

# VIRTUAL GOTHENBURG

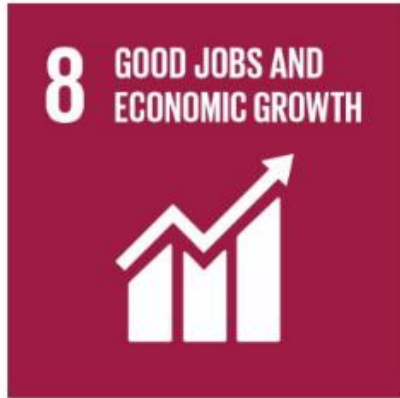
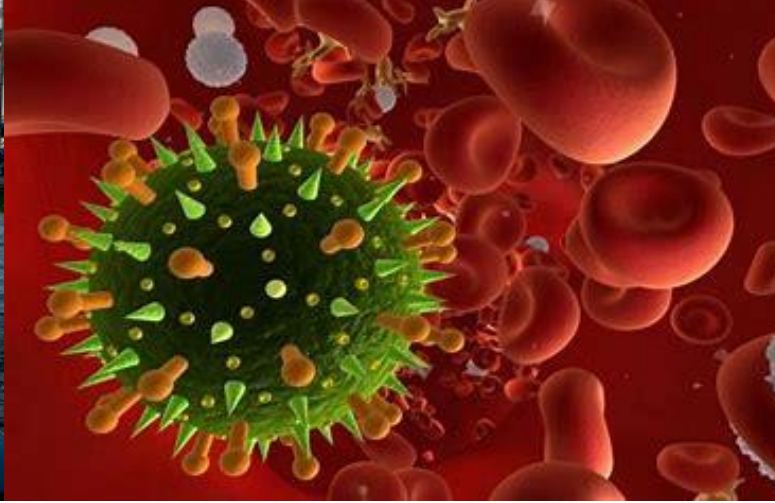
## A DIGITAL TWIN FOR A SUSTAINABLE CITY

ERIC JEANSSON  
HARALD GREEN

PROJECT MANAGER, VIRTUAL GOTHENBURG  
TECHNICAL ARTIST

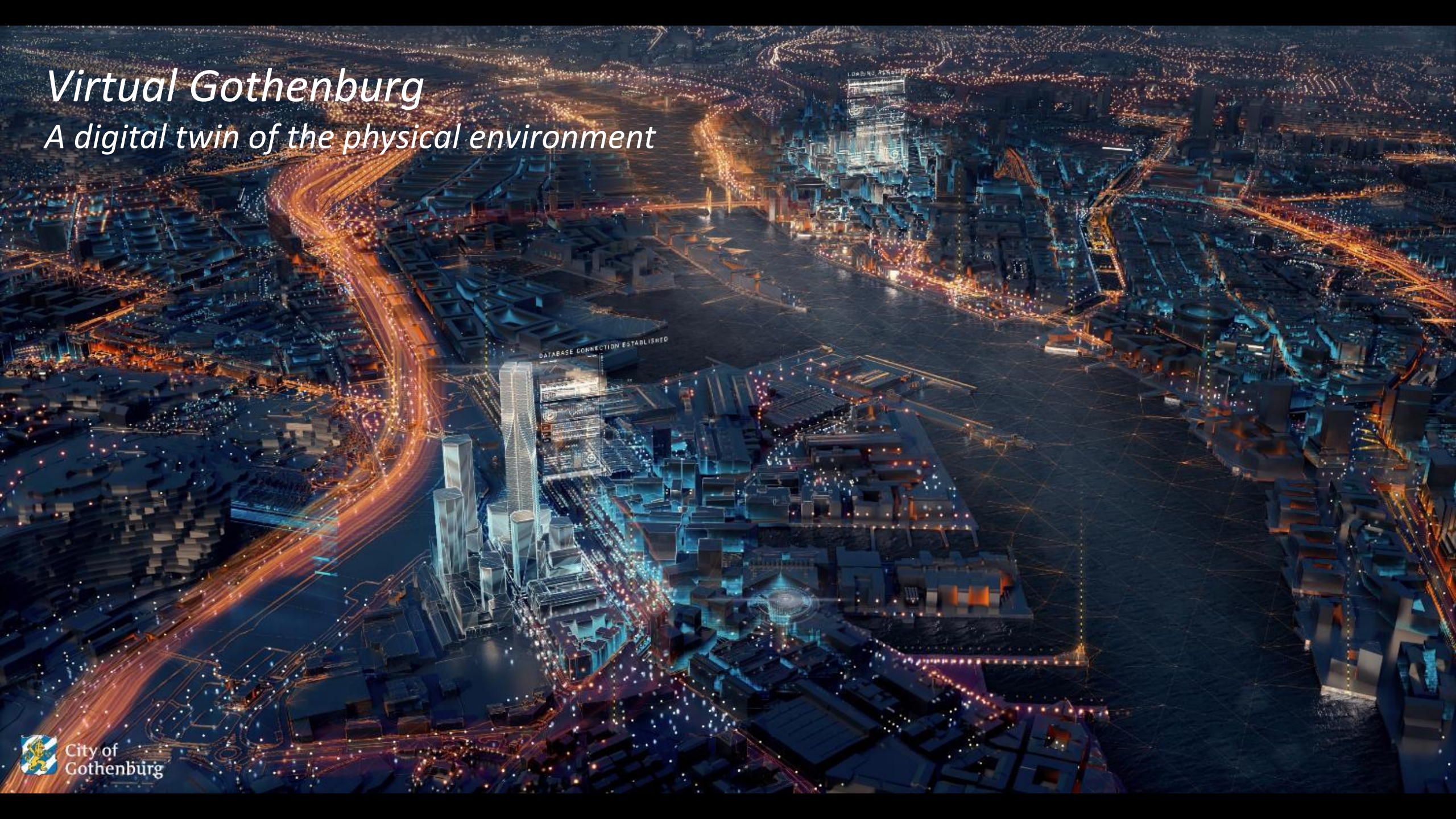


# Societal challenges



# *Virtual Gothenburg*

*A digital twin of the physical environment*



The goal of the project is to contribute to a smarter and more efficient **planning, control, management** and **experience** of the city. This is done by developing a digital twin, which enables modeling, analysis and visualization of the city's physical environment and the information linked to it

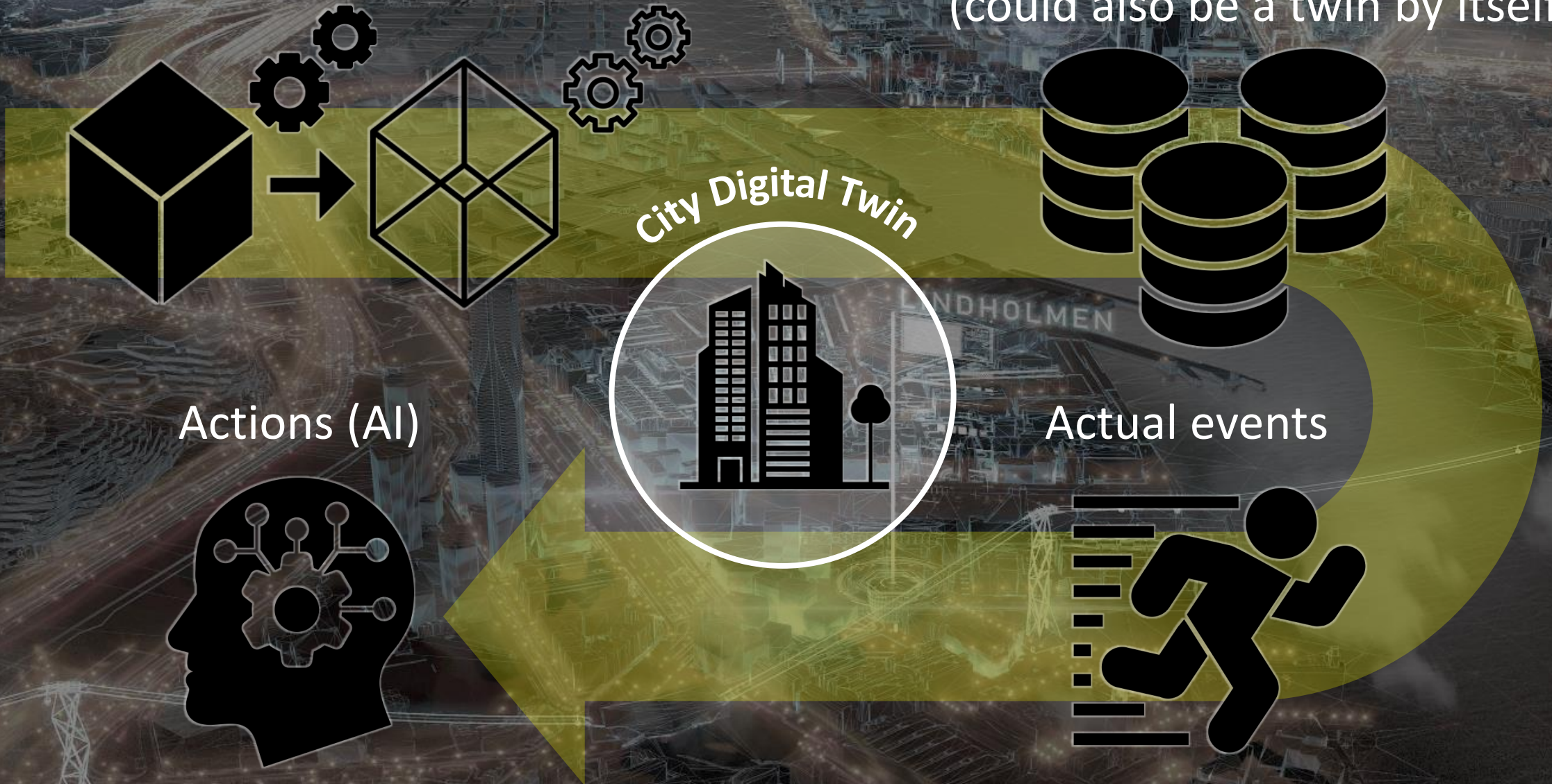
With the digital twin as a model, we can **understand** our challenges, create **consensus** on problems and solutions, and make the necessary **decisions** required for us to be able to build a sustainable and even better city

# Key benefits of a digital twin in a sustainable city



Visual (and/or functional) representation

Connected information  
(could also be a twin by itself)



800 km<sup>2</sup> digital twin



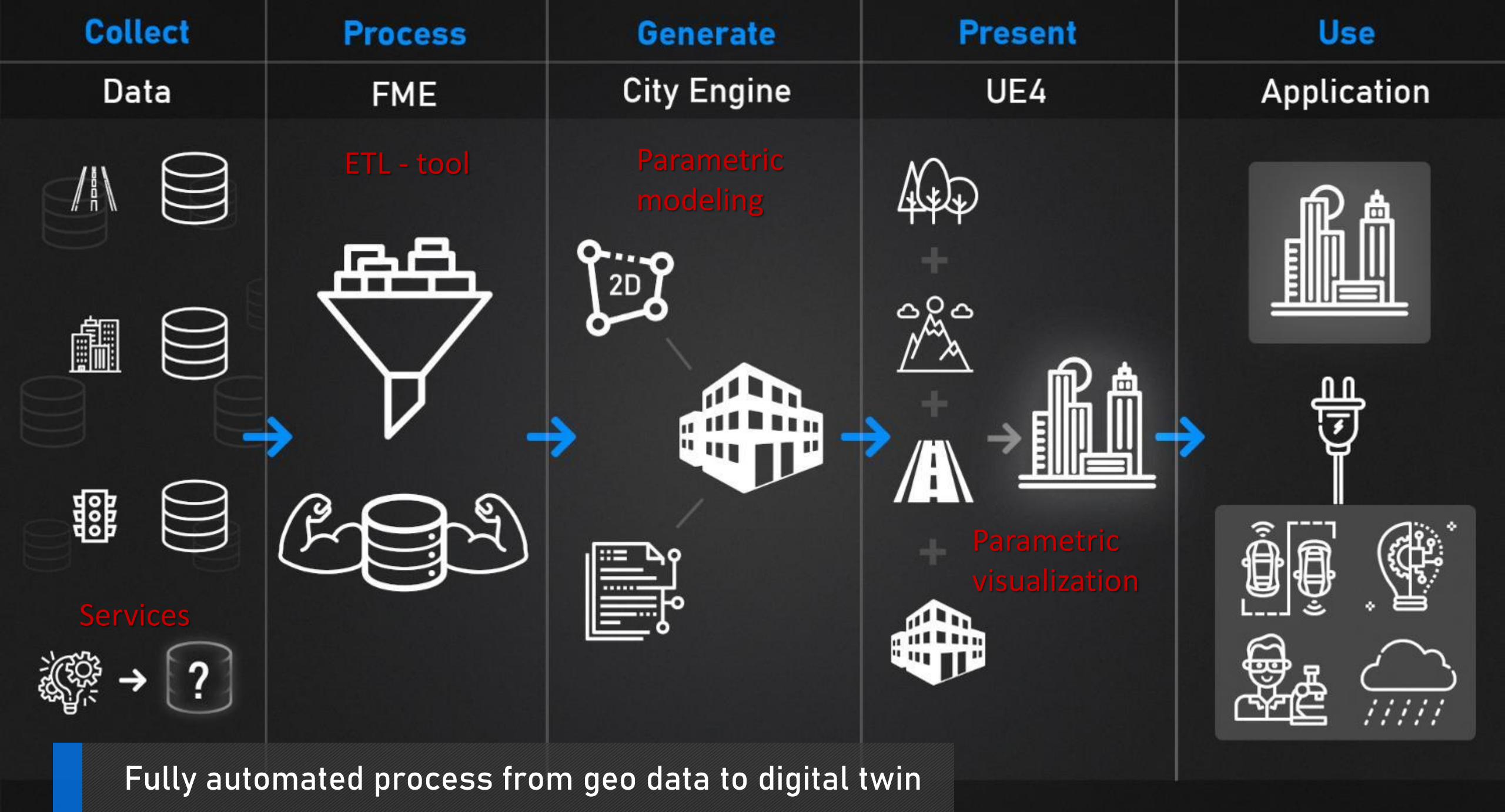
Semantic /  
Parametric



Photo  
realistic







## Collect

## Process

## Generate

## Present

## Use

Data

FME

City Engine

UE4

Application

ETL - tool

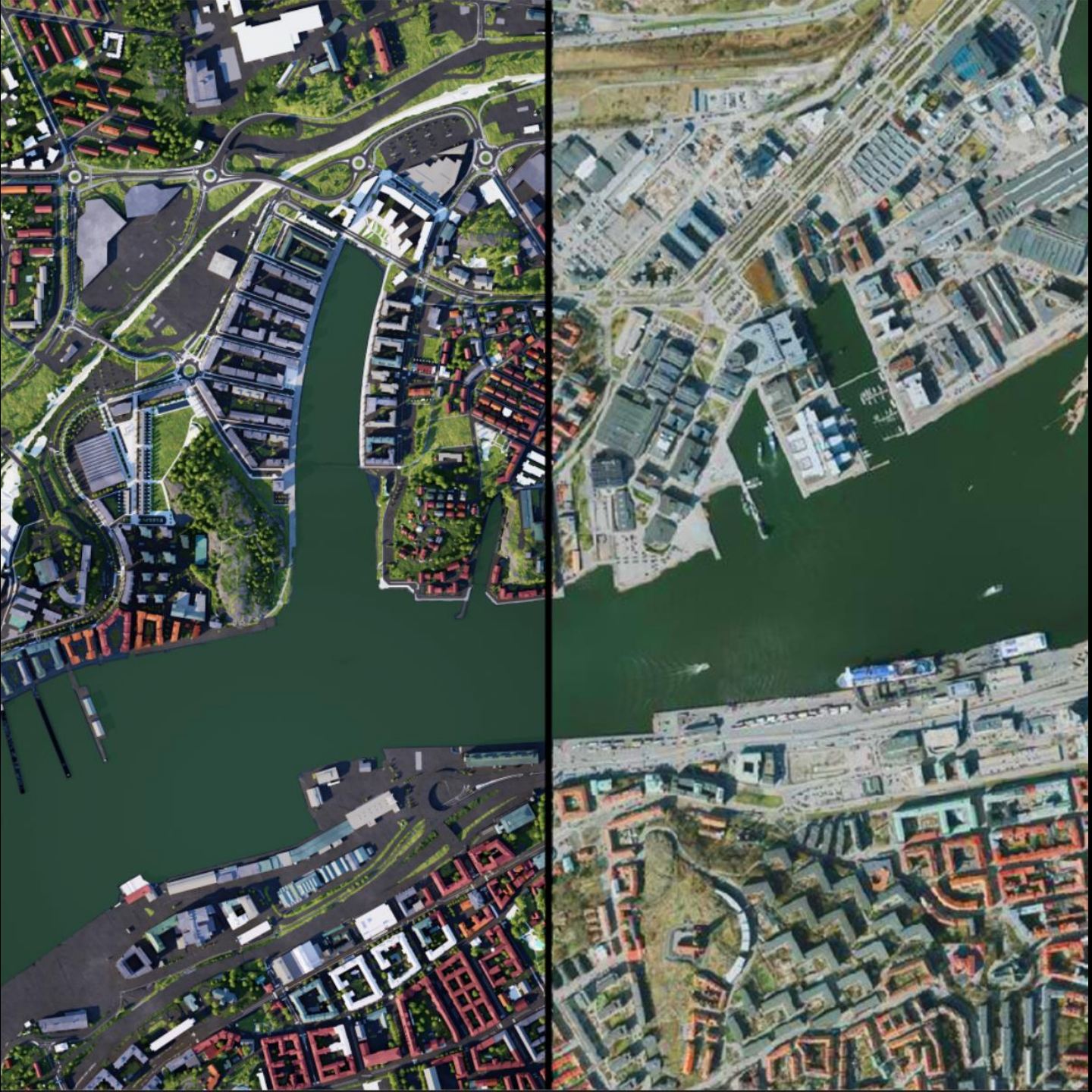
Parametric modeling

Parametric visualization

Services

Fully automated process from geo data to digital twin

Reality



Model





**World  
representation**



**Associated data**

# CIM – City Information Model

## Building

class

function

usage

\_geometry

## CityFurniture

class

function

usage

\_geometry

## VegetationObject

SolitaryVegetationObject

class

function

species

height

trunkDiameter

crownDiameter

\_geometry

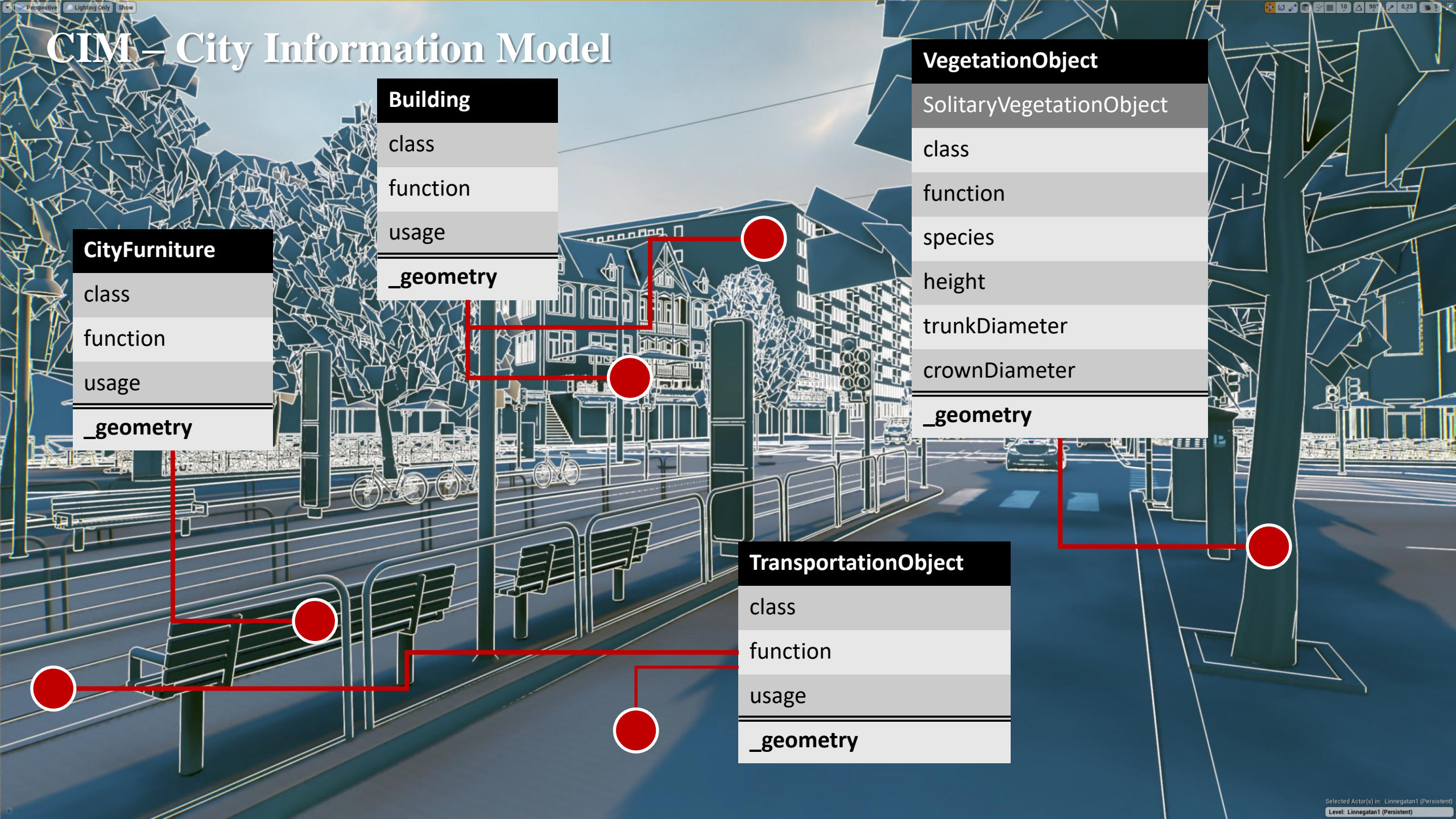
## TransportationObject

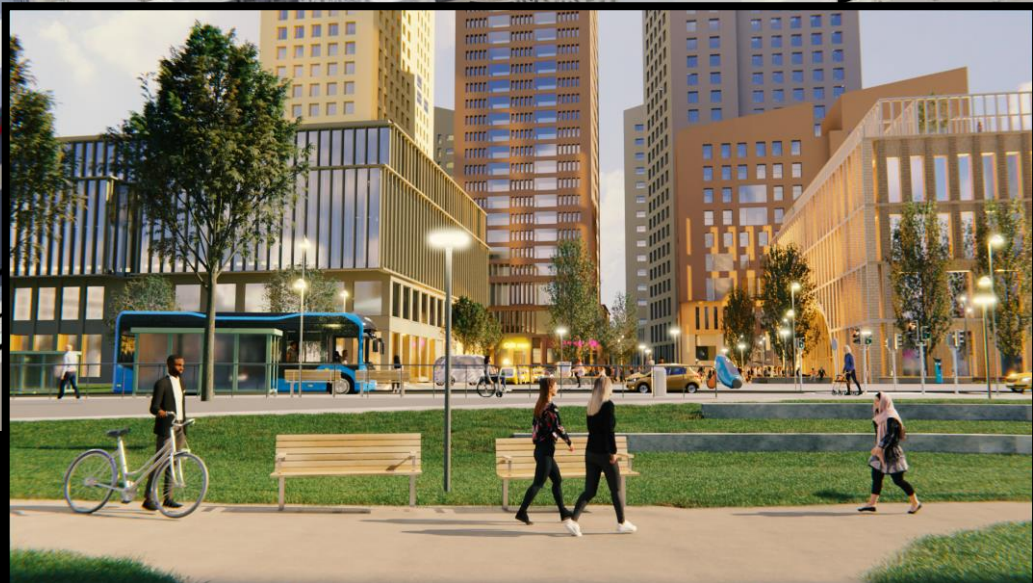
class

function

usage

\_geometry





Urban planning, Centralområdet

Climate change  
response and  
adaption modeled  
and visualized in a  
digital twin



## Ex. Flooding (100-Year Rainfall\*)



Making mistakes and testing scenarios in the digital version of the city can help us **predict** outcomes and build a more sustainable city.

\*100-Year Rainfall (one in a hundred years, very heavy rain, short time, delimited area)



# A virtual lab for development of autonomous vehicles



## SELECT CAMERA



Free Cam



First Person View



Car View



Camera



Scenarios

Day



Night

# Virtuality vs reality

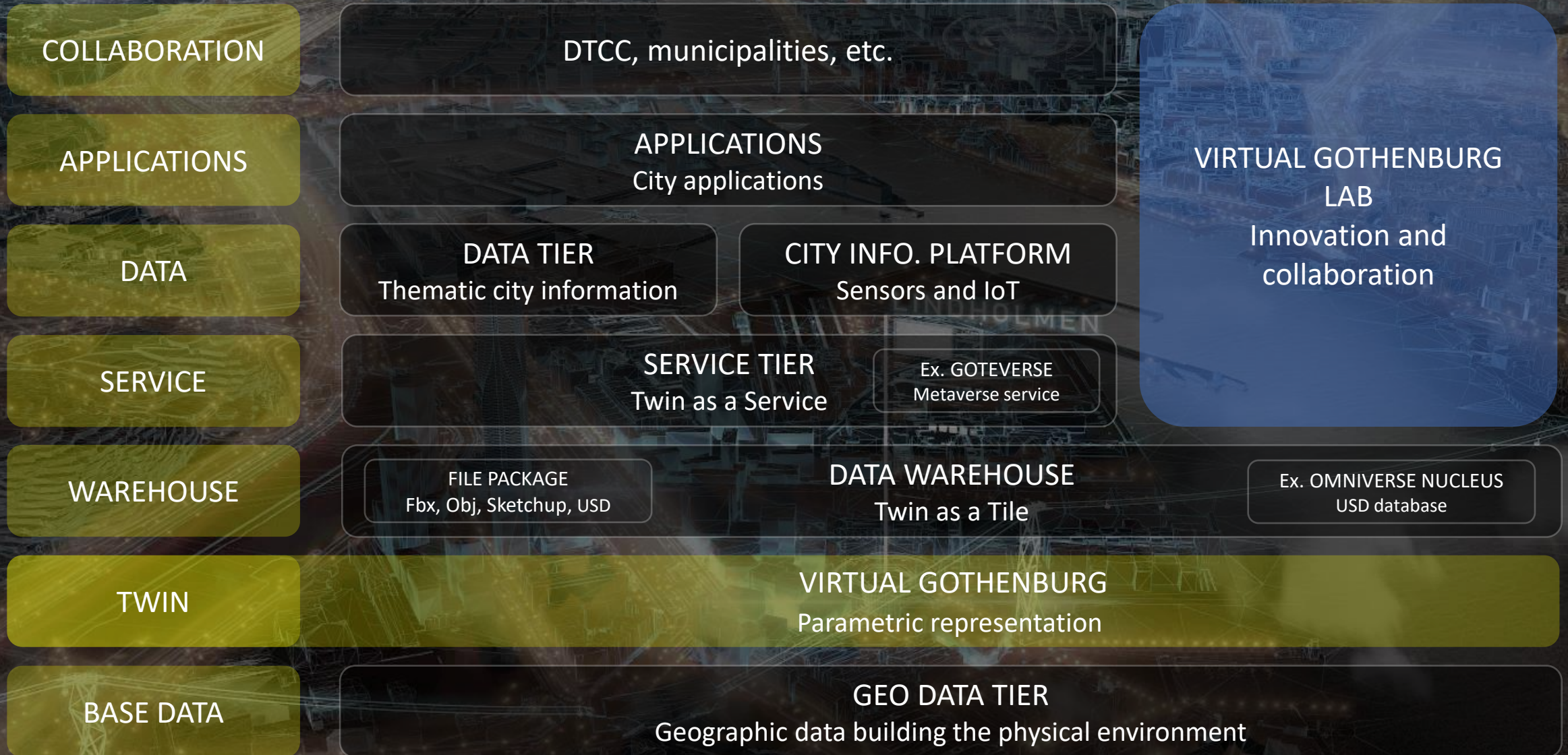


# Gbg&Co - GOTEVERSE

Virtual Gothenburg as a foundation for a versatile and universal metaverse



# Virtual Gothenburg - Concept Architecture



# CITY OF GOTHENBURG

ERIC JEANSSON  
GEO DATA STRATEGIST  
PROJECT MANAGER VIRTUAL GOTHENBURG

[eric.jeansson@stadsbyggnad.goteborg.se](mailto:eric.jeansson@stadsbyggnad.goteborg.se)  
[LINKEDIN.COM/IN/ERICJEANSSON](https://www.linkedin.com/in/ericjeansson)

