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Understanding The LX Digital Twin Platform

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- 2. LX Digital Twin Platform Features**
- 3. Demonstration**

Contents

1. What is a Digital Twin?

background

Definition of Digital Twin

2. LX Digital Twin Platform Features

3. Demonstrations

1. Background

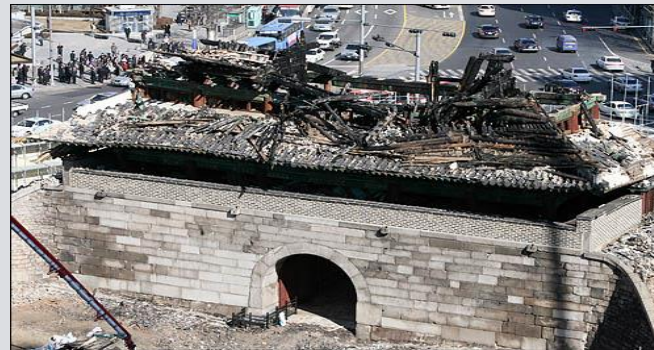
Various problems arising in urban areas

- Major accidents and various problems occurring in cities can be diagnosed and prevented, but they are neglected because there are no appropriate tools to simulate them in advance.

KTX train derailment



Namdaemun Fire



Jecheon Sauna Fire



The Collapse of an Urban Building



Urban Fine Dust



Urban Transportation Problems



1. Background

Constant occurrence of
Urban & social problems



Most of the problems are
related to urban space



Data based Multidimensional spatial analysis and Digital urban space infrastructure are required to diagnose, predict, and respond to various urban and social problems

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1. What is a Digital Twin?

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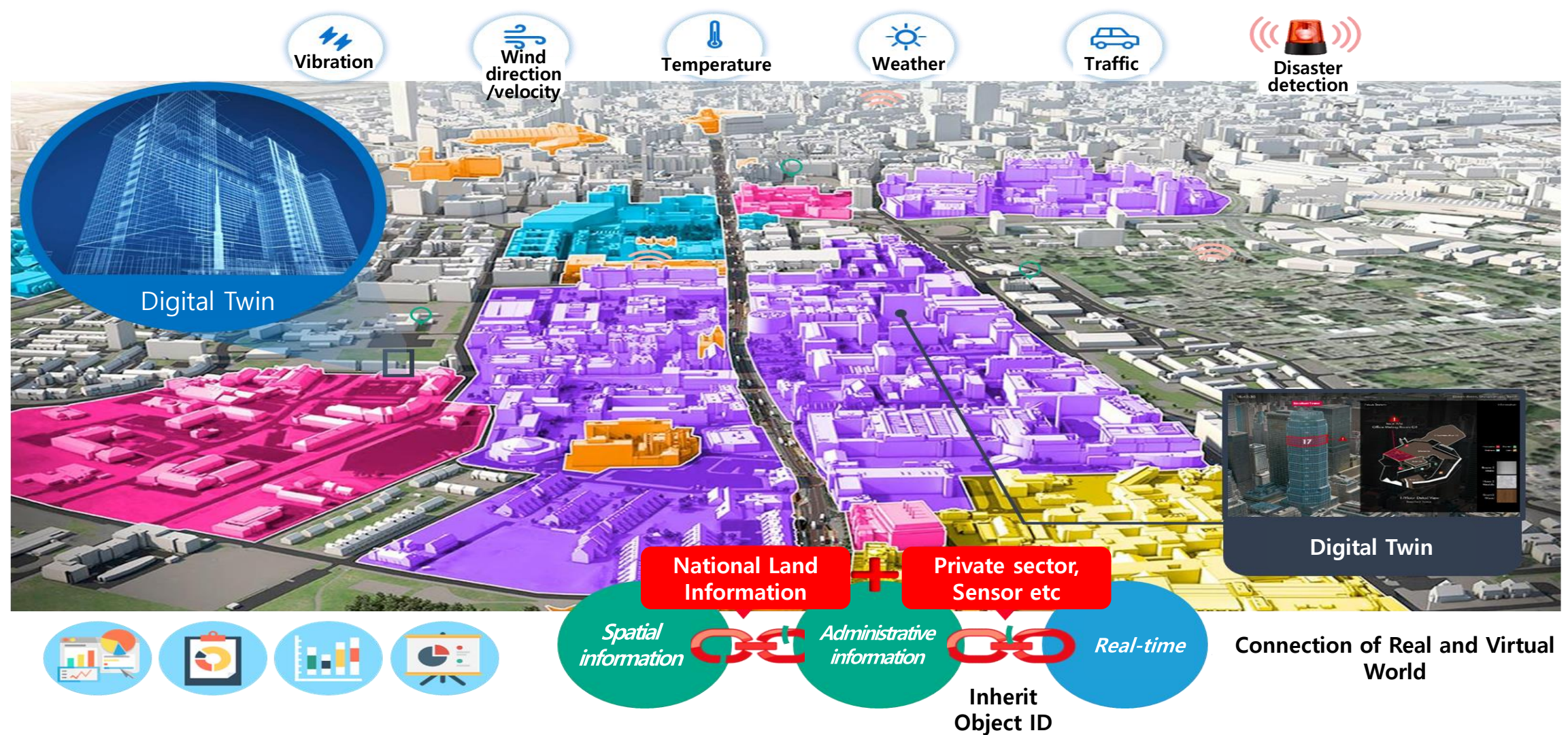
Definition of Digital Twin

2. LX Digital Twin Platform Features

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2. LX Digital Twin Platform Features

Spatial information + Administrative information + Real time Data collection (IoT, SNS) + Situational awareness = “Digital Twin”



2. LX Digital Twin Platform Features

Implement a new concept of digital urban infrastructure with one unified structure



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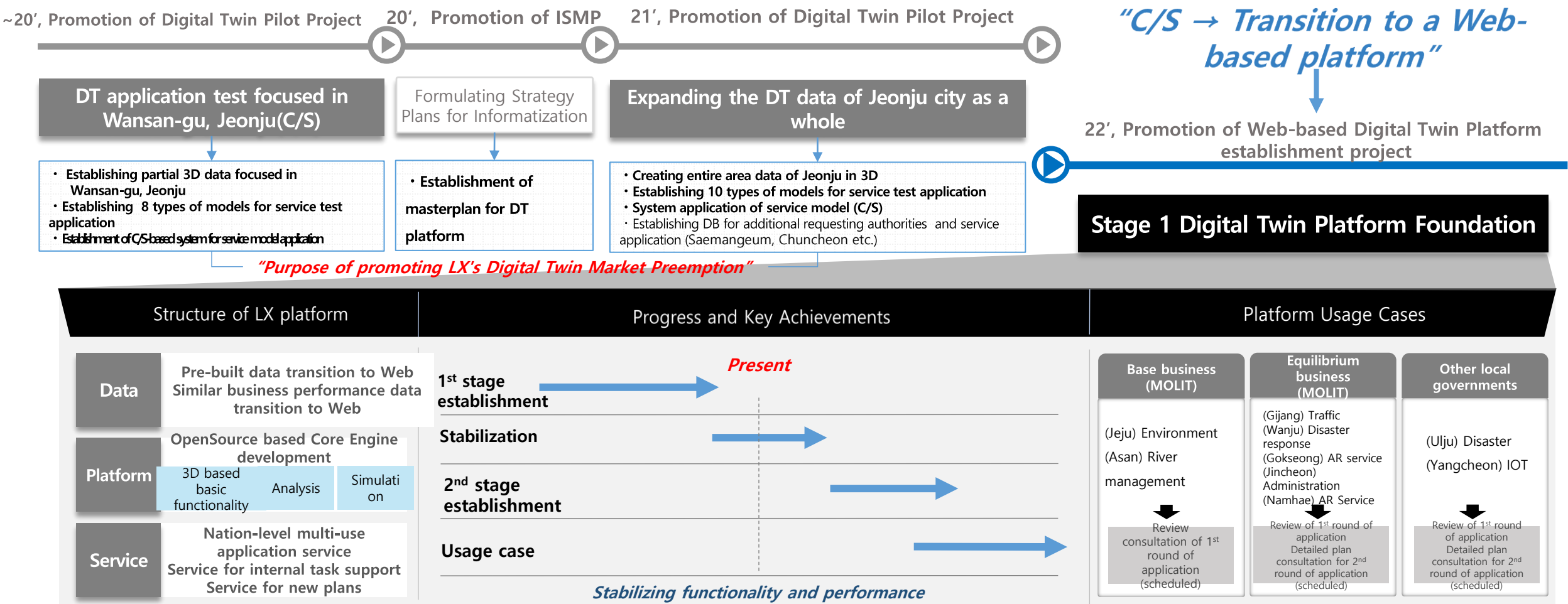
Progress and Status of LX DT Platform

LX DT Platform Features

1. LX DT Platform Progress and Status of Implementation

■ DT platform propulsion progress

Providing an efficient management and utilization system of 3D national land information, through establishing a digital twin platform with versatility and scalability



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Progress and Status of LX DT Platform

LX DT Platform Features

2. LX DT Platform Features

Platform & Development Environment

Data Management System

■ Data Structure

- ✓ 309 types of Public data
- ✓ 34 types of LX internal data
- ✓ 19 types of external API connection
- ✓ 3D modeling data

(all parts of Jeonju, data of Basic development Project and National Balanced Regional Development project etc.)

■ Data Management system

- ✓ LX Internal management system (collection, refining, loading, etc.)
- ✓ Agent for external connection (for local organization use)

■ Platform detailed structure

- ✓ 3D simulation engine (Cesium)
- ✓ 3D conversion engine (FME)
- ✓ Basic and Analysis function (Rhino etc.)
- ✓ C/S based simulation system (Unreal)
- ✓ Integrated management system
- ✓ Data Agent, SandBox

■ Development support environment

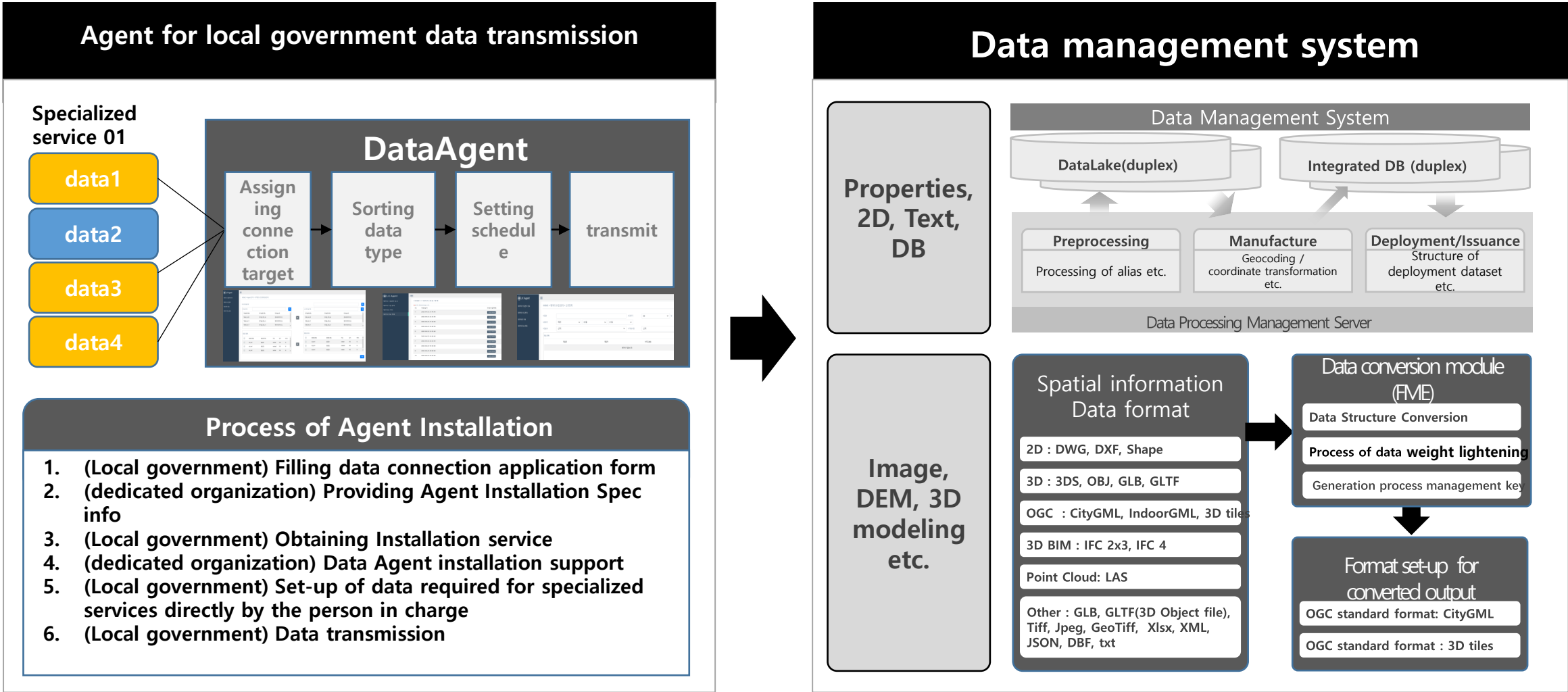
- ✓ DT Platform base framework and Development source
- ✓ Design guide (Publishing source included)
- ✓ Interface specification document
- ✓ List of features utilized by OpenSourceCesium)
- ✓ General purpose Function(SDK)
- ✓ DataAPI

General Purpose Service

- ✓ 3-Dimensional spatial analysis and basic function
- ✓ Cultural and National Property Management Support Service
- ✓ Administration support service of road privatization
- ✓ Real-time river monitoring service
- ✓ Real-time building monitoring service
- ✓ City environment management support service
- ✓ Drone simulation service
- ✓ Smart traffic analysis service
- ✓ Building permission service
- ✓ Disaster prediction (Tornado, Flooding) simulation service

2. LX DT Platform Features

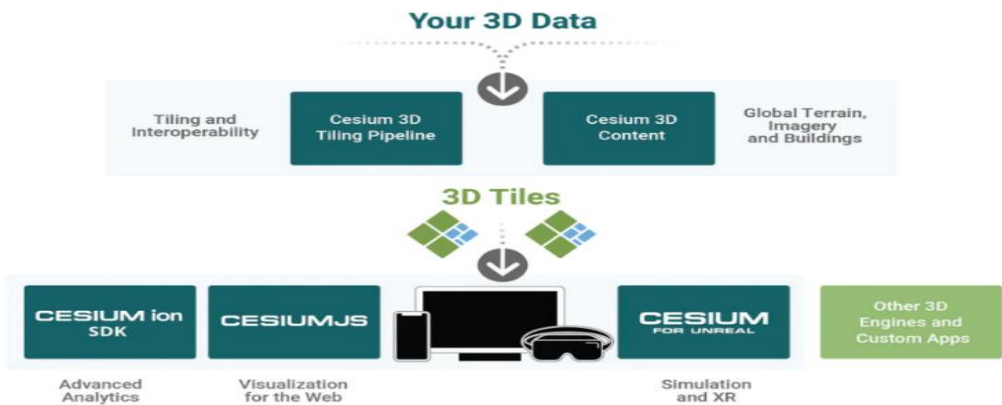
- **Data Agent:** person in charge directly selects access to local government data then file and data are transmitted in batch format



2. LX DT Platform Features

Platform Structure

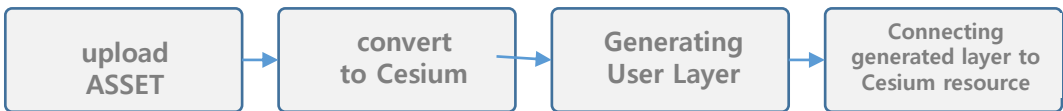
Development of Cesium based Visualization engine



Main function

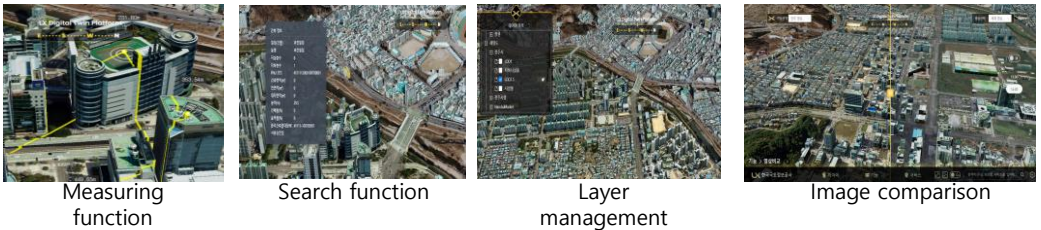
Open data standard and visualization of various formatted data
Providing big scale heterogeneous 3D Geospatial Dataset
Providing basic API functions

Process of visualization

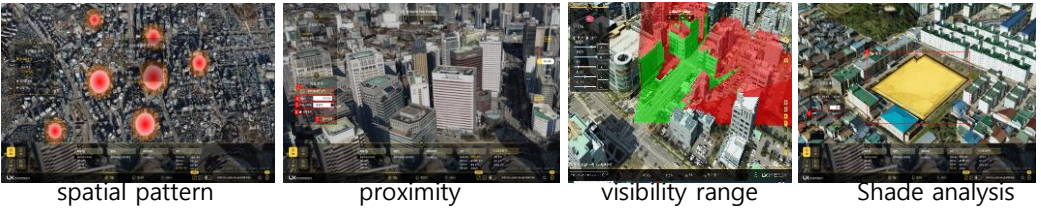


Detailed Function Structure

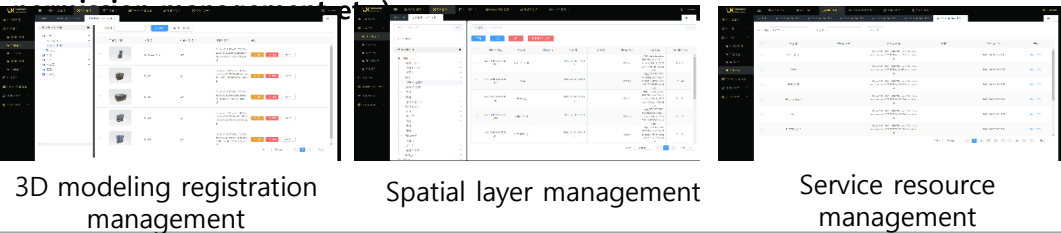
General function (Map control + measuring function + layer management etc.)



Analysis function (Spatial analysis, Shade analysis, View analysis, Visibility range analysis etc.)

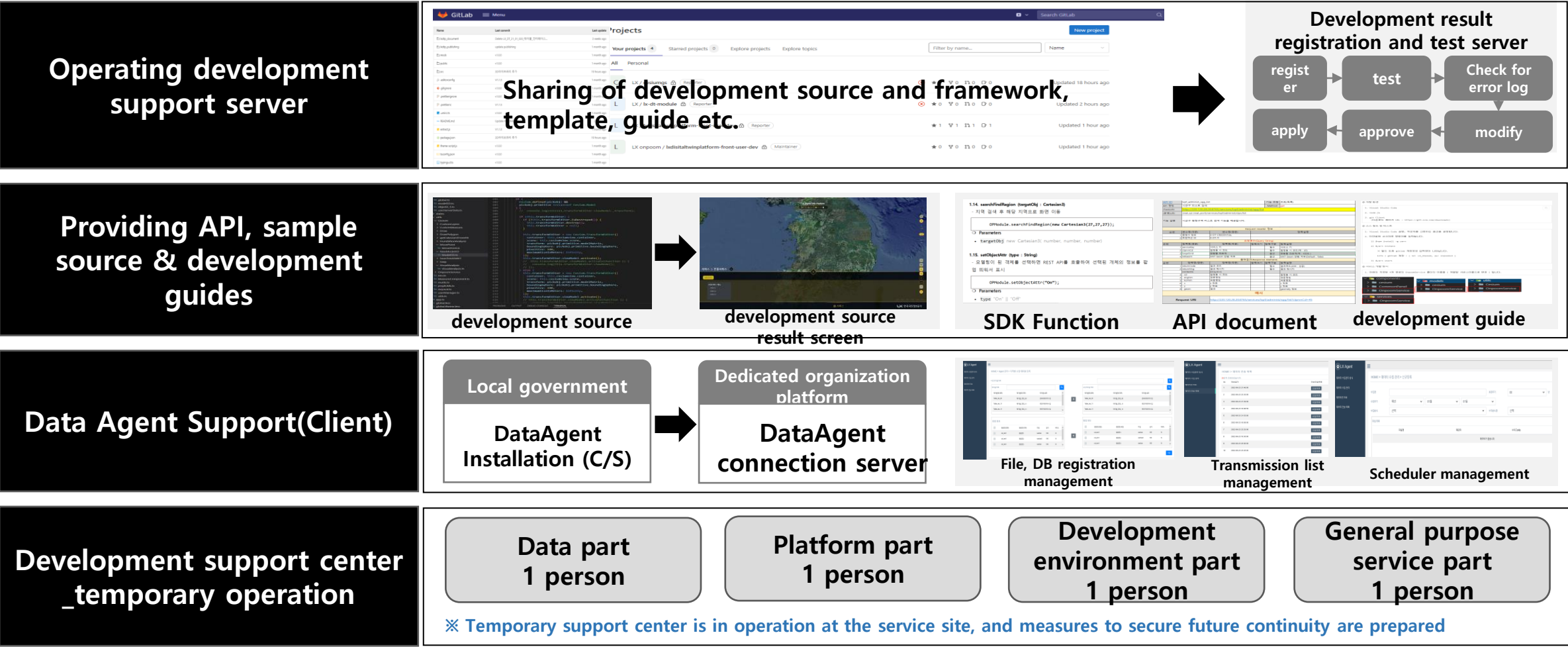


Management function (data registration, library management, tiling, user management,



2. LX DT Platform Features

- Operate environment where authorized developers can be granted sample sources, APIs, designs etc.
- Local government use Agent support for data transmission



Sub Contents

1. What is a Digital Twin?

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3. Demonstration

Demonstration

Thank you for your attention!~