



HEXAGON

Accelerating Digital Twin's by automation

Dr. Uwe Jasnoch
Director EMEA Government & Transportation



**Urban digital
twins will
change the
way cities plan
and operate
their future**

A digital twin is more than a simple “picture” of the reality

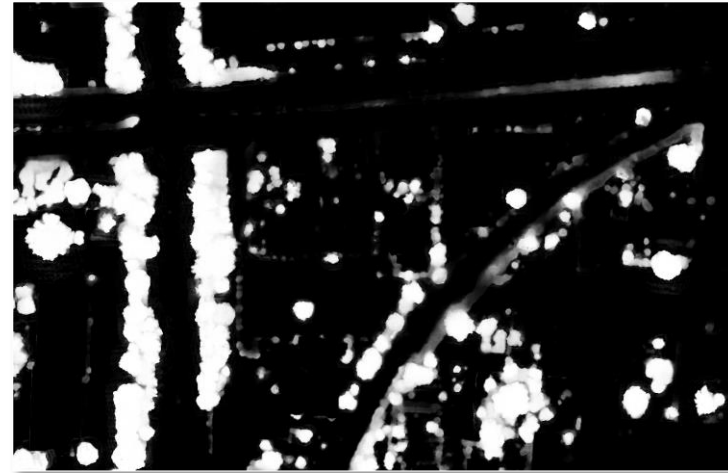
Creating and maintaining a Digital Twin actual demands a high degree of automatization



One key concept: AI-based semantic evaluation



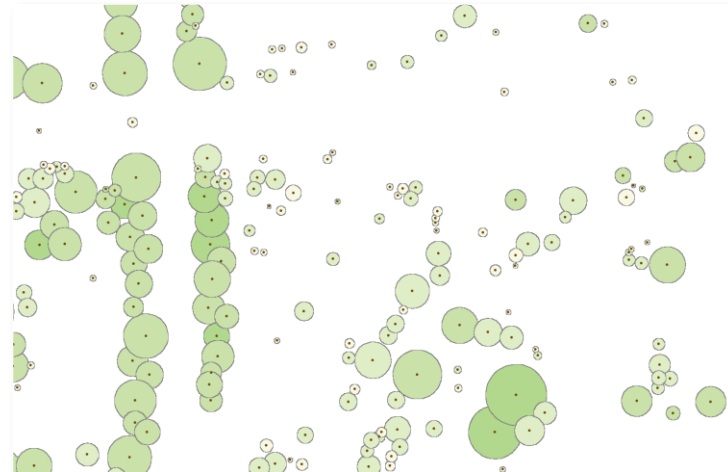
Orthophoto



Probability map



Land cover



Vector objects



Utilizing AI detected semantics in a digital twin

- Automatic Creation of multiple “data” products
 - Super Mesh
 - LOD 2 City Modell
 - Tree Cadaster
 - Infrastructure Detection
- Derived solutions e.g.
 - Green / grey space per parcel
 - Fine grain DSM for heavy rain analytics
 - Protecting critical infrastructure in strong storms events





The
digital twin
is the key
concept to
improve future
rail operations

Utilizing objects in a digital twin

- Fusing different point clouds
 - From rail
 - From road
 - From UAV
- Measure in point clouds
- Incorporation of objects automatically detected in the point cloud
- Link them to the digital asset management
- Process optimization: asset management update & validation



Federated Digital Twin for Public Ground Transportation

- Fusing data
 - from an urban digital twin (airborne acquired by Hexagon Content)
 - with asset and infrastructure information from public ground transportation provider (Verkehrsgesellschaft Frankfurt)
- Creating new insights for 3D spatial dependencies
- Including BIM information for new infrastructure planning
- Providing a better context when working in challenging environments e.g. the overhead electricity lines for trams





**A digital twin
generates new
insights and
breaking up
silos**

A digital Twin
is a journey
based on
teamwork



What is your plan?