, all compliant with regulations and industry trends.

It has also shared successful cases through SNQ and NHQA awards, showcasing the effectiveness of green healthcare and smart management.

Industry
Healthcare

Location
Taiwan

Customer
Tzu Chi Hospital Hualien Medical Center

Solution
Building Digital Twin driven AI

Requirements & Challenges

Tzu Chi Hospital Hualien Medical Center handles up to 3,500 outpatient visits daily. Unlike offices, hospital environments experience highly dynamic and unpredictable patient flows, making environmental control more challenging.

- Rapidly changing crowds in outpatient and waiting areas require real-time adjustments.
- Indoor comfort must be maintained while achieving energy efficiency.

Balancing high occupancy variability with energy efficiency is a key challenge in smart environmental management at the hospital.

Solution

Ennowell leveraged AI-driven building digital twin technology to enable smart environmental management and energy control at Tzu Chi Hospital Hualien Medical Center, improving HVAC efficiency and supporting regulatory compliance.

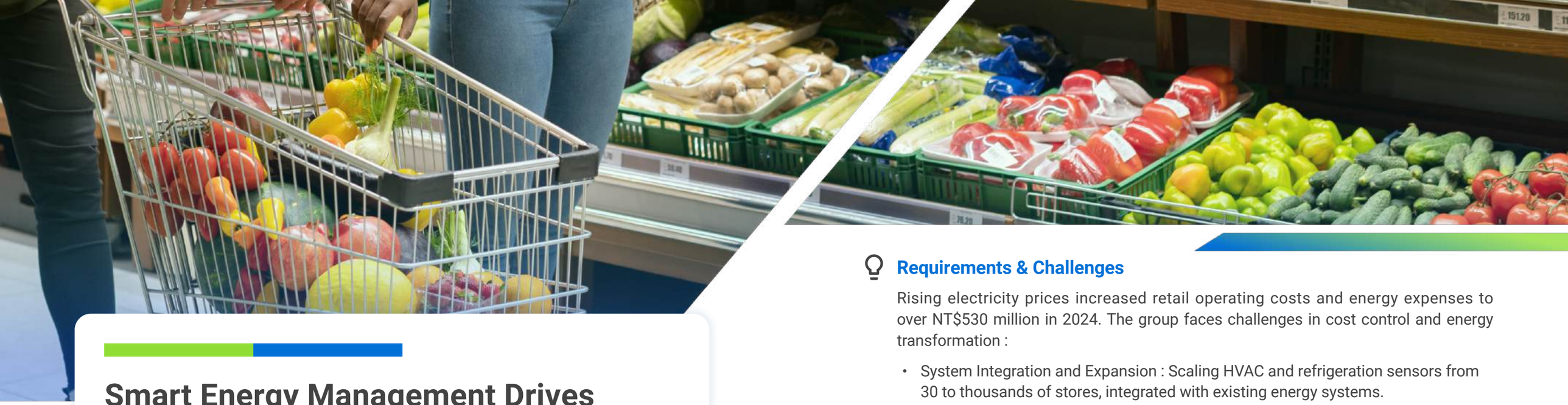
- Data Integration : Integrates weather and occupancy data for dynamic insights.
- Simulation & Optimization : Digital twin predicts load and automatically optimize HVAC strategies.
- Regulatory Compliance : Aligns with indoor air quality regulations.
- Real-time Control : Updates every 30 minutes via OPC and Hanwei control systems for AHU operation.

Results & Benefits

Since 2022, the implementation of Ennowell's building digital twin technology has delivered results in the NHQA Healthcare Quality Award :

- Environmental Comfort : Indoor PMV reached -0.93, ensuring comfortable conditions in hospital environments.
- Energy Efficiency : HVAC system achieved an average energy saving of 9.8%, effectively reducing energy consumption.

This technology successfully delivers both comfort and energy efficiency in hospital environments, demonstrating the value of smart building innovation.



Smart Energy Management Drives Retail Industry with Energy Saving and Sustainability

Customer Background

The customer is part of a leading group specializing in system integration and digital transformation, initially focused on ERP and POS systems and later expanding into cloud, cybersecurity, and data center solutions.

It has recently advanced data applications and RMN development by integrating membership and store data across Taiwan to improve efficiency and drive digital revenue growth.

Industry
Retail

Location
Taiwan

Customer
Leading Group

Solution
- **Smart Energy Management System**
- **Building Digital Twin driven AI**

Requirements & Challenges

Rising electricity prices increased retail operating costs and energy expenses to over NT$530 million in 2024. The group faces challenges in cost control and energy transformation :

- System Integration and Expansion : Scaling HVAC and refrigeration sensors from 30 to thousands of stores, integrated with existing energy systems.
- Data Integration and Decision Support : Consolidating equipment data via middleware for visualization and data-driven decisions.

Balancing cost control, energy efficiency, operational stability, and sustainability has become a core challenge to develop the smart energy transformation.

Solution

Ennowell's smart energy management helps retail stores nationwide optimize energy consumption while ensuring operational stability and sustainability.

System Application :

- Sensor Deployment : HVAC and refrigeration sensors collect real-time equipment data.
- Data Integration : Centralizes energy and operational data for cross-store benchmarking.
- Dashboard Monitoring : Visualizes energy use and alerts for real-time management.

Results & Benefits

- Reduced Costs : Automated HVAC and refrigeration control reduces energy waste.
- Faster Deployment : Shortens configuration time from 40 to 16 hours for faster rollout.
- Higher Efficiency : Automated metering and workflows save approximately 40 minutes of daily work.

Ennowell empowered smart retail transformation, enhancing sustainability and competitiveness

Smart Campus Management for a New Era of Energy and Carbon Efficiency

Customer Background

Chung Yuan Christian University, founded in 1955 and located in Zhongli, Taoyuan, is a well-known comprehensive university in Taiwan.

The university is committed to education, research, and sustainable development, with a strong focus on green campus initiatives and energy efficiency. It continues to provide strong educational resources and a quality learning environment for talent development.

Industry
Education

Location
Taiwan

Customer
Chung Yuan Christian University

Solution
Smart Energy Management System

Requirements & Challenges

Chung Yuan Christian University has long promoted a green campus but faces energy management challenges, including fragmented systems, imprecise HVAC control, and difficulty integration of scheduling and space use, leading to energy waste and higher operational complexity.

Solution

Chung Yuan Christian University partnered with Ennowell to deploy a Smart Energy Management System, integrating scattered electric meters and equipment into a unified data platform.

- Power Data Integration : Combines 317 smart meters and 177 circuits into one unified system for full energy visibility.
- Smart HVAC Control : Uses infrared sensors in 15 labs to adjust air conditioning based on schedules and usage.
- AI Energy Baseline : Enables anomaly detection and energy analysis.
- Visualized Management : Provides real-time energy monitoring and insights.

Overall, the system enhances energy management intelligence and accuracy, setting a new benchmark for sustainable campus operations.

Results & Benefits

Chung Yuan Christian University enhanced energy management through a smart energy management system, improving efficiency and transparency of energy use.

The key benefits include :

- Energy & Carbon Reduction : Reduces unnecessary energy use and emissions.
- Improved Efficiency : Automation streamlines operations and lowers workload.
- Cost Savings : Improves energy efficiency to reduce operating costs.
- Precise Decisions : Real-time data and AI support smarter strategies.
- Sustainability : Enables a more efficient and sustainable campus.

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Smart Building I Smart Sustainability

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