

BIM4Ren

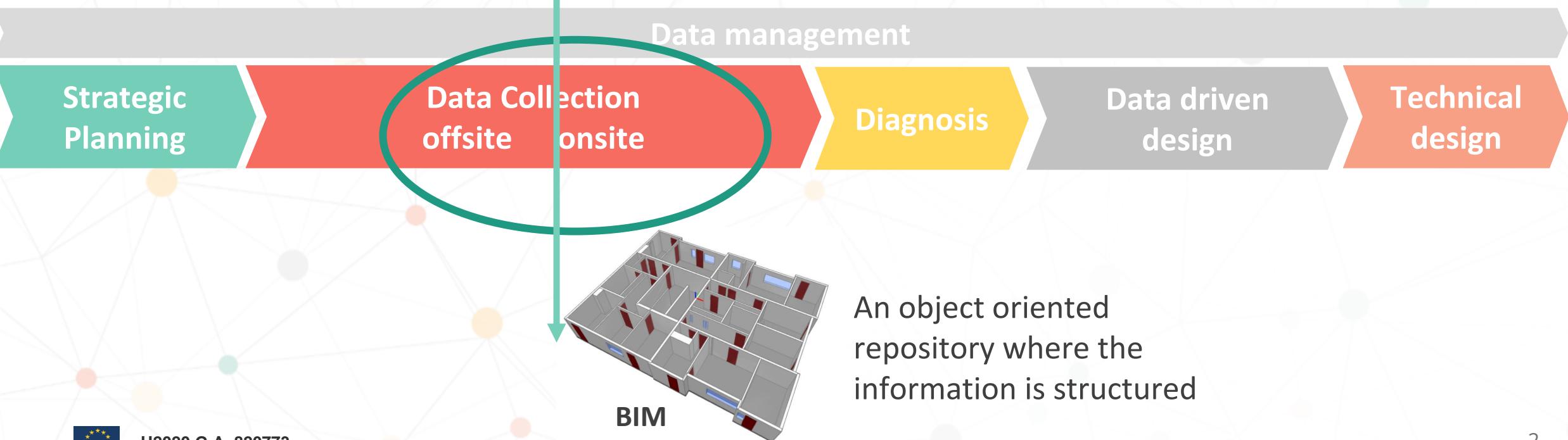
TRAINING

Geometry Acquisition

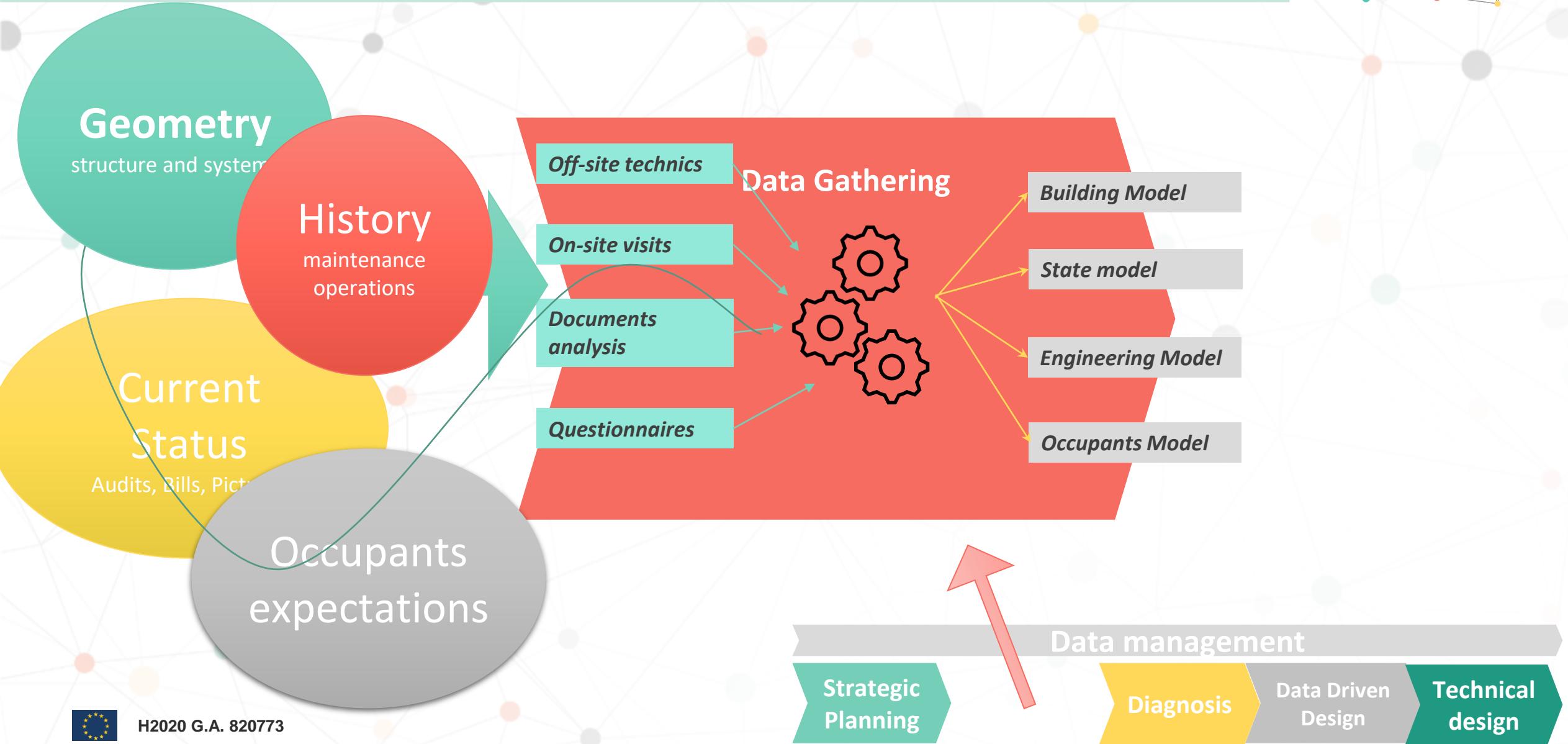


This project has received funding from the H2020
programme under Grant Agreement No. 820773

Ambition in the renovation process

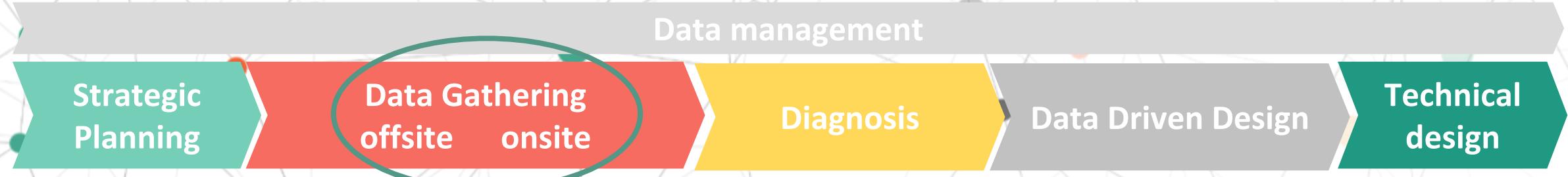


Data gathering: in details ...



- On-SITE techniques for geometry acquisition

Where are we in the renovation process ?



Scan2BIM solutions



H2020 G.A. 820773

The French Pilot...

BIM4Ren

- Residential buildings in Paris suburbs
- Energy Audit performed
- Scan2BIM performed using 3 different technologies

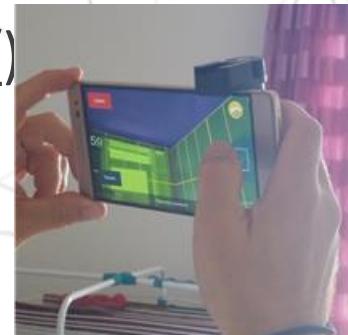


H2020 G.A. 820773

SCAN2BIM technologies tested

BIM4Ren

- AR2BUILD from BIMEO (<https://www.bimeo.fr/>)
- Matterport (<https://matterport.com/>)
- Navvis (<https://www.navvis.com>)

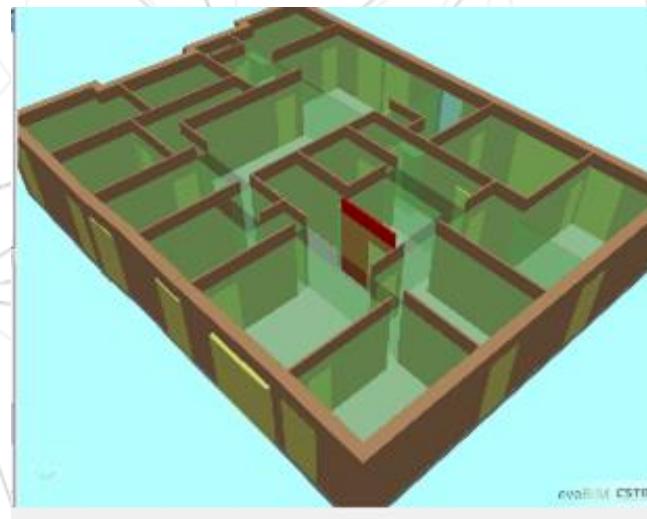


H2020 G.A. 820773

AR2BUILD solution

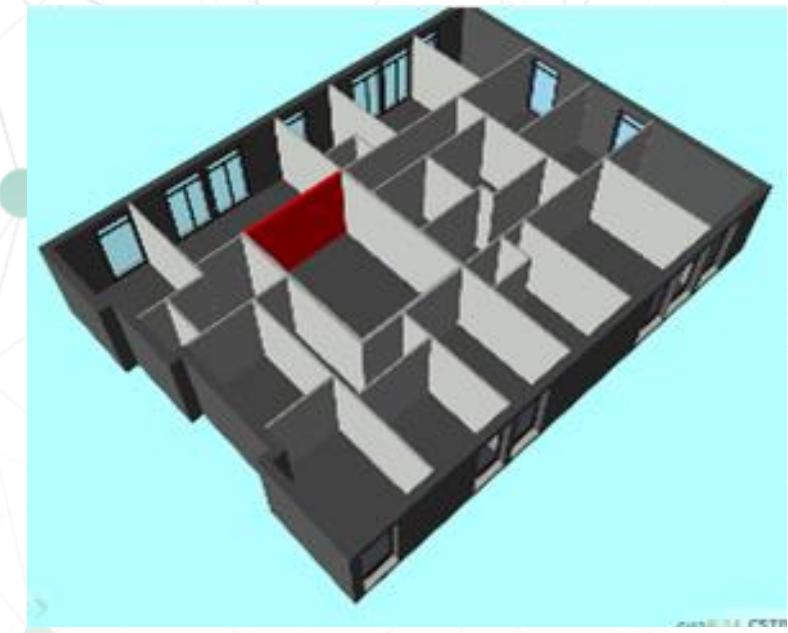
BIM4Ren

- Based on ARCORE toolkit (google) on a TANGO (google) smartphone
- Eric LEROGNON, CEO of the BIMEO company. He needed 15 to 20 minutes for a 80m² flat.
- The app produces directly an IFC file (IFC4)



IFC4 “Raw file”

30'



IFC2x3 corrected file



H2020 G.A. 820773

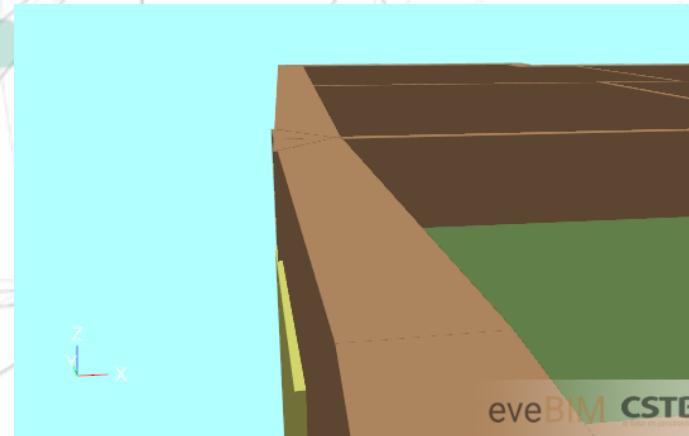
Work in progress...

BIM4Ren

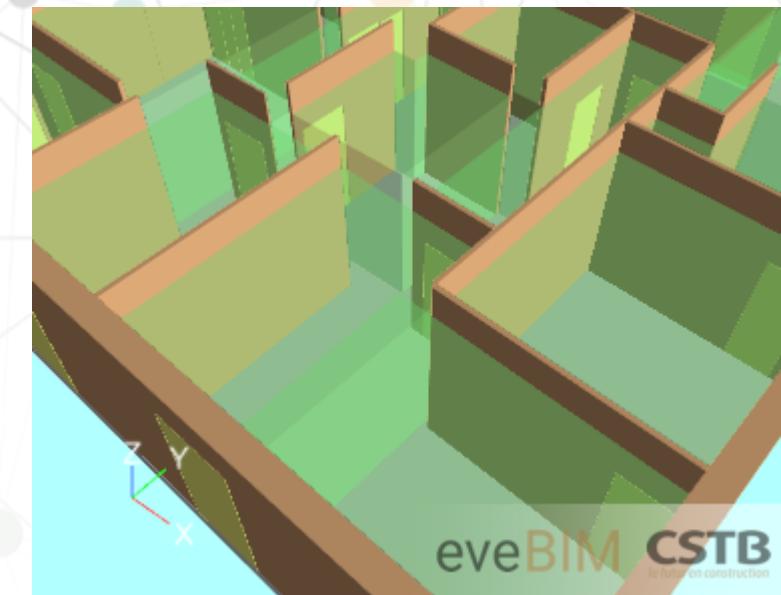
- Still some issues to be clarified...



Wall thickness



Alignment of elements



“Open” walls



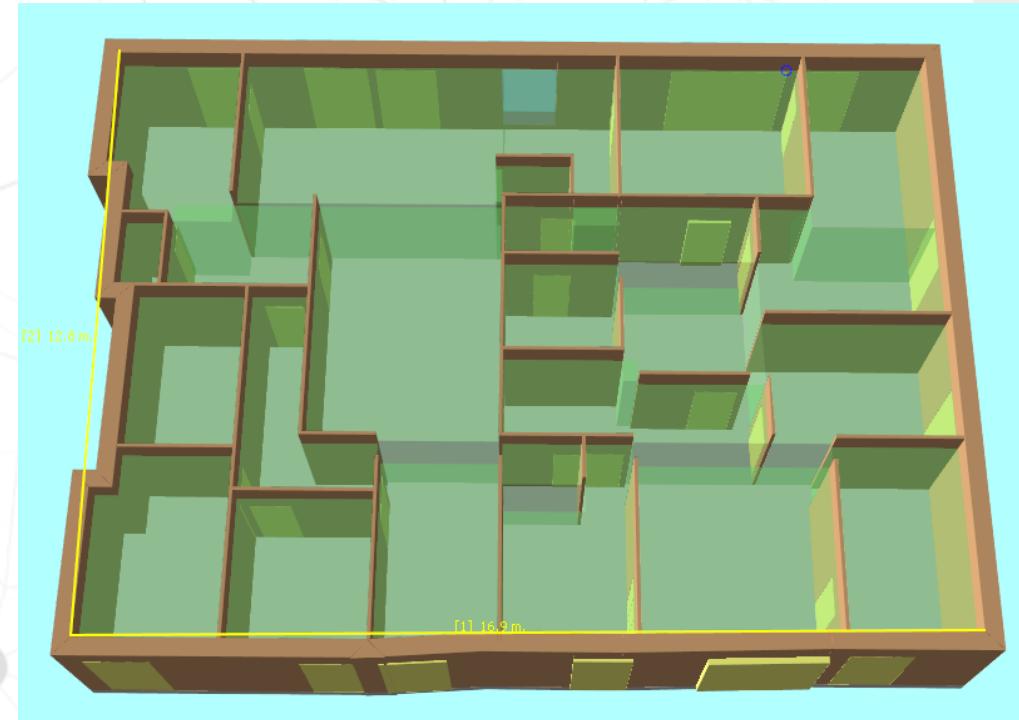
H2020 G.A. 820773

AR2BUILD : First feeling

BIM4Ren

- Quick and lightweight solution
- Can capture almost everywhere but need a minimum of light
- To be tested if good enough in terms of model for simulation
- How can we tune the output (evolution of the couple AR2BUILD / BIMEO)

AR2Build is now available on
the AppStore.
To be used with an Ipad Pro +
BIMEO solution



Matterport: presentation

BIM4Ren

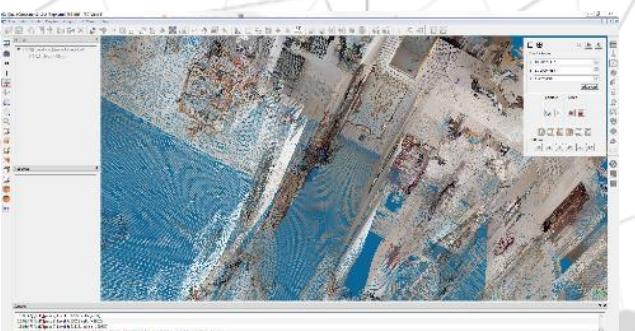
- Matterport initial purpose is to produce great virtual visit for real estate professionals.



doll house view



“Immersive” view



Pointcloud



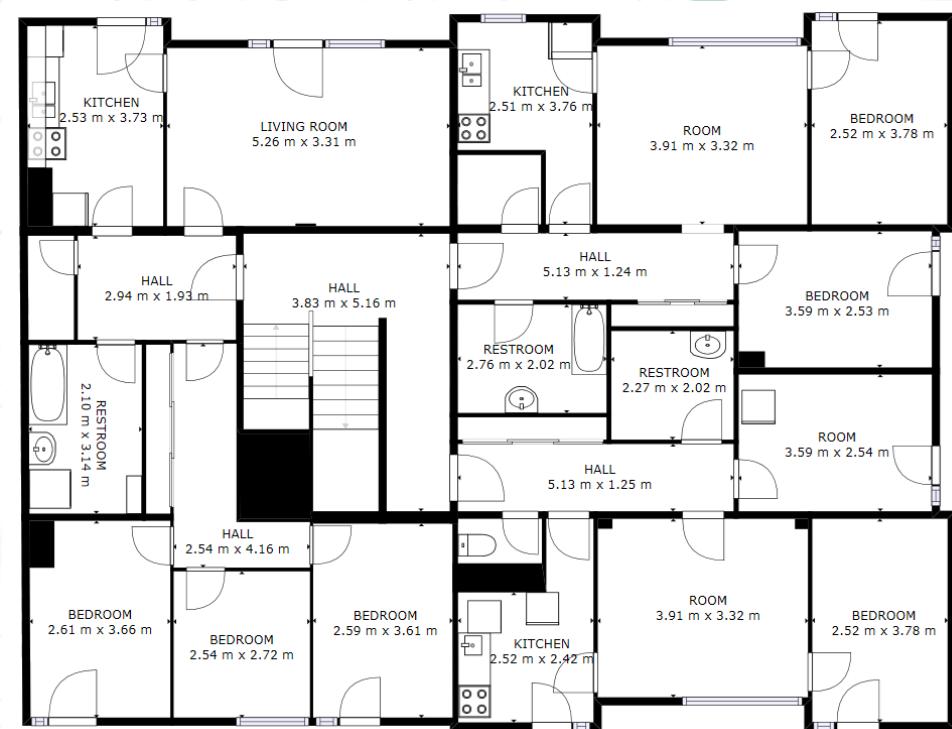
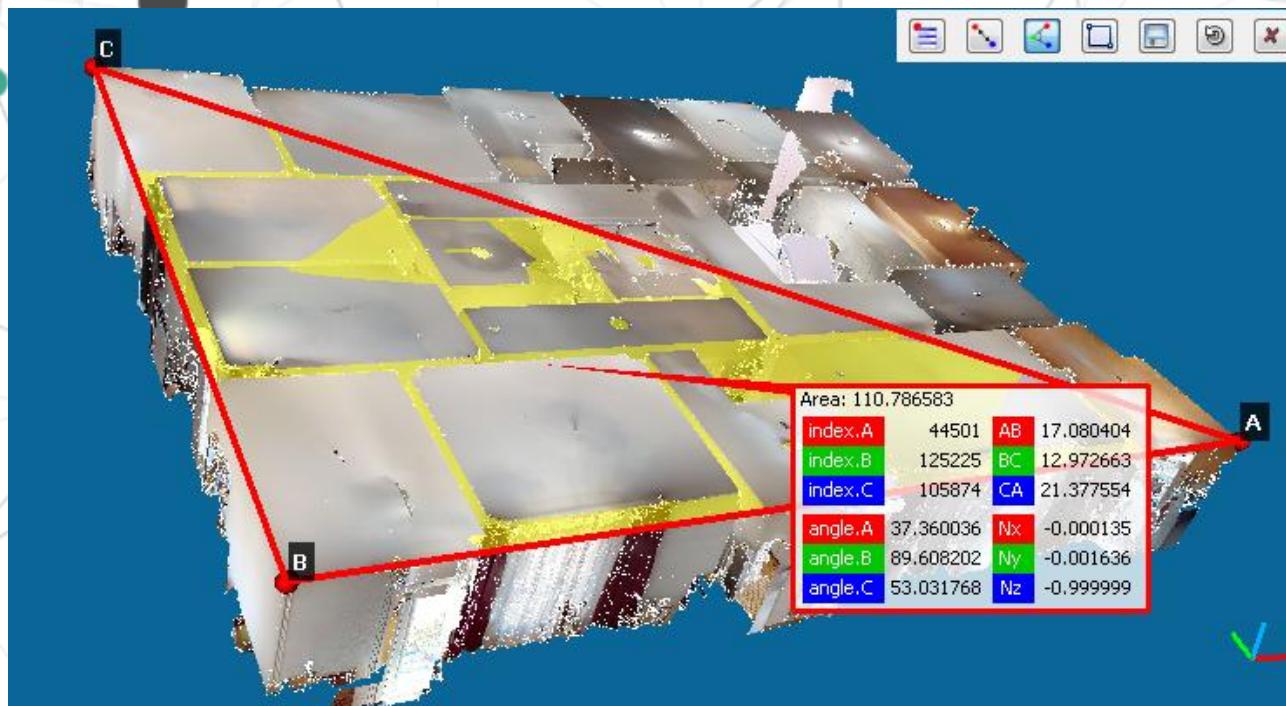
Mesh



Matterport: feedbacks

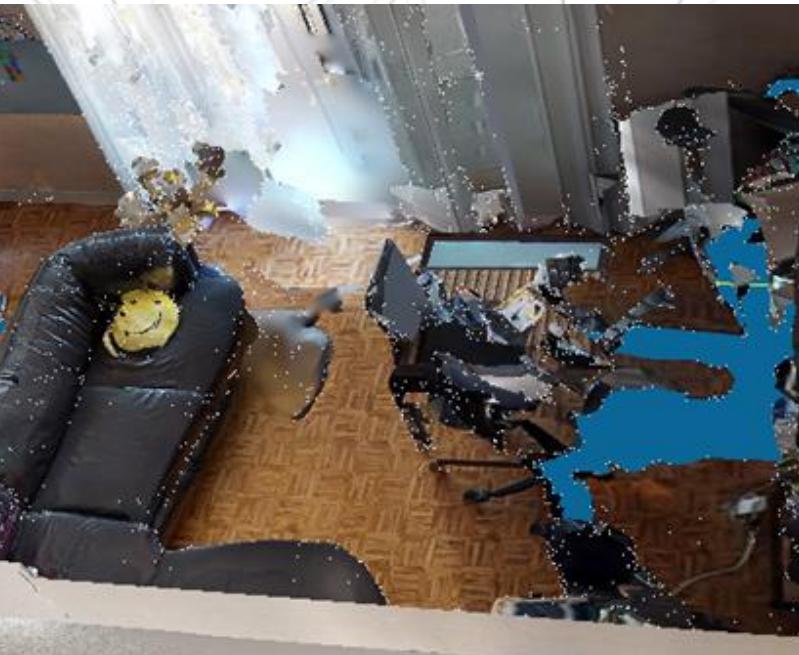
BIM4Ren

- Provides measures
- And a floor plan



Matterport: Weaknesses

- It is stationary scanners: It's not possible to see behind objects.
-> Need to scan from multiple positions in the same room ...
- The walls look good but with strong rounded (smoothed) angles in the corners -> lack of precision at this stage.



Matterport: First feeling

BIM4Ren

- Still easy to manipulate
- Producing “automatically” ? (quickly??) an IFC is possible...but it is a derived use.



H2020 G.A. 820773

The Navvis solution: presentation

BIM4Ren

The NavVis M6 has:

- 4 lidars (laser-based technology), coupled with SLAM techno (Simultaneous Localization And Mapping) : Real time positioning during scanning
- 5 digital cameras -> each picture is well geopositioned

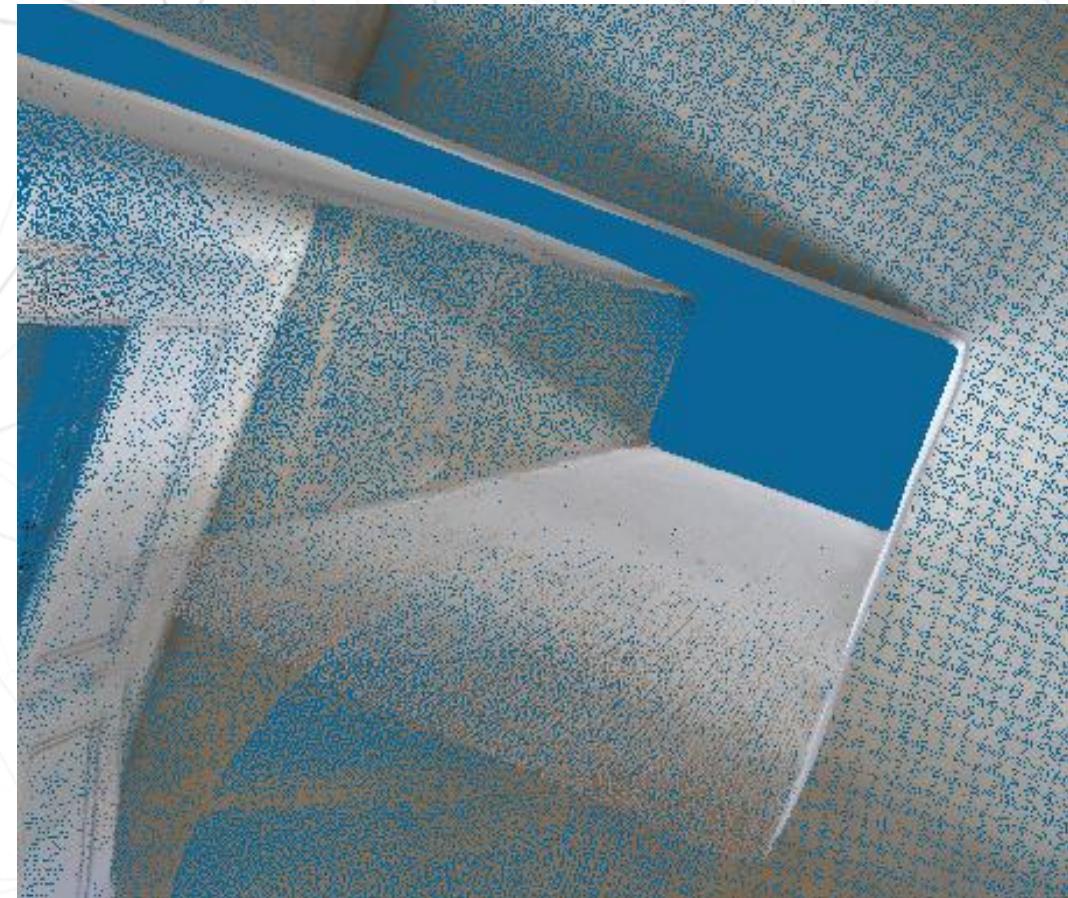


H2020 G.A. 820773

Navvis: feedbacks

BIM4Ren

The resulting point clouds are pretty impressive, very sharp and accurate.



H2020 G.A. 820773

Navvis: feedbacks

BIM4Ren

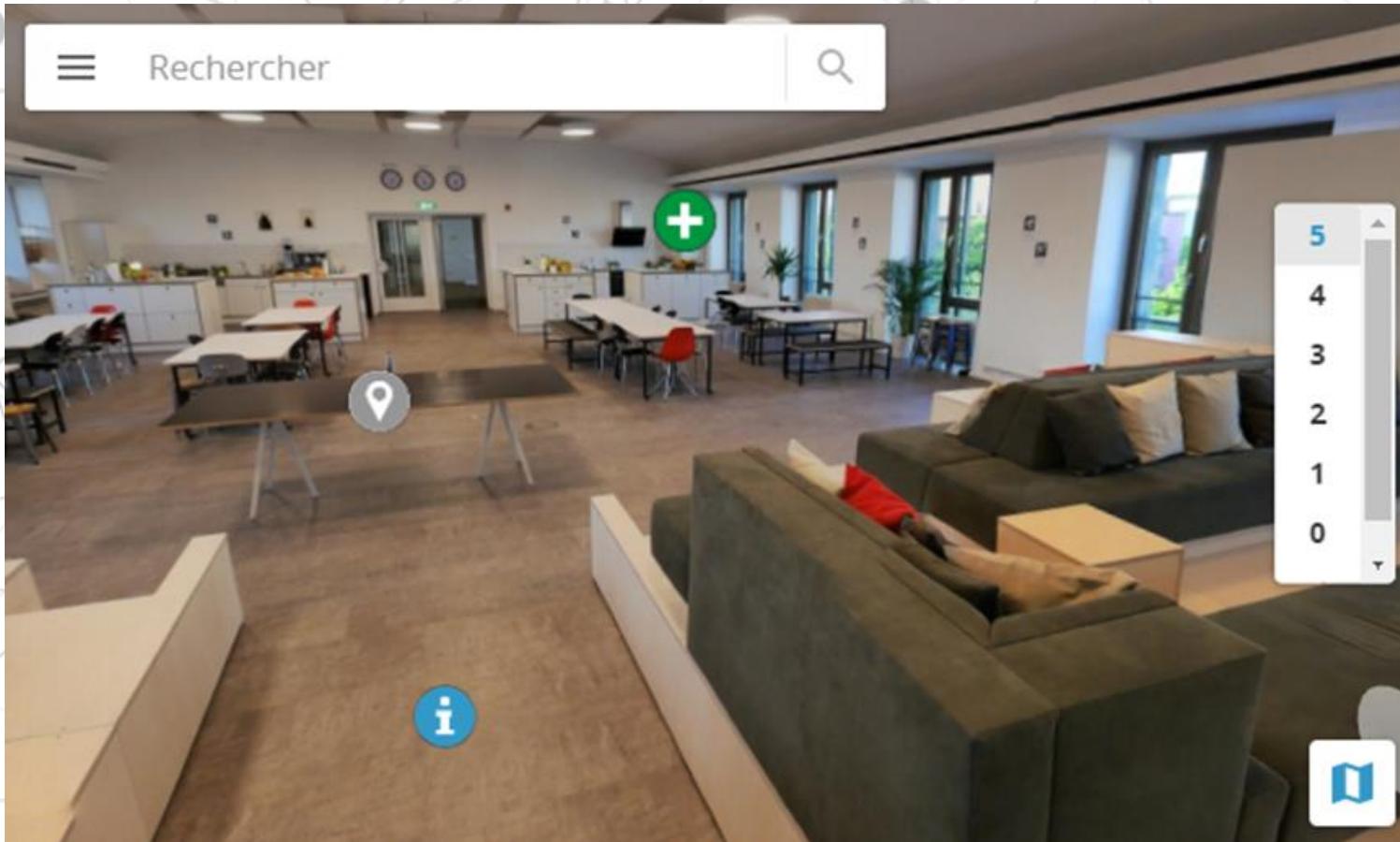
Exterior scanning: The result is also accurate.... But the upper floors are less defined (less samples, due to the angle of rays)



Navvis

BIM4Ren

It comes also with a web browser for virtual visits

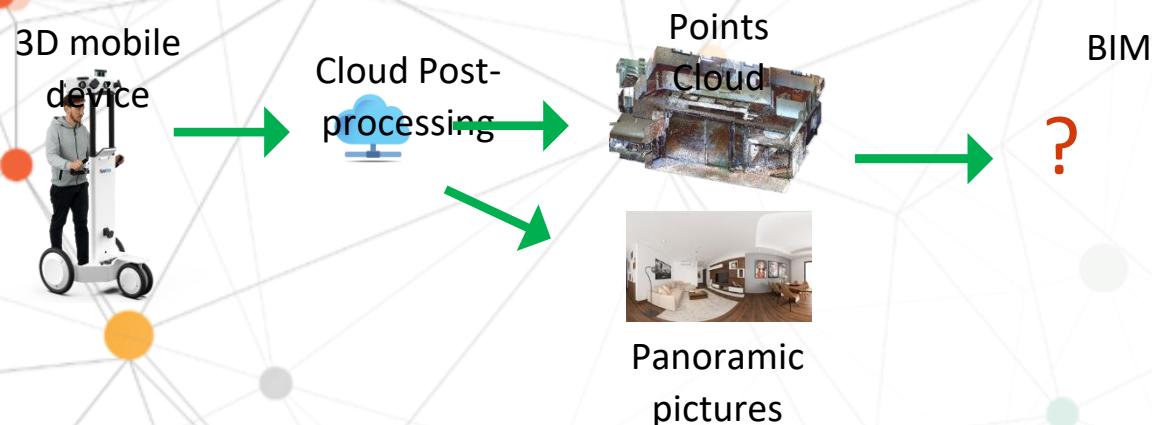


H2020 G.A. 820773

Navvis: First feeling

BIM4Ren

- Accurate solution
- Design for big surfaces
- ... not for tiny dwellings
- Converting point clouds to IFC/objectified files is still a research area



H2020 G.A. 820773

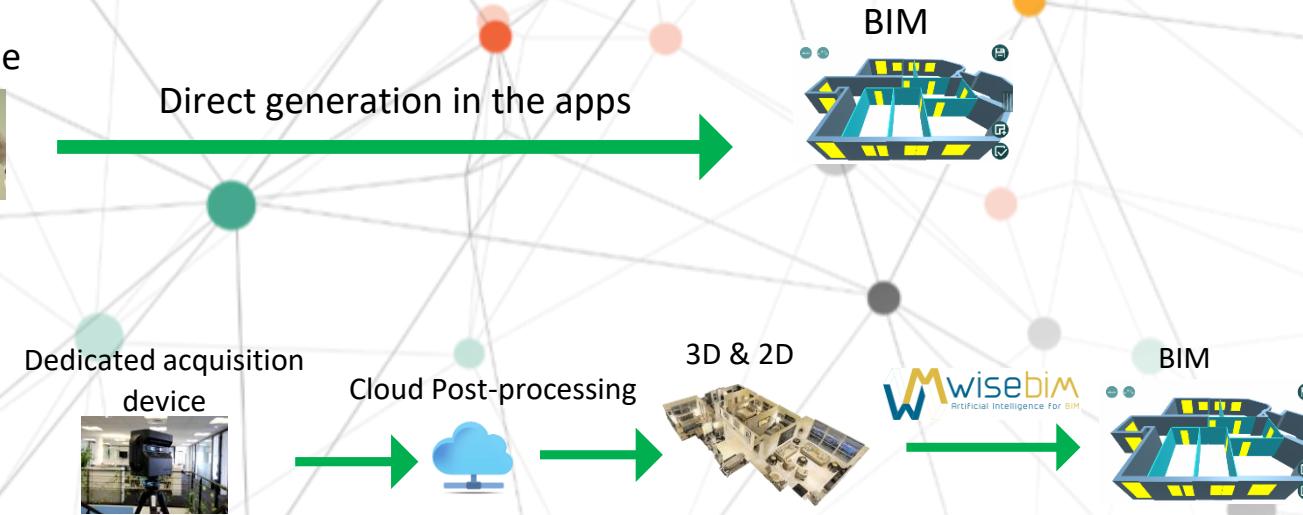
SCAN2BIM processes - Onsite Techno

Recap

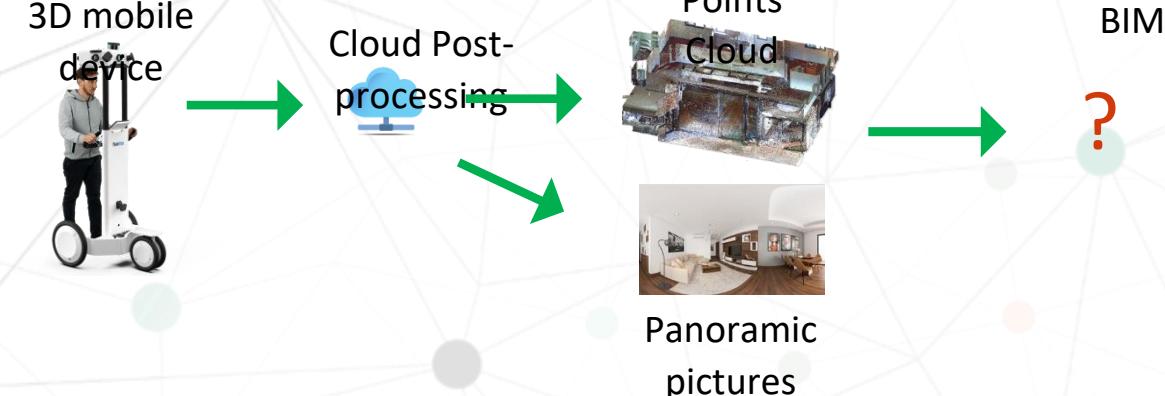
- AR2BUILD:



- Matterport:



- Navvis (<https://www.navvis.com>)





Offsite Geometry Acquisition From 2D plans to 3D IFC BIM



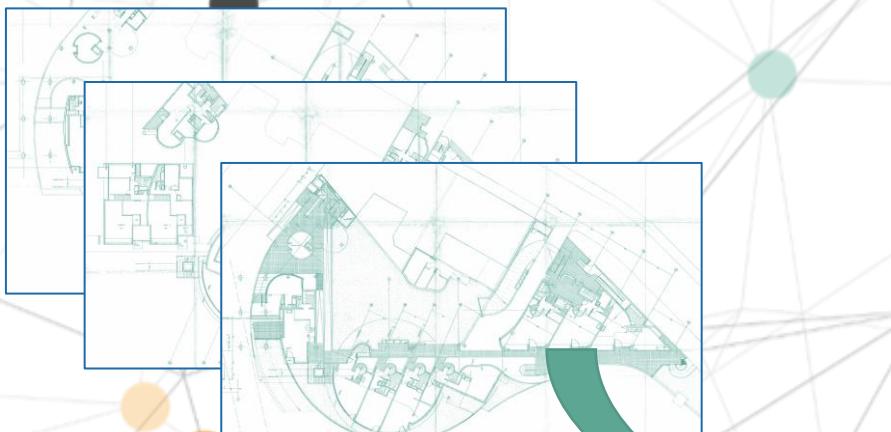
This project has received funding from the H2020
programme under Grant Agreement No. 820773

Presentation title + Location + Date

Plans2BIM : concept

BIM4Ren

Online tool for automatic BIM generation from existing architectural 2D plans thanks to Artificial Intelligence



2D plans (PDF, PNG, DWG)

The automatic way to digitalize 2D drawings into 3D grid information models.



CONNECT TO PLAN2BIM

email *

password *

Sign in

Create account

Reset password

OR TRY OR DEMO

Free demo



BIM (IFC)



H2020 G.A. 820773

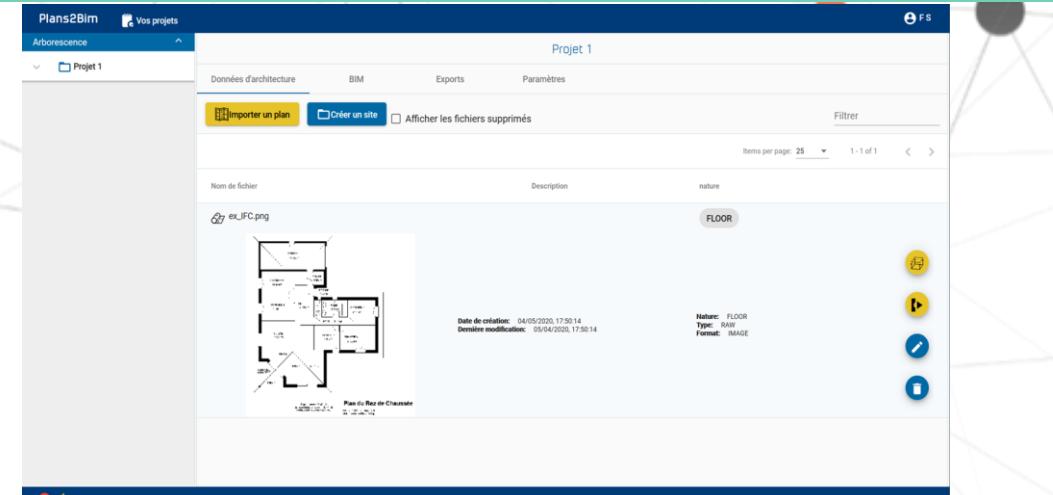
Plans2BIM : functions

BIM4Ren

Project

- Management
 - Users
 - Subscription
 - Files & folders

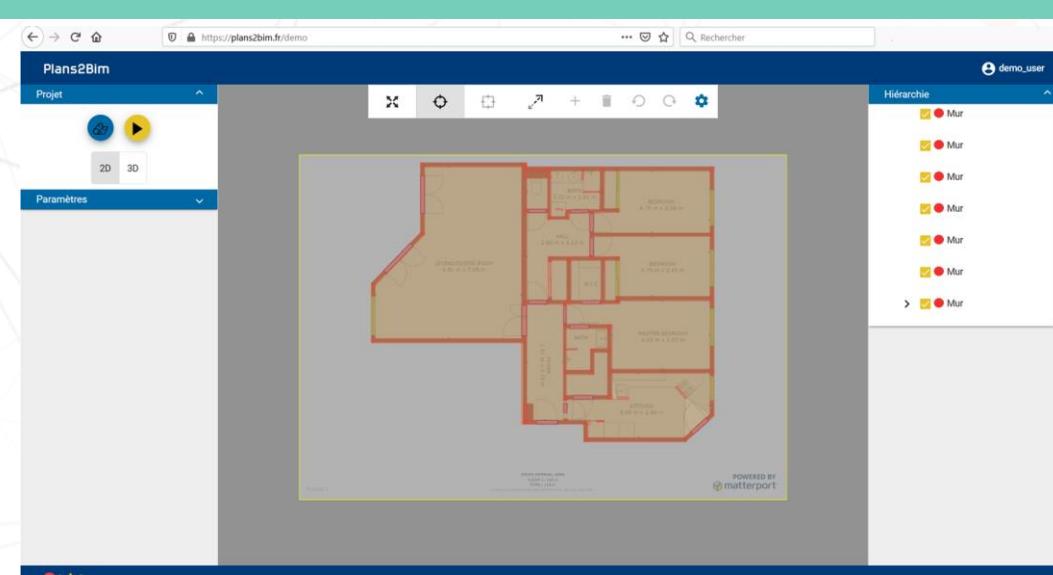
- Input file
 - PDF
 - PNG, JPEG,
- Output file
 - IFC 2x3
 - IFC 4



Workarea

- Automatic recognition
 - Walls
 - Windows / doors
 - Slabs
 - Spaces

- Viewer
 - 2D/3D
 - Hierarchy
- Embedded editor
 - Geometry
 - Element
 - Property



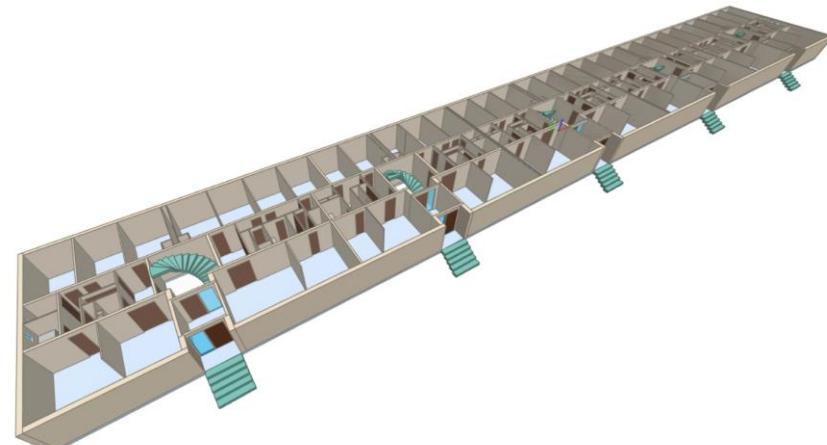
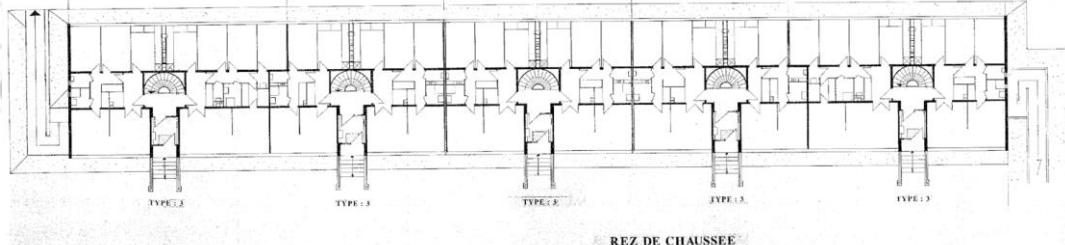
H2020 G.A. 820773

Plans2BIM : Use case

BIM4Ren

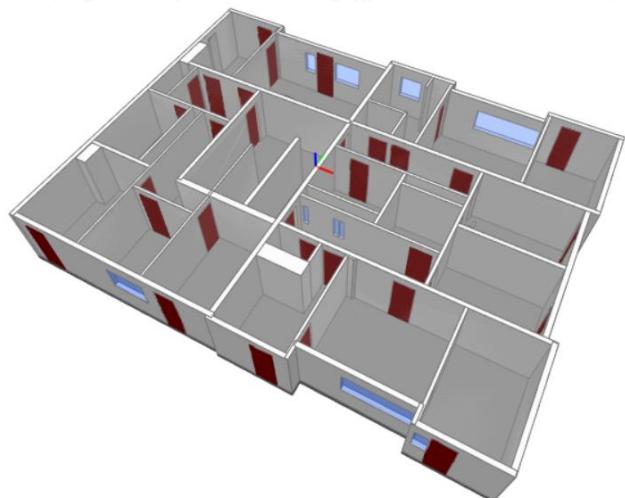
As designed

- 100% offsite
- Original architectural plan (paper)



As built

- On site acquisition (scan, surveyor)
- Offsite modeling
- Up-to-date plan (PDF, DWG)



H2020 G.A. 820773

Model Enrichment

Where are we in the renovation process?

BIM4Ren



LODlifter



H2020 G.A. 820773

Where are we in the renovation process ?

BIM4Ren

- Step 3 : Model Enrichment

Data management

Strategic Planning

Data Gathering
offsite onsite

Diagnosis

Data Driven Design

Technical design

LODLifter

Vendor / Industrial

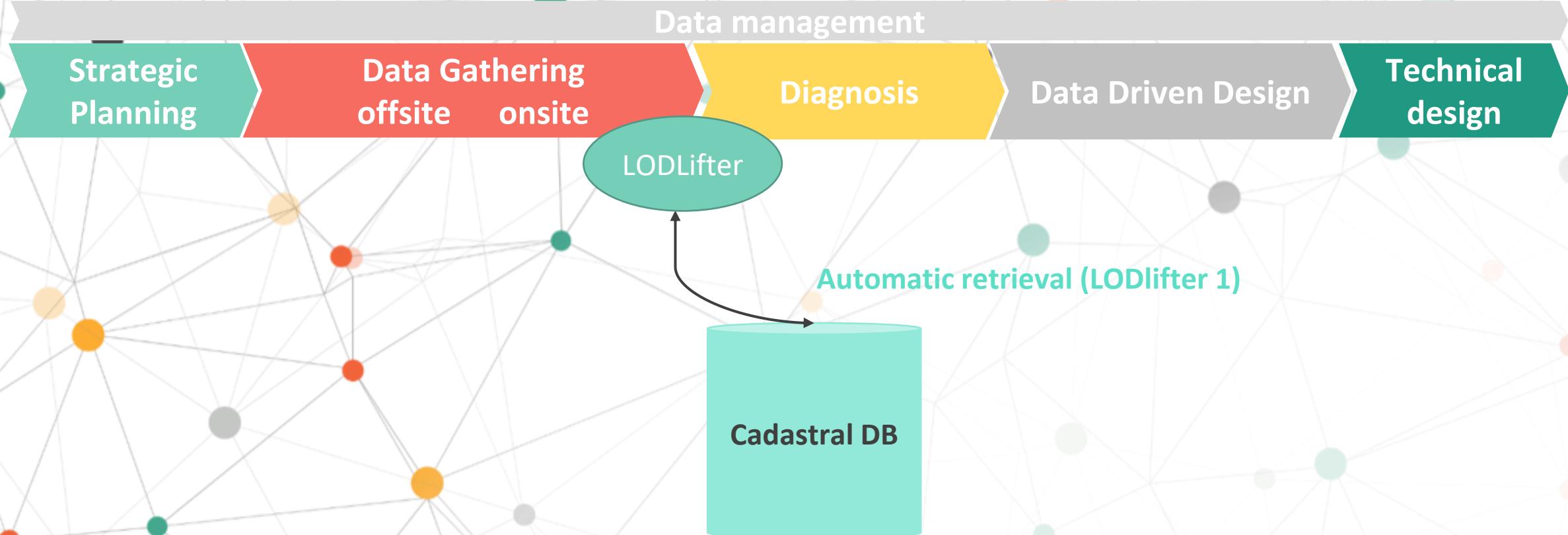


H2020 G.A. 820773

Where are we in the renovation process ?

BIM4Ren

- Step 3 : Model Enrichment

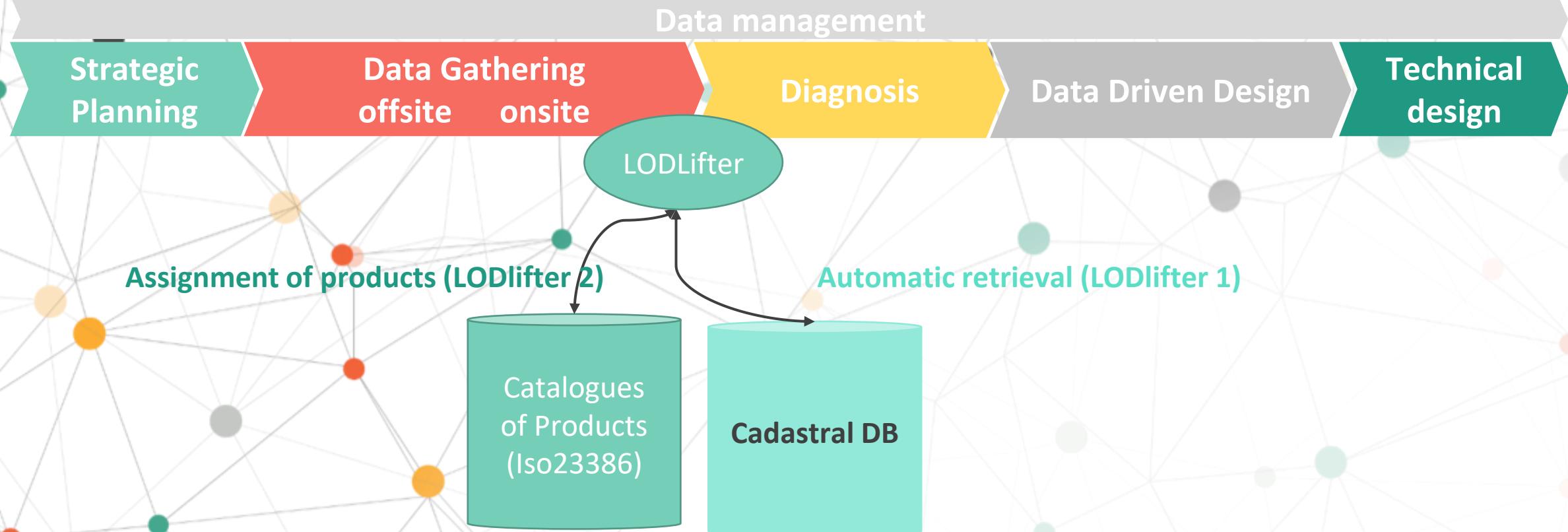


H2020 G.A. 820773

Vendor / Industrial

Where are we in the renovation process ?

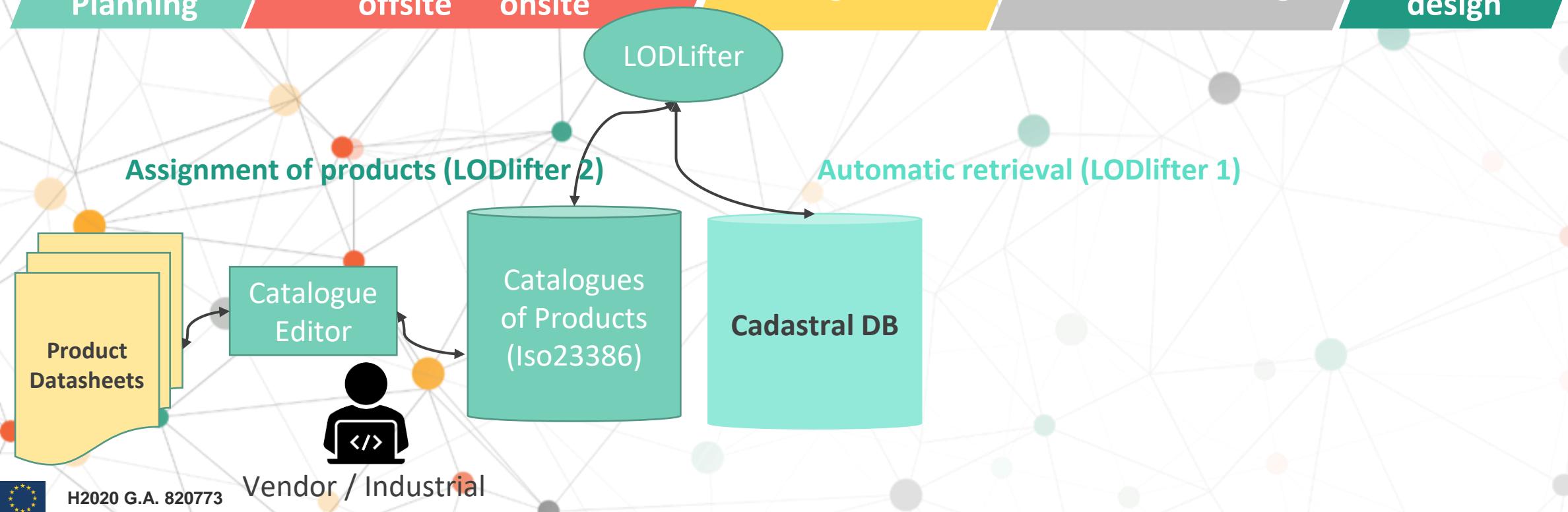
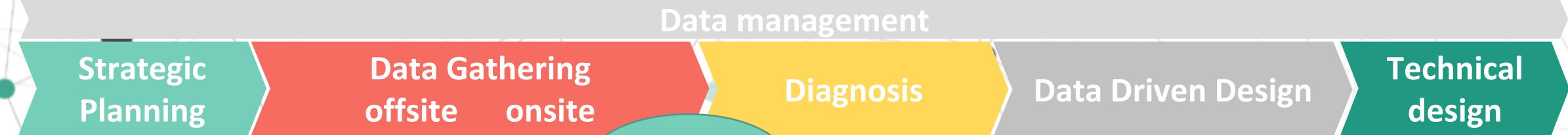
- Step 3 : Model Enrichment



Where are we in the renovation process ?

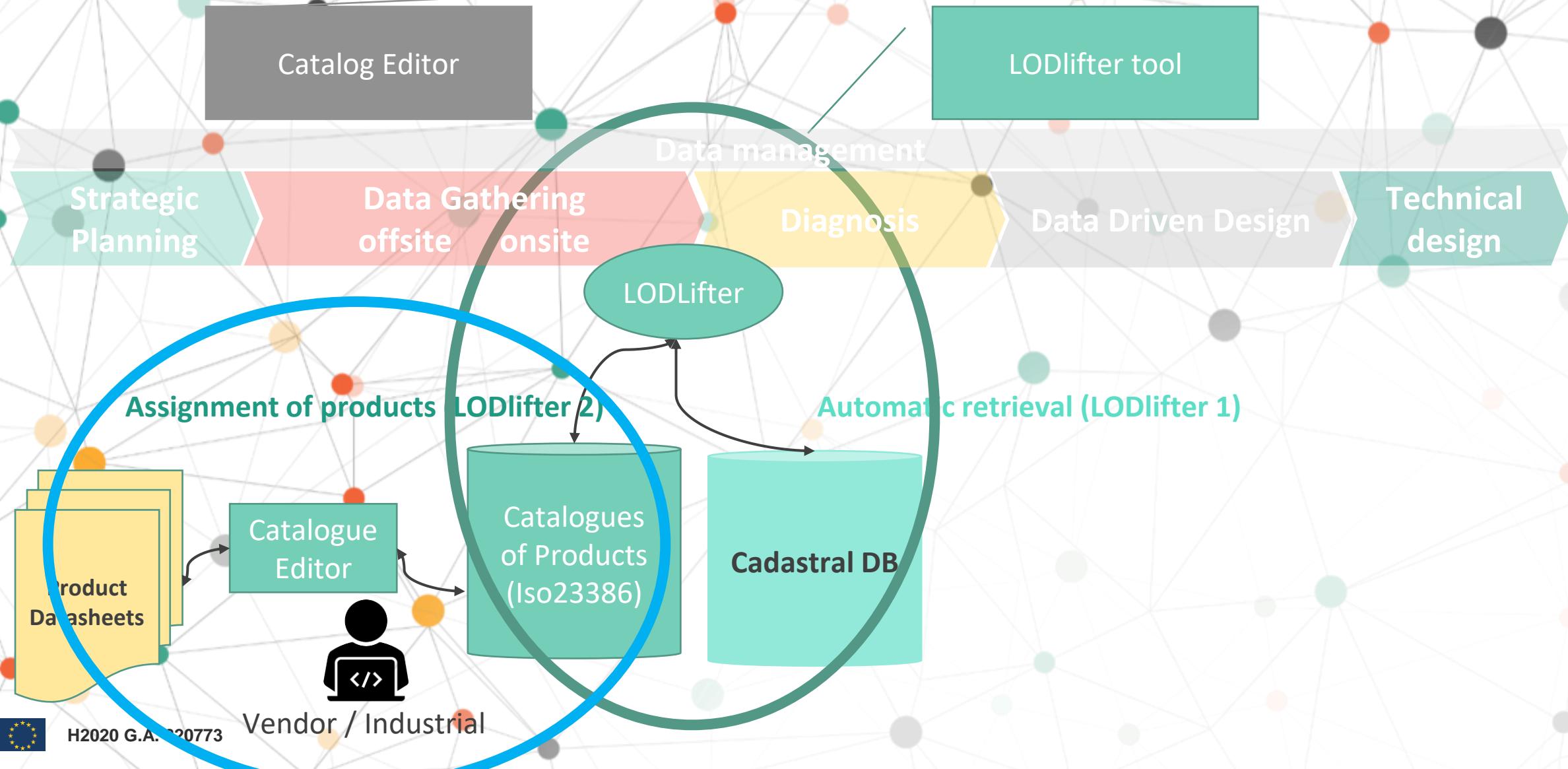
BIM4Ren

- Step 3 : Model Enrichment



Where are we in the renovation process ?

BIM4Ren



DEMO

BIM4Ren



H2020 G.A. 820773

BIM4Ren

TRAINING

Thank you for
your attention



This project has received funding from the H2020
programme under Grant Agreement No. 820773

<http://bim4ren.eu/>

 [@bim4ren](https://twitter.com/bim4ren)