

Transformation of infrastructure documentation

Digital Underground CH, 6. Sept. 2022, ETHZ
Markus Schenardi

The **Laixoversum** is the home of the digital twin

Laixo supports the planning and maintenance of the (public) infrastructure. We create a digital twin and provide the tools to maintain it.



Transformation

Immersive changes in building processes require a transformation in the way of infrastructure documentation!



Documentation 2022

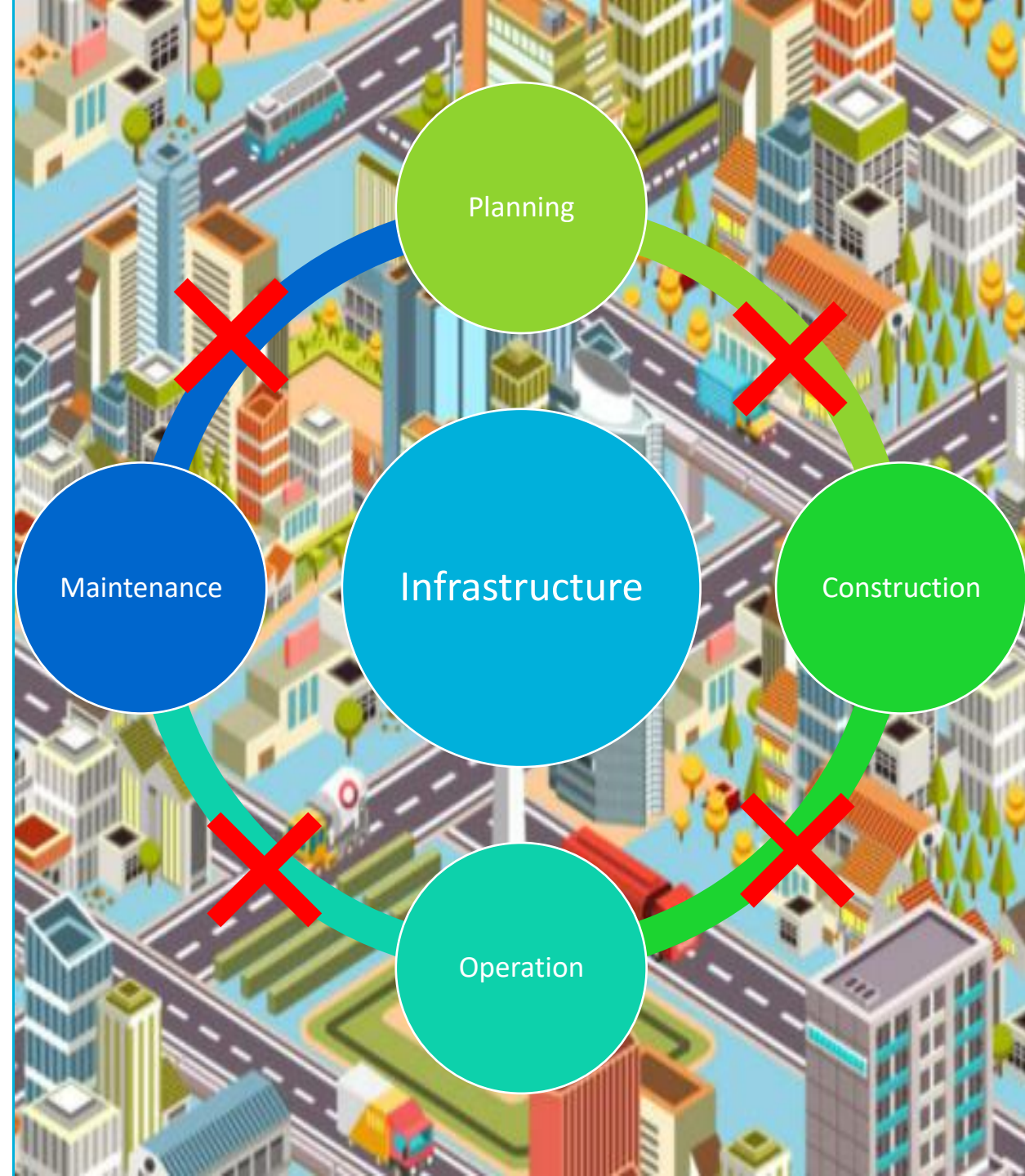
2D GIS as infrastructure **map**

Source of documentation:
Classical surveying data, sketches,
as-built maps

Maintained per asset owner

Documentation 2022

- Decentralized
- Time shifted
- Detached systems
- (Almost) never up to date



Transformation



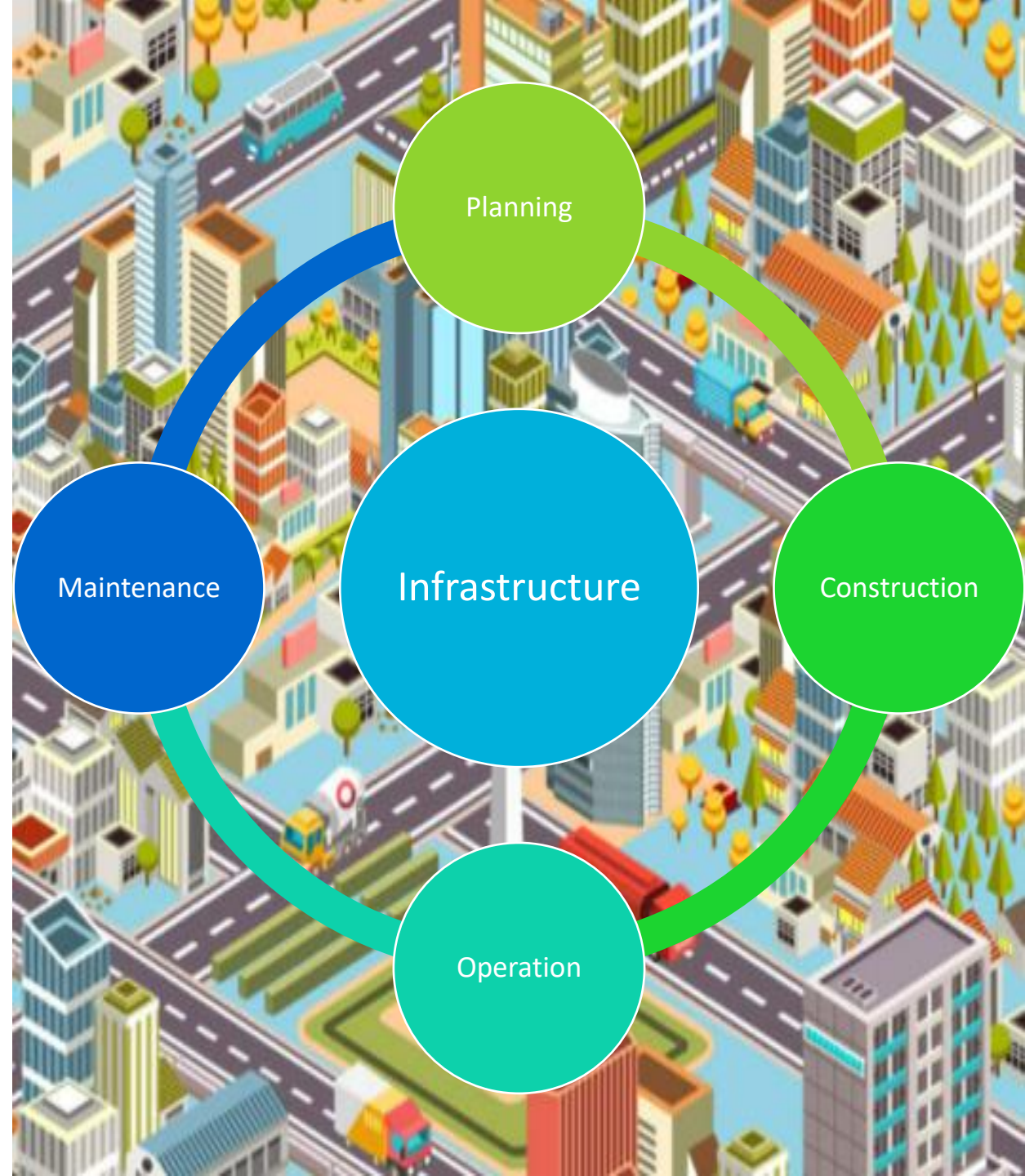
Expected Changes

- Digitization of construction (BIM)
- Explosion of information
 - Much more data
 - Lots of details
 - Objects / Models
 - 3D
- xR-Applications

DIGITAL TWIN

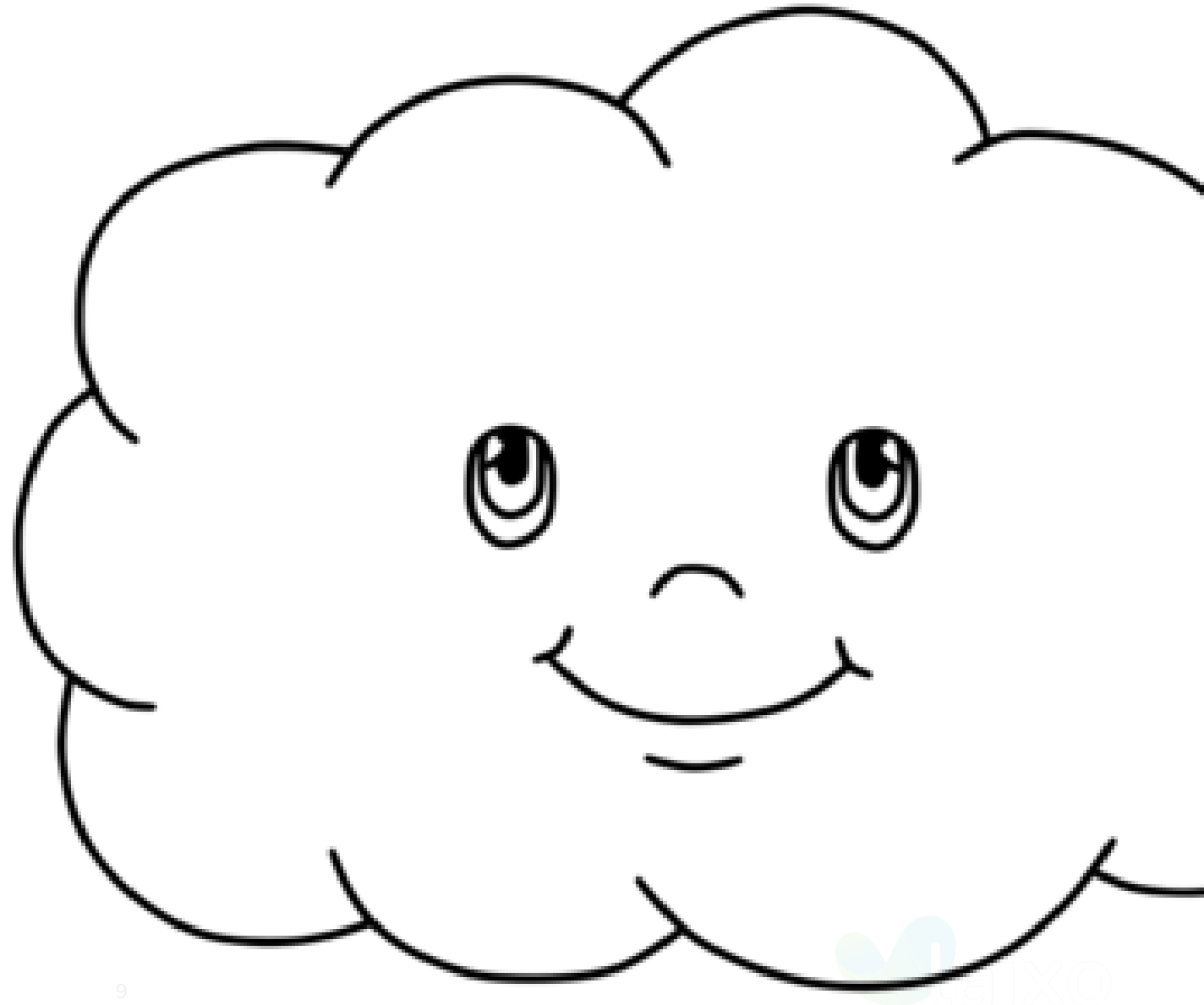
Lifecycle Management

- Challenges:
 - Re-usable information with all details
 - Documentation of any changes in all phases (asset management)
 - Longtime storage



Centralized data management

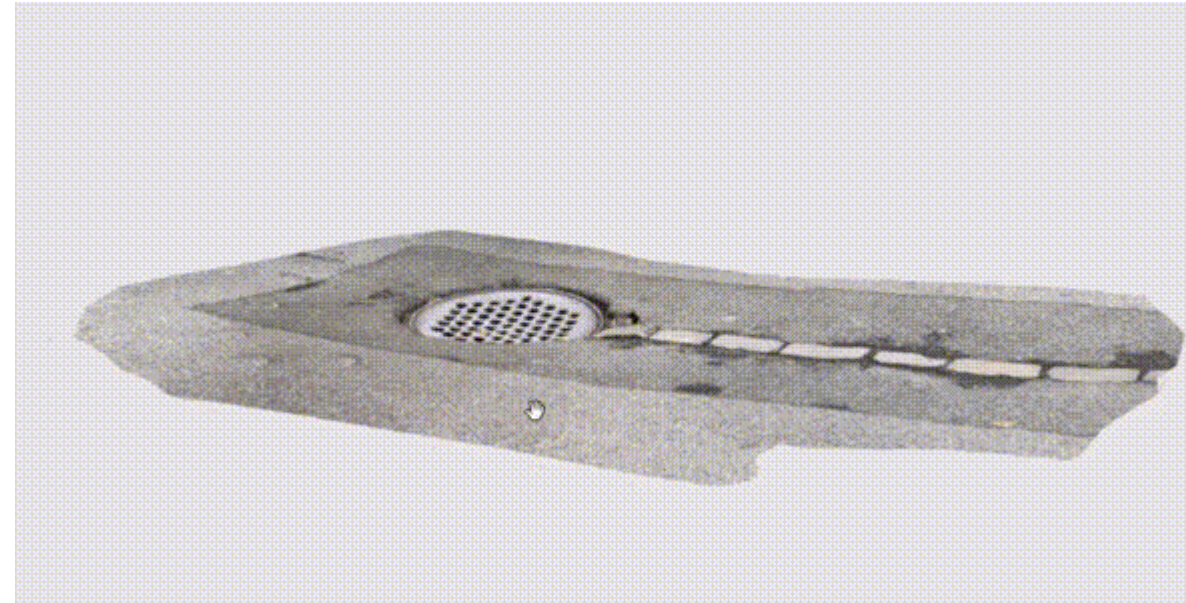
- One source of truth
- All level of details
- Always up to date
- Quality assured



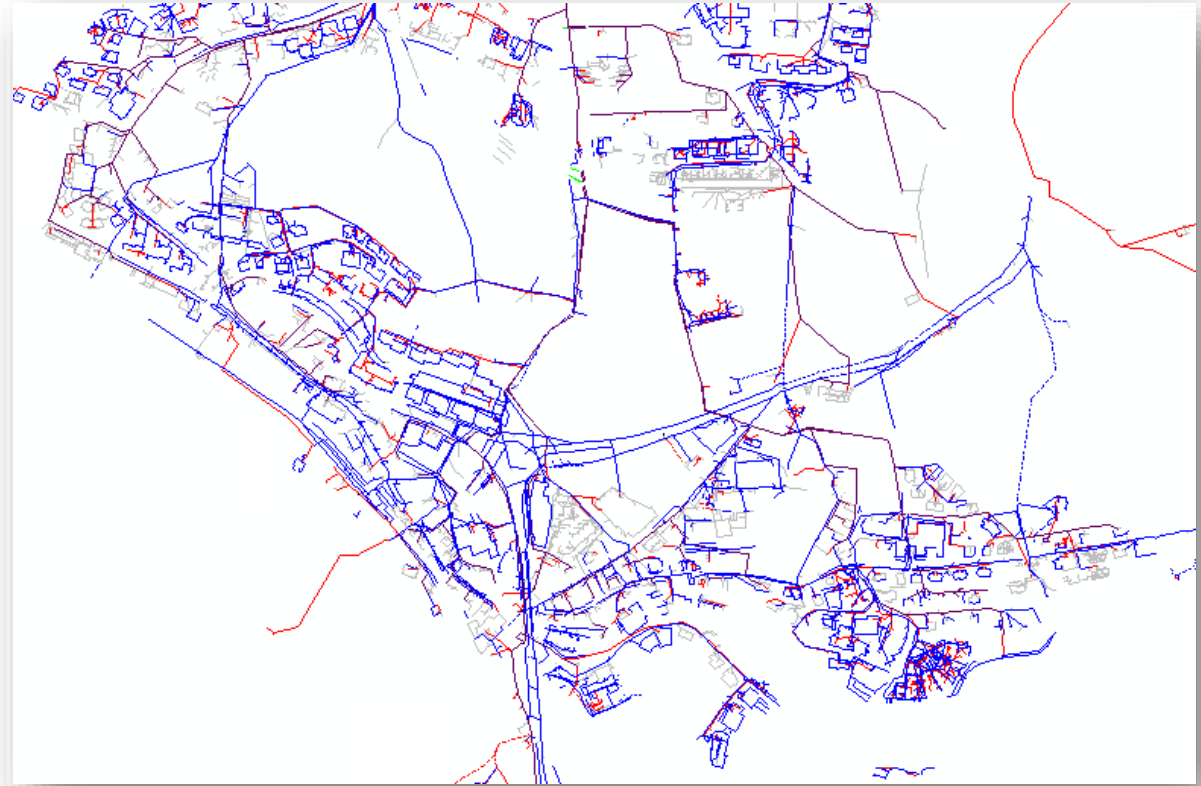
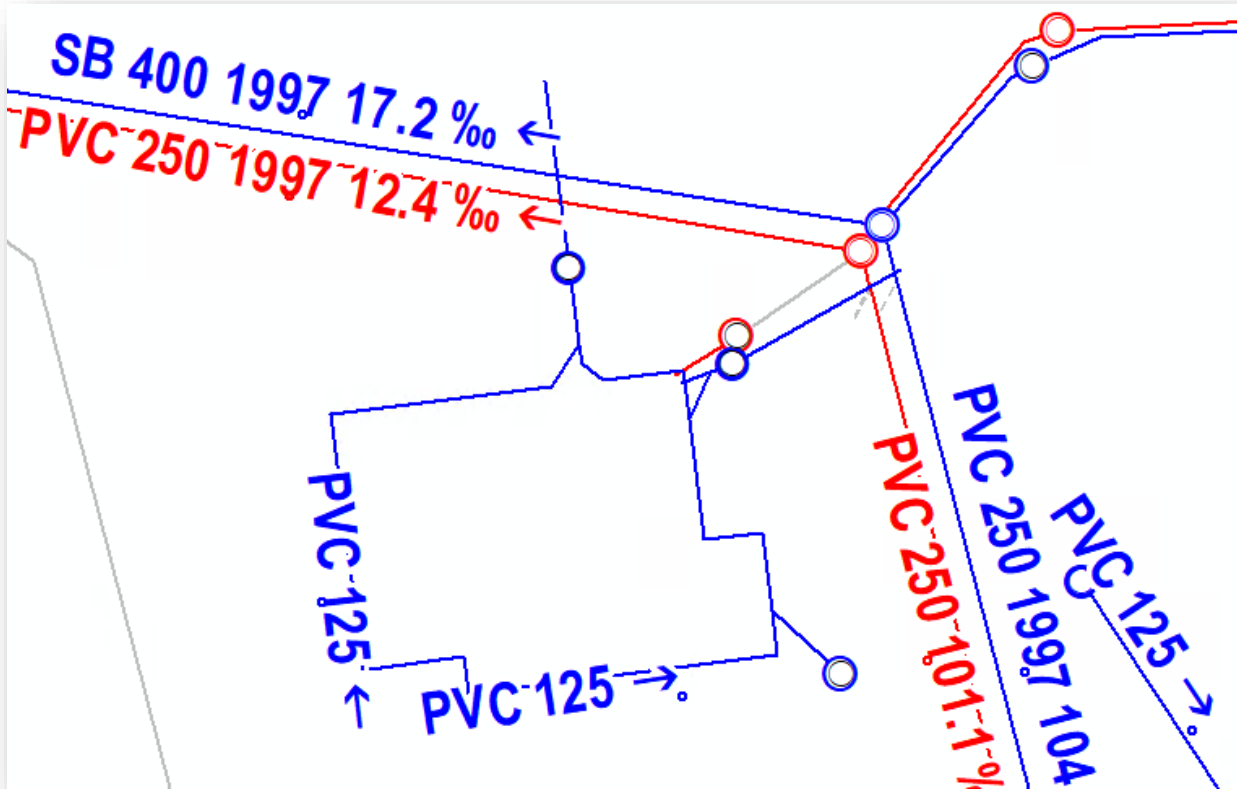
Which information goes where?

- Installation / utility plans
- BIM
- Asset details
- 3D Scans (Point Clouds, Textures)
- Videos
- Road condition
- ???

3D Scan with iPad pro



Which information goes where?



From the rough to the detailed?

From the rough to the detailed?

Detail view (BIM?)

- Detailed information
- Splitted in projects or parts of the infrastructure
- Consider all disciplines (street, sewage, electricity, etc)

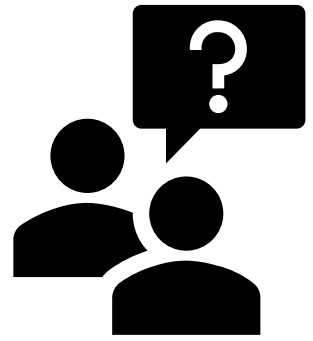
Complete view (GIS!)

- Overview over whole infrastructure
- Eliminate borders between realized (BIM-)projects
- several use cases which need a view on the complete infrastructure

Relation between BIM and GIS data?
Which system is leading?

A lot of open questions

- How to make sure that digital documentation stays up to date in at least two different “worlds”?
- How to handle very different requirements of many stakeholders and consumers?
- How to exchange data with all interested parties?
- How to stay vendor/system independent?





Markus Schenardi

CTO

 +41 58 510 63 73

 markus.schenardi@laixo.ch

 <https://www.laixo.ch>

 <https://www.linkedin.com/in/markus-schenardi/>

