



# **BIM & DigitalTwin interlock**

## ***What can be done & what should be done***

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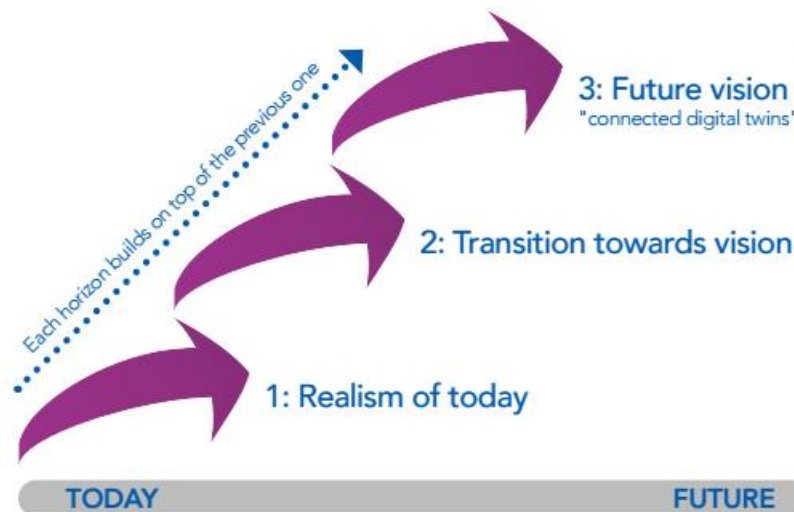
# DTw – Perspectives

## Enabling an Ecosystem of Digital Twins – An Update



There needs to be an ecosystem of digital twins where multiple twins will coexist and align through open data to be truly valuable

### Three horizons model



It is clear that digital twins will play a crucial role in the not-too-distant future in helping shape our industry, and they will rely on industry standards to ensure data flow is possible

Keywords:  
**AI**  
**machine learning**  
**IoT**  
**robotics**  
**metaverse**  
**digital twins**

Keywords:  
**business value**  
**business models**  
**use cases**  
**commercial benefits**

Keywords:  
**ecosystem**  
**APIs**  
**data exchange**  
**interoperability**  
**standards**  
**security**  
**privacy**  
**ownership**



# DTw – Scope(s)

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## DTw Scope(s)

A DTW (**digital object**) is a digital model (or a set of digital models) representing an asset (**physical object**) and its operation.

It allows for its **monitoring** (real time sensors) and is **operation** (control-command).

Its value-add is to optimize the **nominal capacity availability** (predictive operation) and **enlength** the asset's lifecycle.





# DTw – Scope(s)

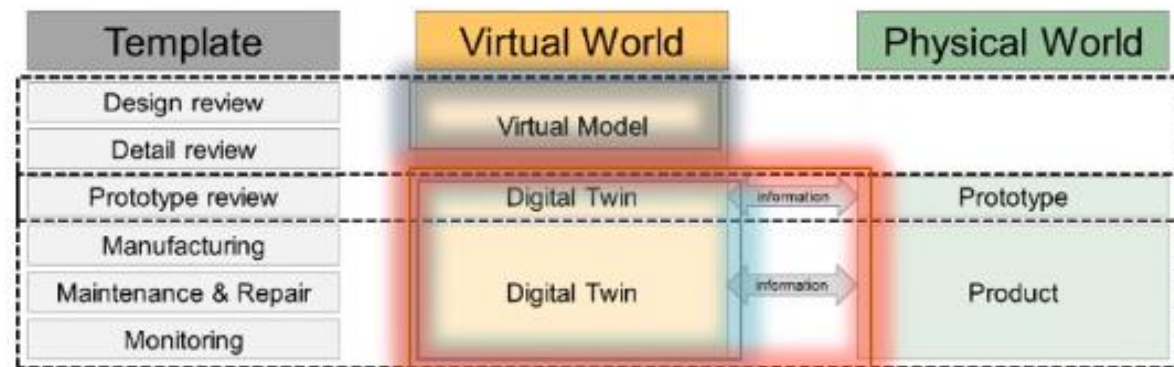
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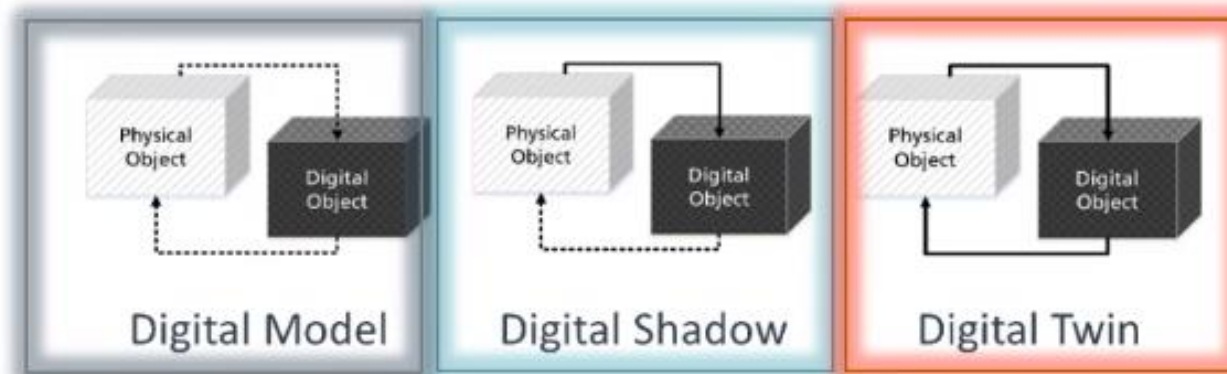
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### Digital Model, Shadow ou Twin ?



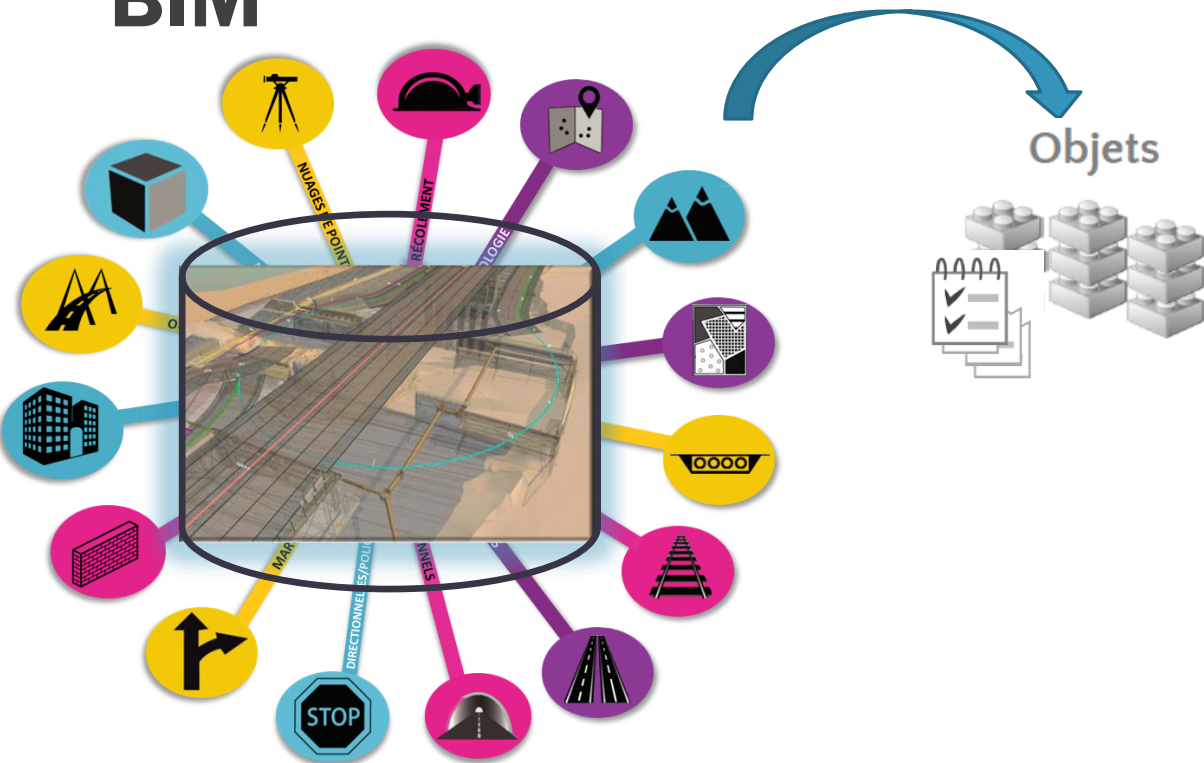
-----> Manual Data Flow  
 —————> Automatic Data Flow



# BiM & DTw – Concepts & articulation

## BIM

## BIM As-designed



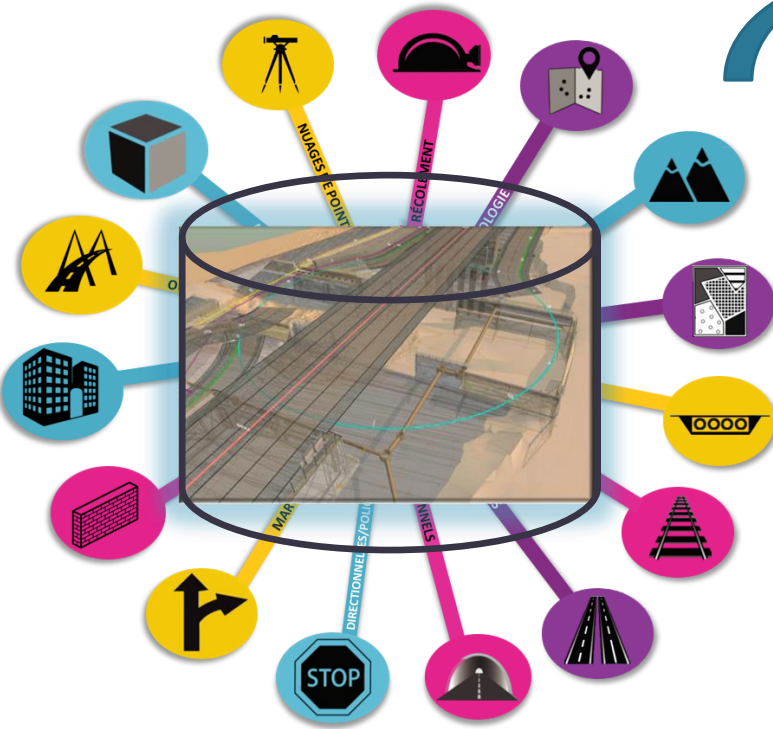


# BiM & DTw – Concepts & articulation

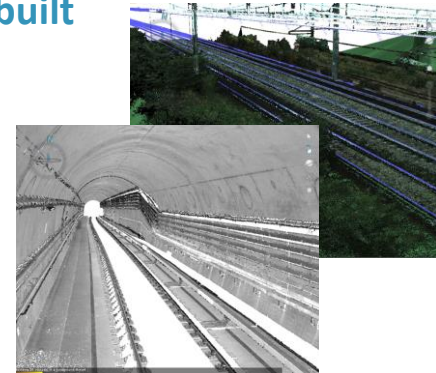
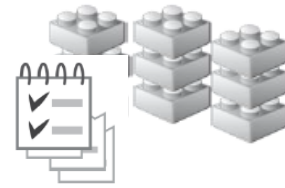
**BIM**

BIM As-designed

BIM As-built

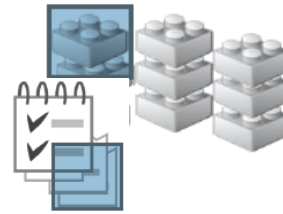


Objets



**As-built assets**

Objets



# BiM & DTw – Concepts & articulation

**BIM**

BIM As-designed

BIM As-built

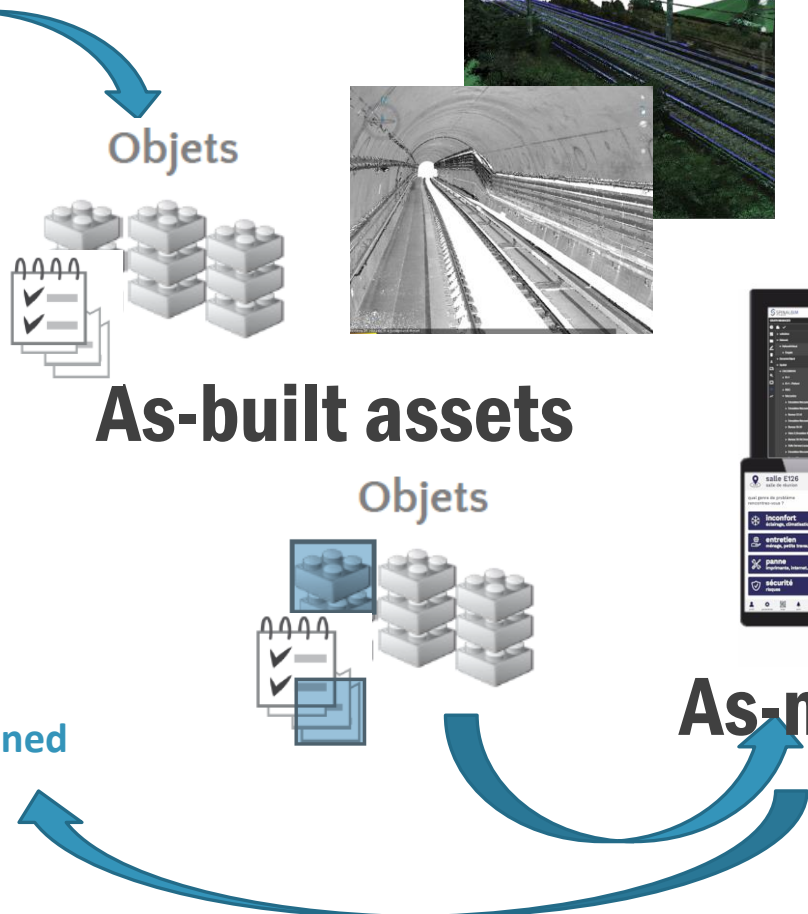
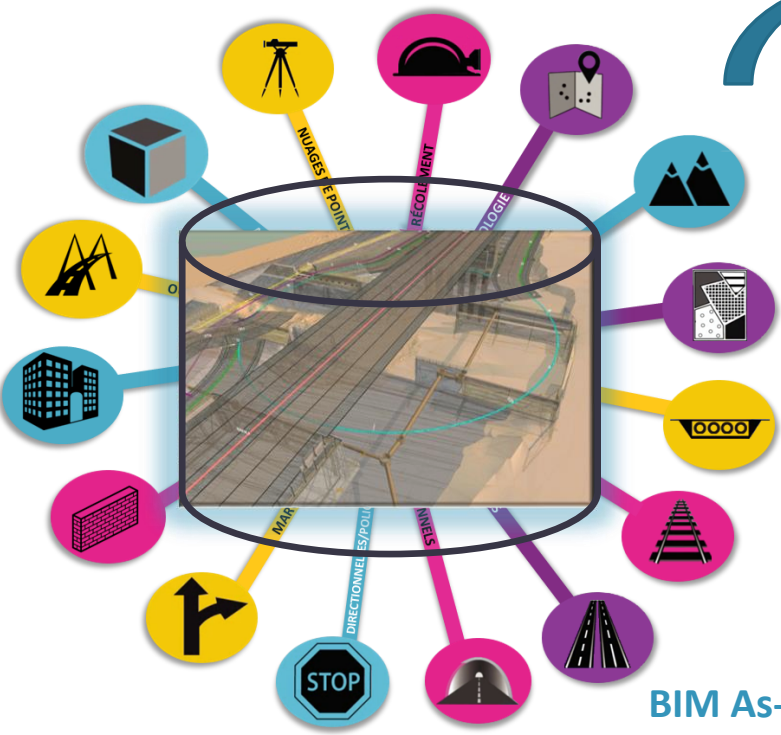
BIM As-maintained

Objets

**As-built assets**

Objets

**As-managed assets**



# BiM & DTw – Concepts & articulation

**BIM**

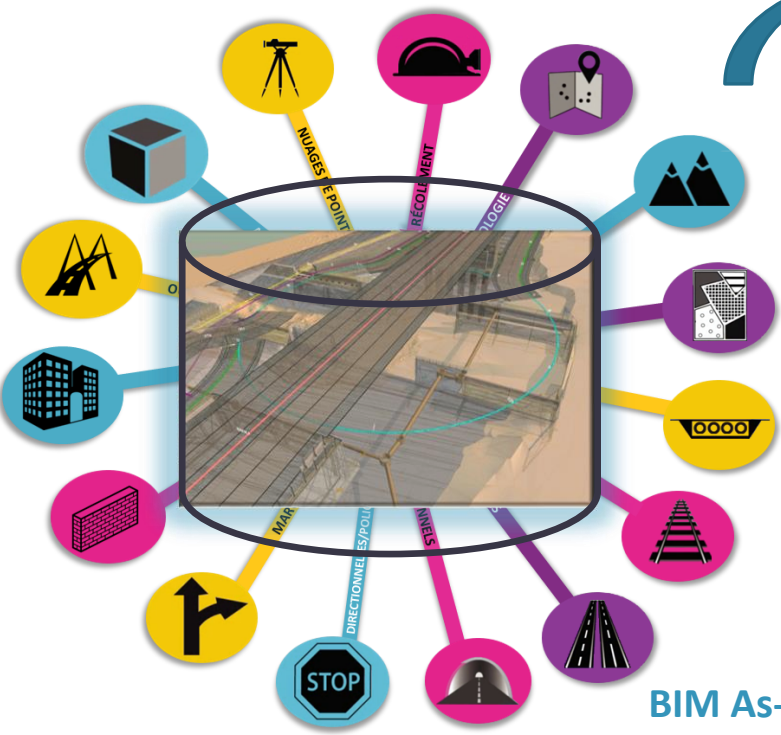
BIM As-designed

BIM As-built

**DTw**

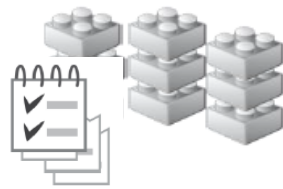
Assets monitoring

Assets operation



BIM As-maintained

Objets



**As-built assets**

Objets



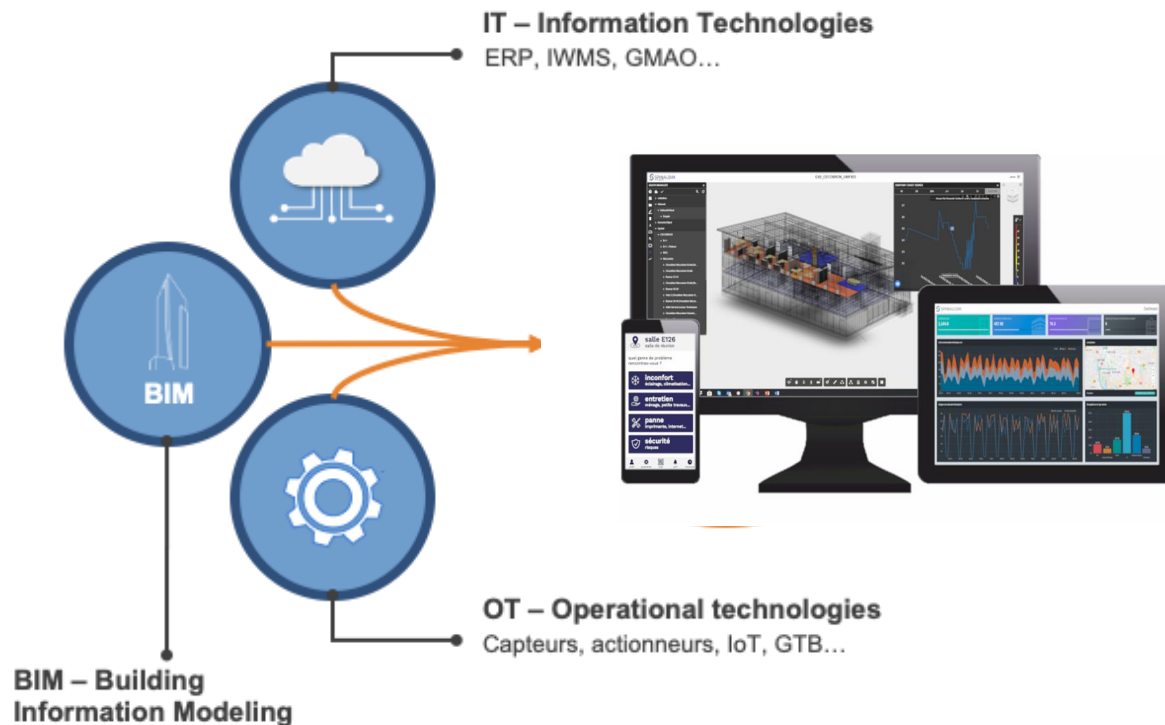
**As-managed assets**





# DTw – Technical principles

## DTw Principles



## DTw Built asset

*SpinalCom technologies*

[www.spinalcom.com](http://www.spinalcom.com)

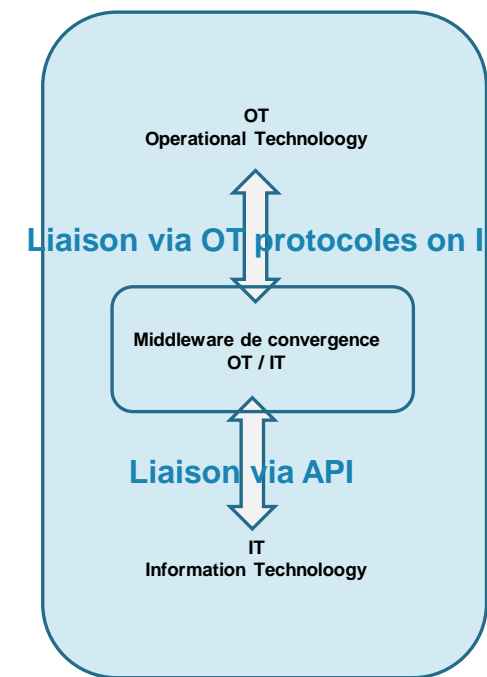
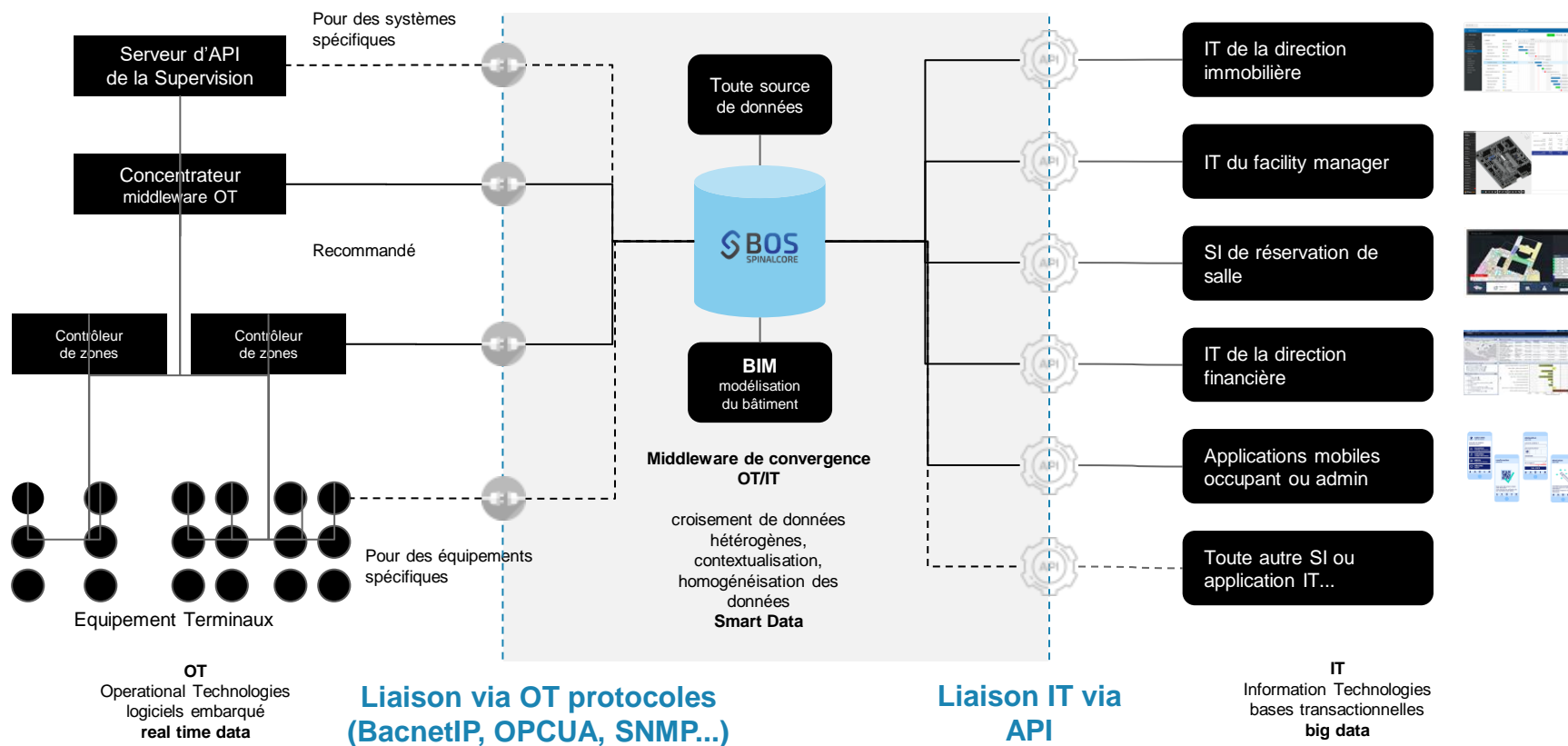
*Real-time, semantic datahub that allows for aggregating, structuring and delivering all the information related to an asset and its operation (multi-systems).*





# DTw – Implementation

## DTw Technologies





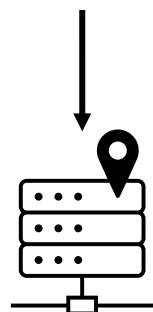
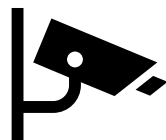
# DTw – Usages: *eg, safety*

## DTw components

## DTw *Transportation*

Transoft Cloud  
Computation Platform

Traffic  
Cameras



Transoft Network

Traffic Management  
Center



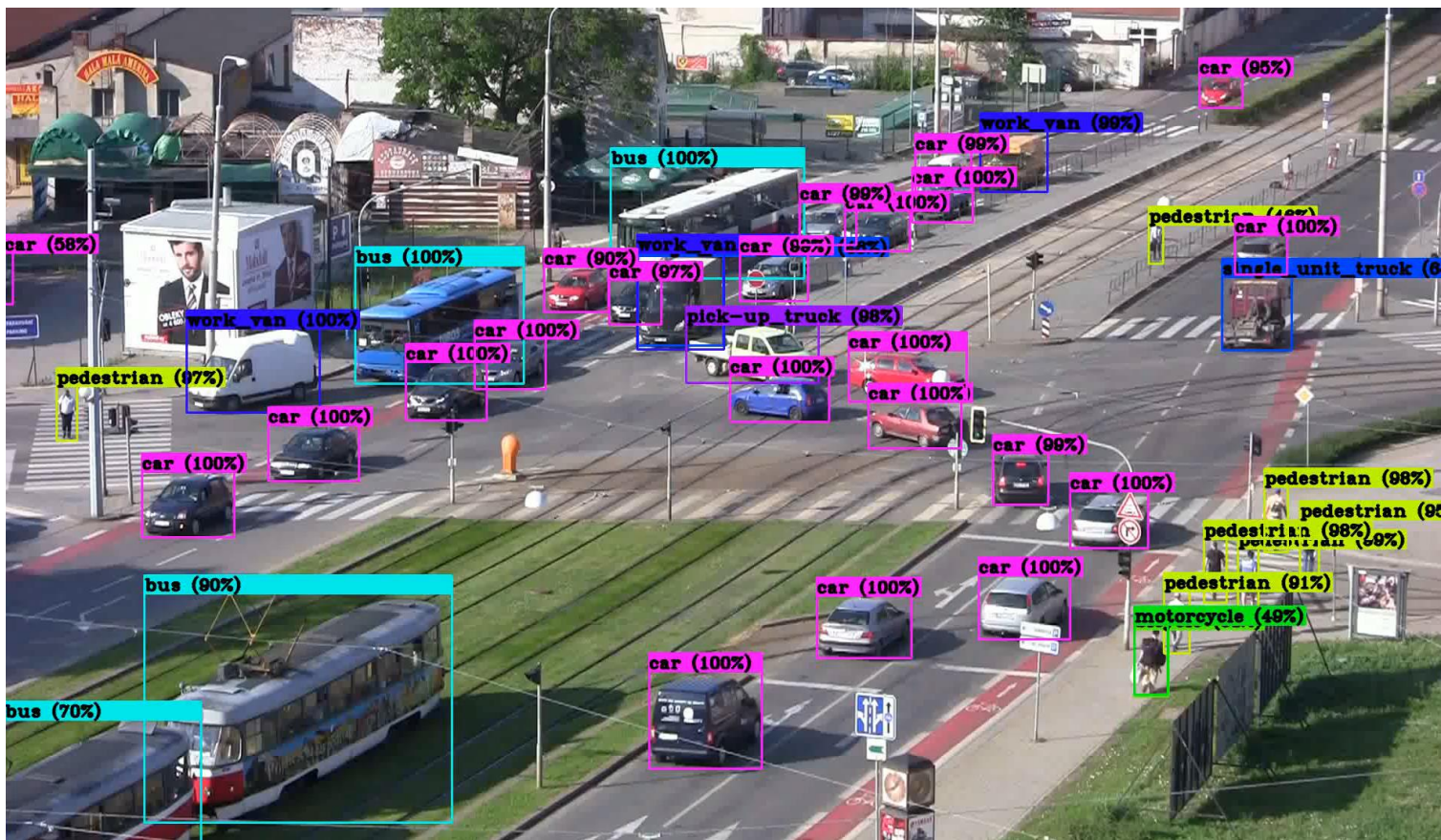
*Transoft Solutions technologies*

[www.transoftsolutions.com](http://www.transoftsolutions.com)

*Real-time monitoring of multi-modal  
transportation for safety  
optimization decision making  
(Before/After)*



# DTW - AI for traffic safety



*TrafxSAFE – AI for traffic safety:*

*Real time reporting on*

- Traffic volume
- Queue length
- Road user speed
- Speed violations
- Crash prediction with collision pre-cursors (near miss incidents)
- Overall collision risk





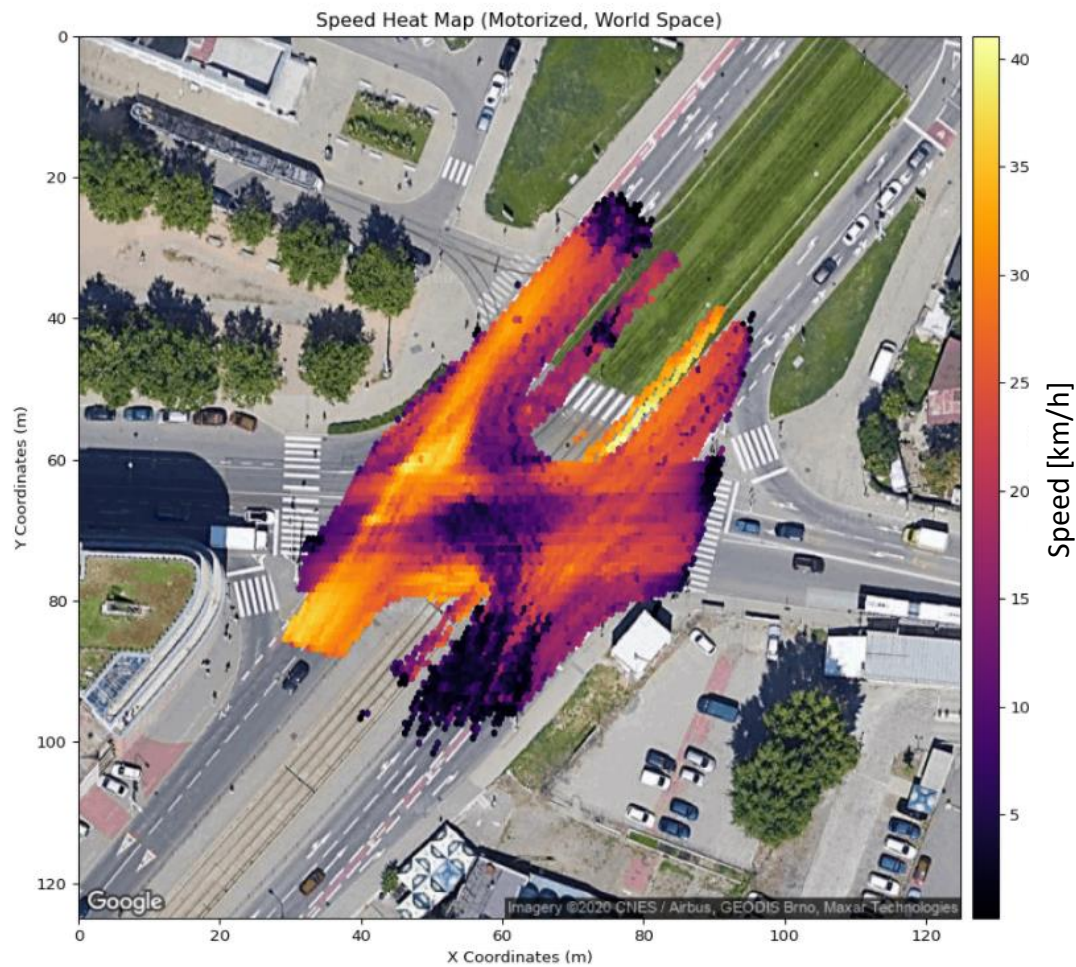


# DTw - AI for traffic safety

Conflict Heatmap (Average indicator value, World Space)



Speed Heatmap (Motorized, World Space)

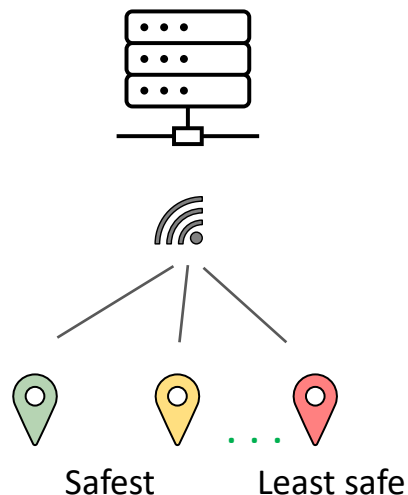






# DTw - AI for traffic safety

Traffic Management  
Center



Connected sites, ranked by collision risk, collecting real-time data

Proactive approach for road safety.  
Preventing collisions before they happen, performing what-if scenarios in the Digital Twin and trigger actions.





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