BIM as leverage towards Digital Asset Management today and the Digital Twin of tomorrow

Natasha Blommaert
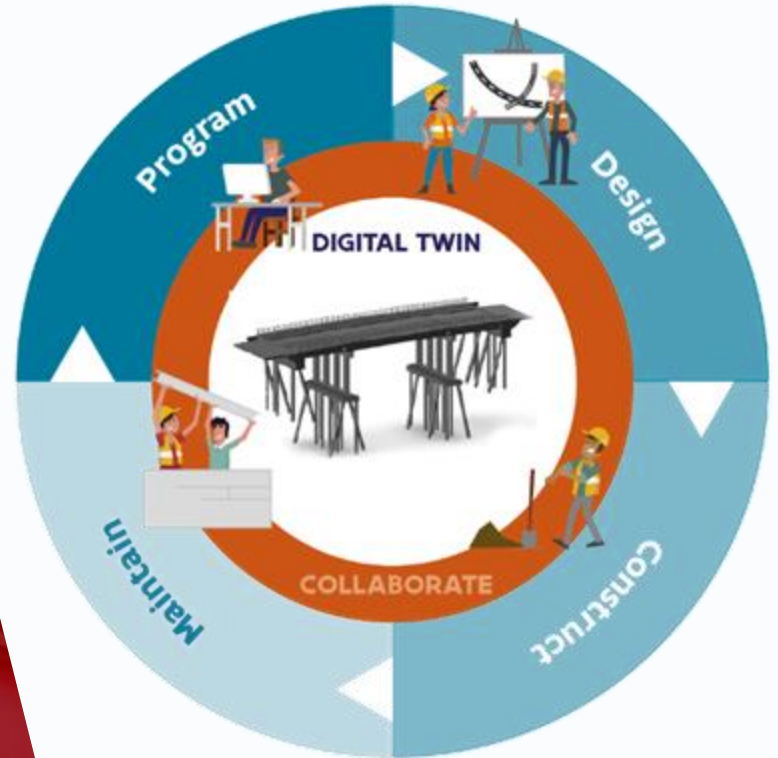
Agency for Road and Traffic, Belgium-Flanders
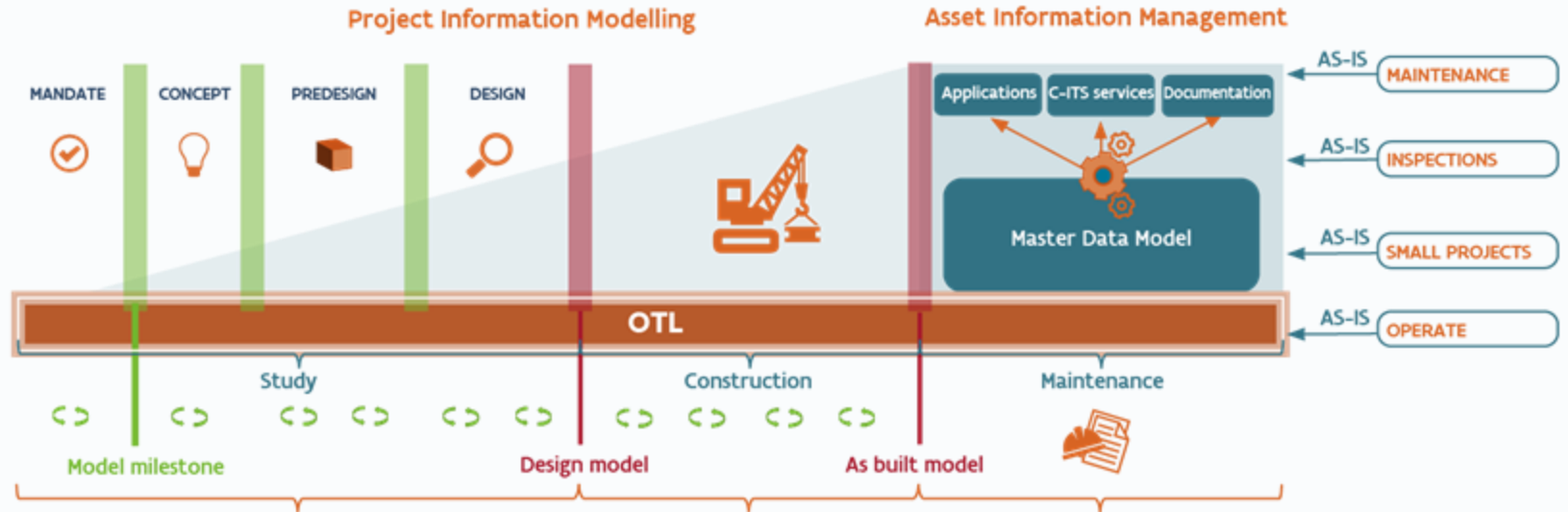
Life cycle asset management

BIM process towards AIM
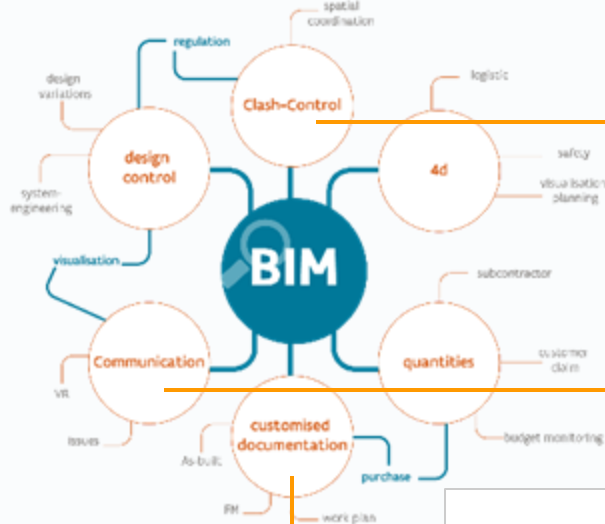

Project Information Modelling

Asset Information Management

| MANDATE | CONCEPT | PREDESIGN | DESIGN |

Applications | C-ITS services | Documentation

AS-IS → MAINTENANCE

AS-IS → INSPECTIONS

Master Data Model

AS-IS → SMALL PROJECTS

OTL

AS-IS → OPERATE

Study | Construction | Maintenance

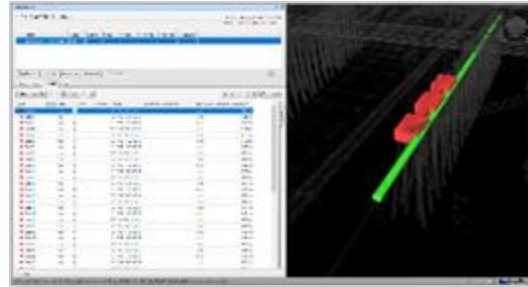Model milestone | Design model | As built model

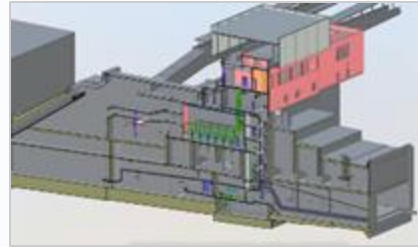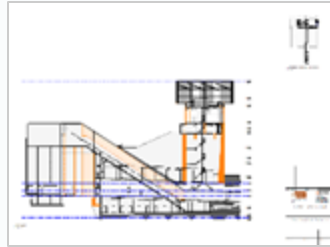Based on ISO 19650-1:2018

BIM modeling in projects

BIM in projects = higher project quality = Asset Information for the future

BIM Clash-control avoiding failure costs
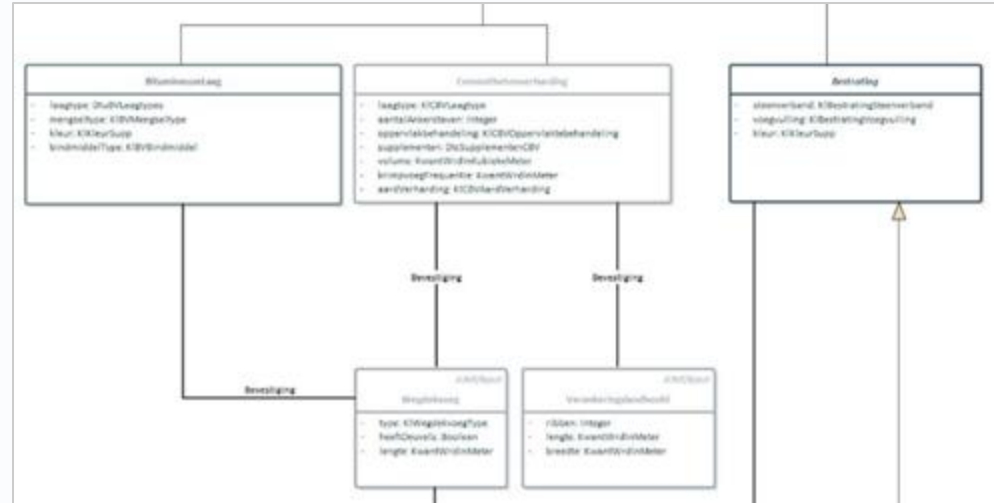
BIM informatie-extractie

BIM as communication tool

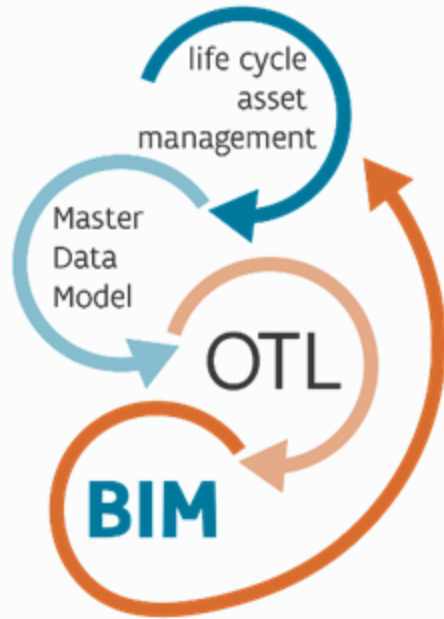Linking info and future images to location

OTL - Object Type Library

- Semantic data standard for BIM & AIM
- Facilitate data exchange
- Identify, define and standardize the information need for infrastructure assets
- Object types – Attributes - Relations
- Covering the whole life cycle

Wegenenverkeer.data.vlaanderen.be

Partial extract as an example

BIM management ~ Asset Informatie Management systeem

objects and relationships in AIM db

coordination model in ACC

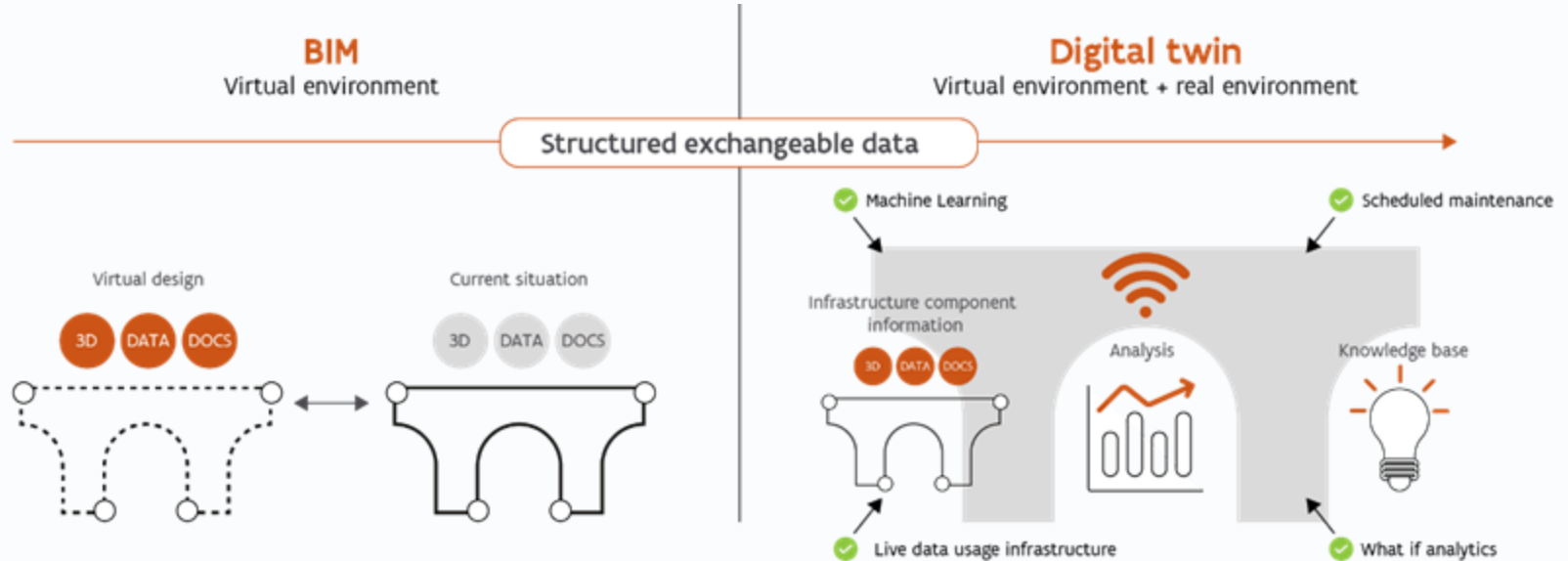# Migration of all asset data OTL compliant to the AIM system

objects and relationships in AIM db

coordination model in ACC

Digital Twin voor Digital Asset Management

Life Cycle Asset Informatie Management
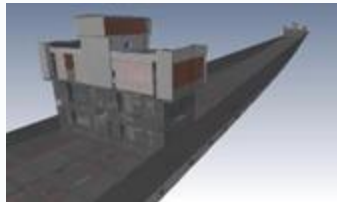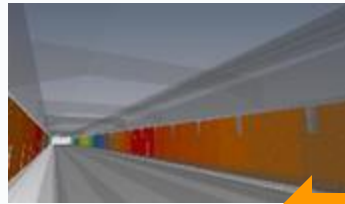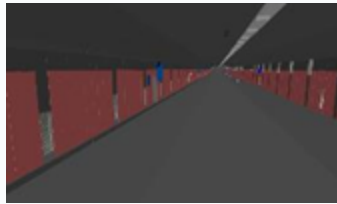
Digital Twin

Beverentunnel

BIM-model
Virtual environment
Static Digital Twin

Digital Twin
Virtual environment + real environment
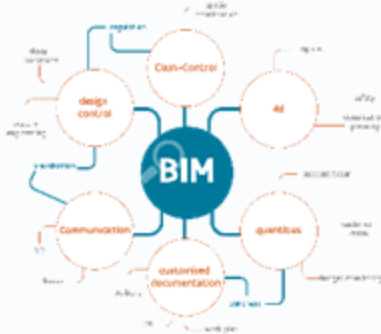Dynamic Digital Twin

Realtime Air quality sensor data

IRIS platform Traffic Center

- Every 15 minutes:
- Sight
- Temperature
- NO2
- CO
- Air quality gradient on wall panels of the tunnel via linear interpolation

Step-by-step evolution from BIM Modeling to a Digital Twin

BIM modeling in projects	BIM management / Asset Information Management	Life cycle Asset Information Management	Digital Twin

Include BIM in our investment projects

Collect BIM or OTL-compliant data from all assets

➤ All data in 1 Master db/model

Link all observations, maintenance actions, alarms, remote monitoring systems, … to the assets
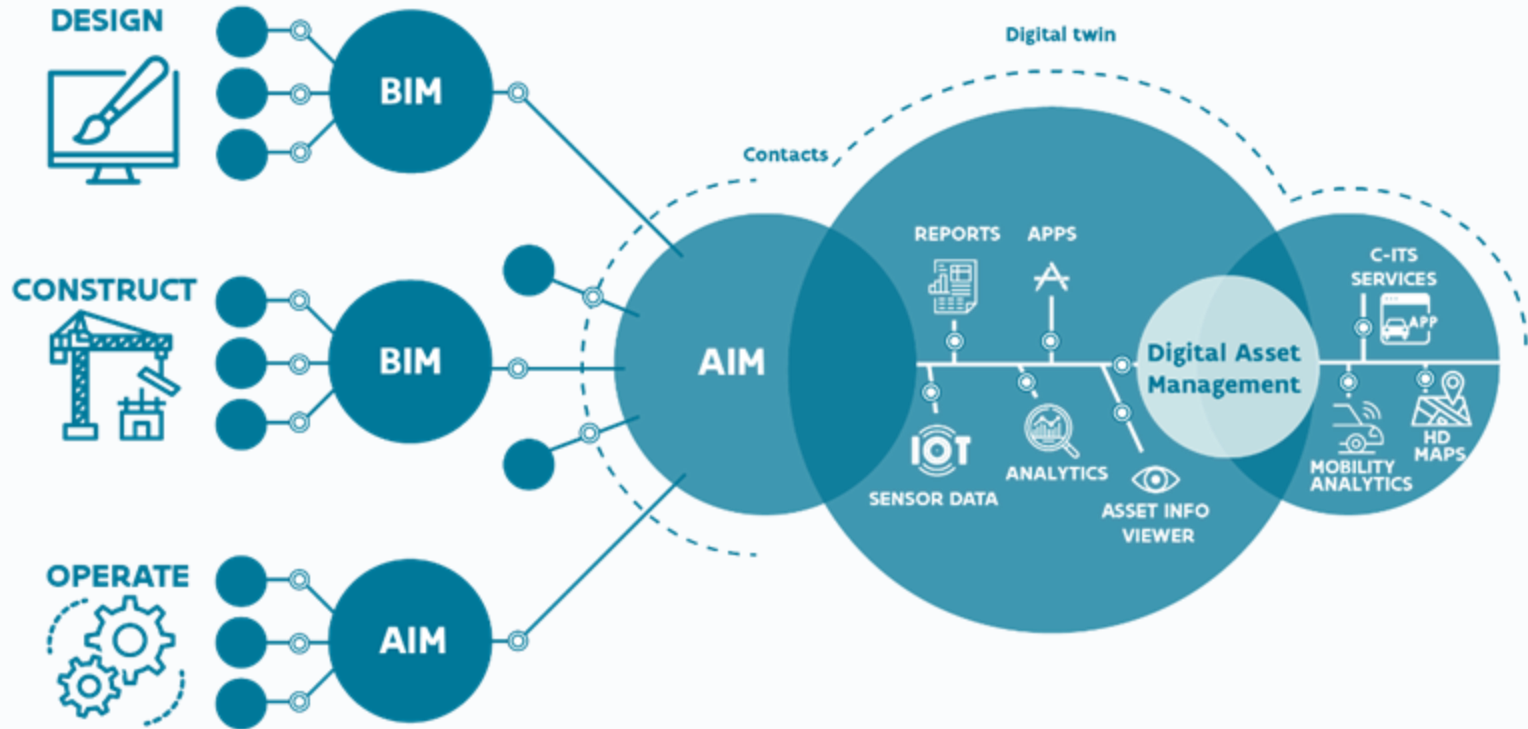
➤ Preventive maintenance nudging

Digital twin for AM decision making and as a policy support tool

➤ Predictive maintenance predictions
➤ C-ITS services
➤ CCAM

Vision

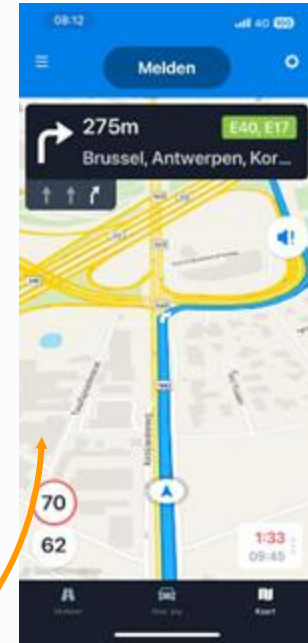# From BIM and AIM data to C-ITS services and the support of CCAM

BIM-model

C-ITS services

Digital Twin AIM

> "BIM as leverage towards Digital Asset Management today and the Digital Twin of tomorrow"

Natasha Blommaert
Advisor Portfolio Management Innovation & Data

Tel: +32497947710

Email: natasha.blommaert@mow.vlaanderen.be

Website: wegenenverkeer.be/zakelijk/bim

twitter.com/wegenenverkeer

facebook.com/wegenenverkeer

linkedin.com/company/agentschap-wegen-en-verkeer/

PIARC