Digital twin and climate change

LX Platform

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What is a Digital Twin?

**Digital Twin**

Technology that accurately represents the real world in digital space and predicts reality through analysis using simulation in real-time.
3D Spatial Data vs Digital Twin

**Aerial Data**
- 3D objectification of buildings and facilities on the ground, underground and in the air in the physical world

**Ground Data**
- (static Info.) administrative data, public data, private data, etc.
- (dynamic Info.) IoT, CCTV, population movement, etc.

**Under Ground Data**

**Simulation**
- Simulation for diagnosis, prediction and response to urban problems such as climate change and disaster safety

**Digital Twin**
- 3D model
- Buildings model
- Facilities model
- Public data
- Administrative data
- Real time data
Necessity of various data convergence

Convergence and combination of various data are essential for highly reliable digital twin-based simulation and prediction.

Data convergence (Link-Load-Distribute)

- **Agency data**: Local status Info, Licensing Info, Civil info
- **National data**: Buildings Info, national basic spatial Info, Special purpose district
- **LX data**: 3D model, Inundation trace map, Empty house Info
- **Private data**: Population movement, Traffic Info, POI Info

Accurate analysis results from simulation based on converged data
Digital twin service model for climate change
(Response and adaptation)
Digital Twin-based Climate Change Response and Adaptation Service

**Respond to Climate Change**
- Real-time monitoring of air pollutant emission facilities and simulation of atmospheric diffusion
- Simulation of river flooding area and damage prediction according to Precipitation and Topography
- Monitoring of carbon emission for individual buildings and energy efficiency support Services
- Selection of optimal storage facilities for hydrogen Infra. expansion and simulation of damage response

**Adapt to Climate Change**
- Identification of urban heat island areas through analysis of wind pattern and real-time weather information convergence analysis
- Analysis of the effects of urban and building greening projects and support for selection of project sites
- Prediction of changes in green area rate according to the creation of a green area and selection of the optimal location for development of park
- Simulation of predicting sea level changes due to global warming

**Digital Twin-based Simulation Service for Mitigate Climate Change**

**Digital Twin Services for Enhancing the Quality of Human Life in terms of Climate Change**
Climate Change Response Services
(LX Platform case demonstration)
Climate Change Response Services_ River Flooding Simulation
Climate Change Response Services _ Disaster Shelter Management
Climate Change Adaptation Services
(LX Platform case demonstration)
Climate Change Adaptation Services _ Analysis of Wind Pattern

바람질 분석

1. 영역 지정
영역 지정

지정 로케일

풍속(m/s) 10

풍향위

10

조기화

분석

구분

분석날짜

확률

기대

결과 확인

서비스 > 도시공간분석 > 바람질 분석 > 바람질 분석
Thank you