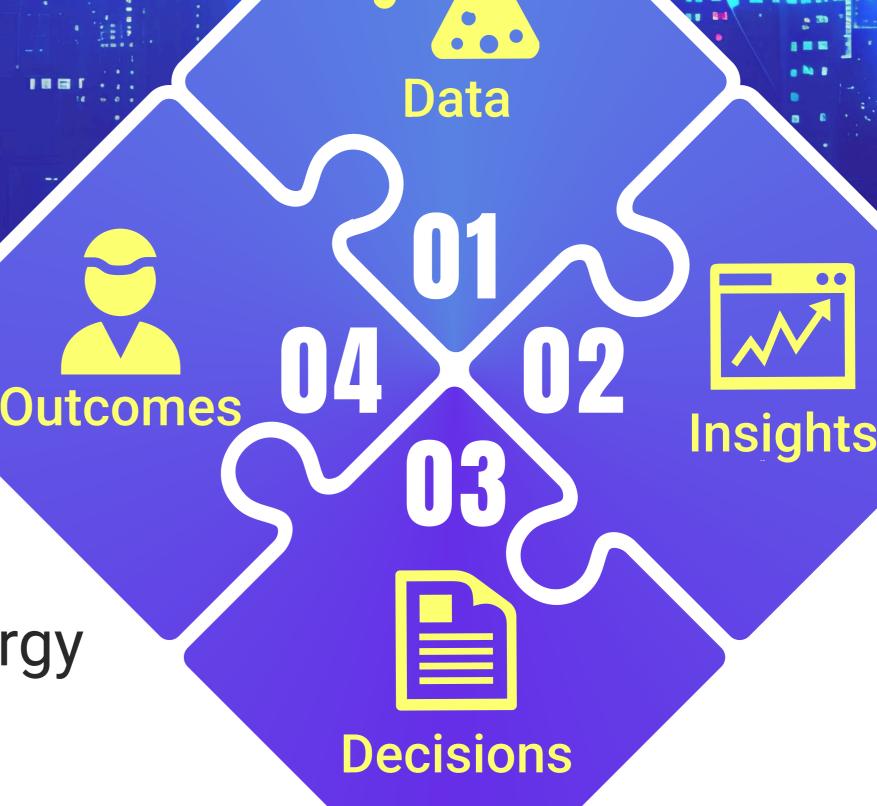
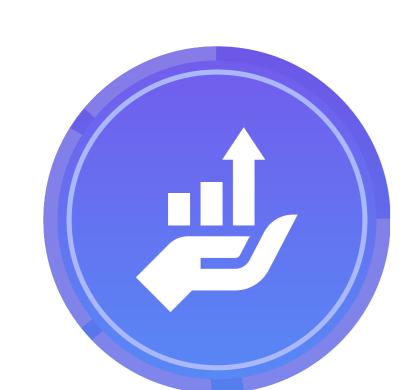
## Digital Twins

# Empowering the Next Era of Net-Zero Carbon Buildings

According to ISO30173, Digital Twin technology is including simulation and optimization of buildings. Using IEA certified tool (Energy Plus) as core simulation engine, Digital Twin technology can enhance energy saving, environment comfort, and reduce users compliant. Through the integration of HVAC system, it can support the energy Saving and long term carbon neutrality.



## The Advantages of Decarbonization with Digital Twins



Carbon simulation optimizes lifecycle costs and green procurement.



Enhances building design and management processes.



Al predicts building operation and maintenance risks.



Al-driven HVAC control achieves near-zero energy consumption.



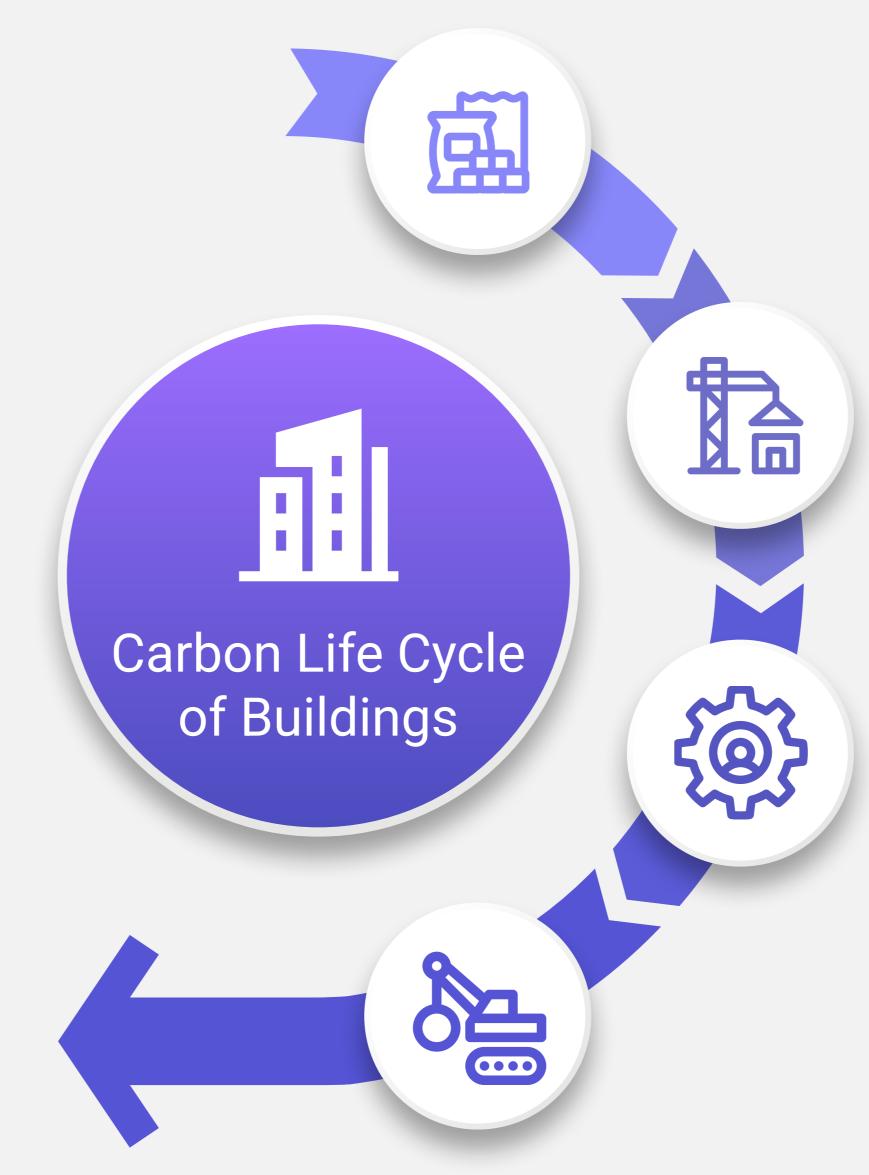
Improves management efficiency, saving time and labor costs.

## **EnnowellE-twins**

## Building Digital Twin driven Al

According to the UNEP, buildings contribute around 40% of global carbon emissions, with one-fourth being embodied carbon hidden in materials up to demolition process, while the remaining three-fourths comes from operational use.

Source: 2021 Global Status Report for Buildings and Construction, UN Environment Programme



#### Production

- Raw materials
- Transport
- Manufacturing

#### Construction

- Transport
- Construction/ installation process

#### Operation

- Maintenance
- Repair
- Replacement

#### Operational carbon

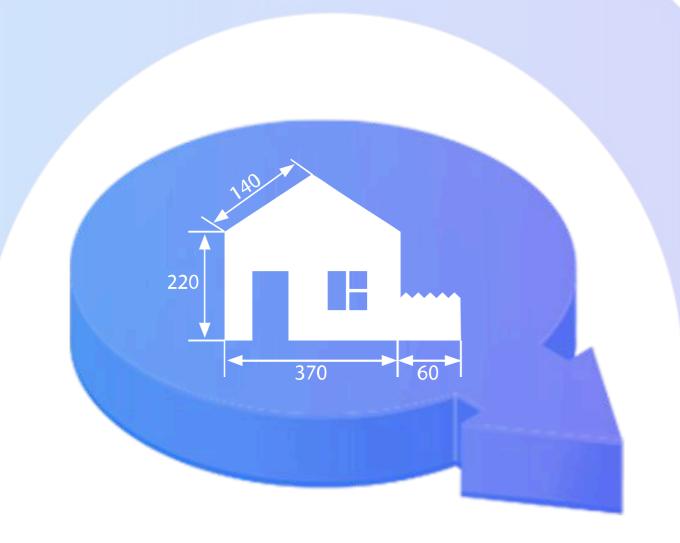
Operational water and energy use

#### End of life

- Deconstruction
- Disposal and Transport

mbodied carbon

Our Building Carbon Management Platform utilizes digital twins simulation for long-term and short-term optimization strategies. It calculates and manages carbon emissions from materials, operations, and future emissions, enabling users to analyze carbon footprints and predict future emission reductions to ensure carbon neutrality across the building's lifecycle.



### Design Phase

Al-driven material comparison quickly calculates carbon emissions and provides carbon footprint data.

Al-powered digital twin technology for EUI and energy consumption simulations, carbon emission stats, analysis, and baseline management.

#### **Operation Phase**





#### Future Carbon Management

Using digital twins and RCP and TMY emissions for buildings, providing optimal solutions for users.

## ◆ The Benefits for Your Business



Reduce carbon report production by 50% yearly.

500/6
/ yearly



Estimation over 80% carbon emissions across the lifecycle.

8000/cover



Reduce building electricity costs by 10%.



Reduce average building energy consumption by 20 EUI (Kwh/m2.yr).

A EUI (Kwh/m2.yr)

## Proven Cases

New Taipei City Shulin Arts Center

Tpark- Taipei Far Eastern Telecom Park

Huayou Factory of Foxconn Headquarters

TSMC South, North, and Hsinchu Plant

Chiayi County Machouhou Industrial Park

Medical Center of Hualien Tzu Chi Hospital

New Taipei City Government Second Administration Center



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