

BIM4Ren

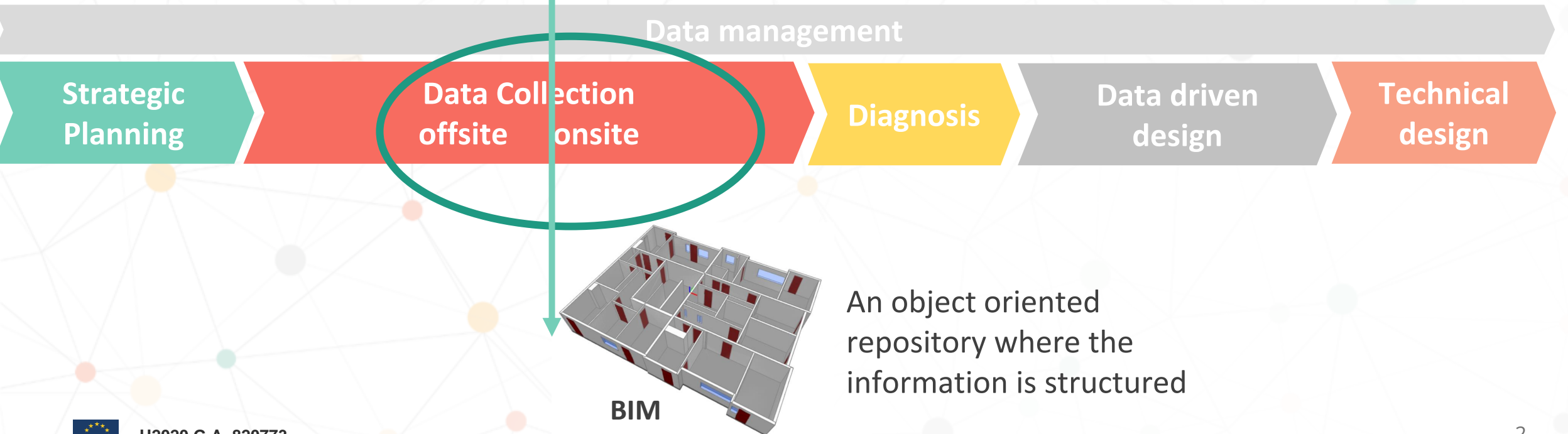
TRAINING

Geometry Acquisition

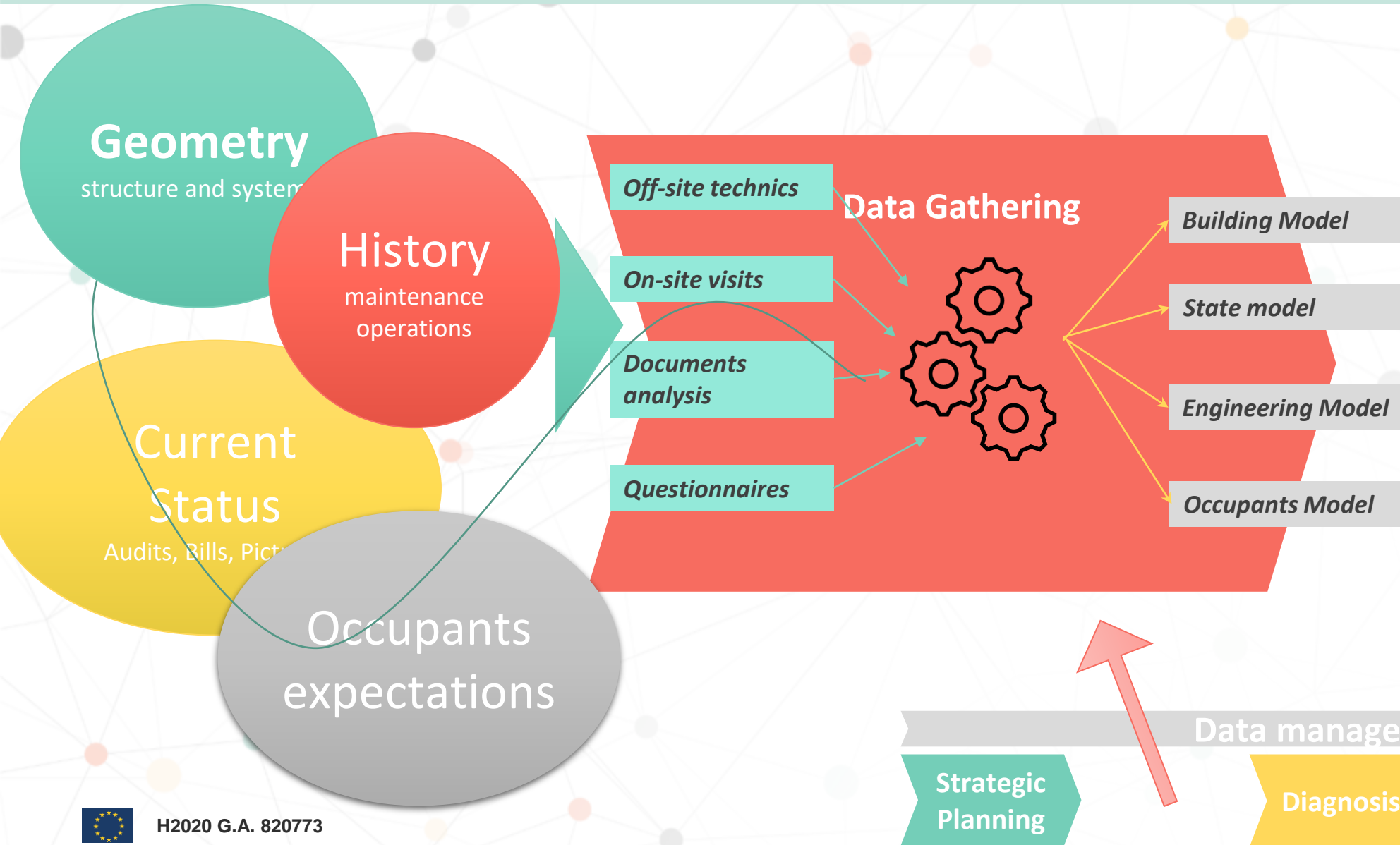


This project has received funding from the H2020 programme under Grant Agreement No. 820773

Ambition in the renovation process

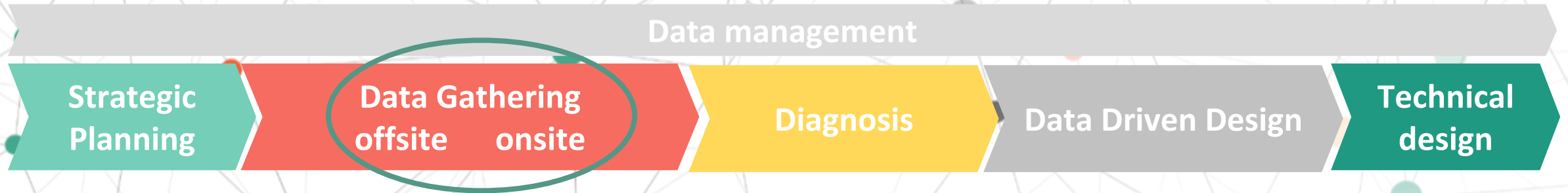


Data gathering: in details ...



- On-SITE techniques for geometry acquisition

Where are we in the renovation process ?



Scan2BIM solutions



The French Pilot...



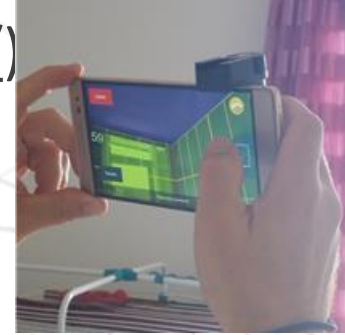
- Residential buildings in Paris suburbs
- Energy Audit performed
- Scan2BIM performed using 3 different technologies



SCAN2BIM technologies tested



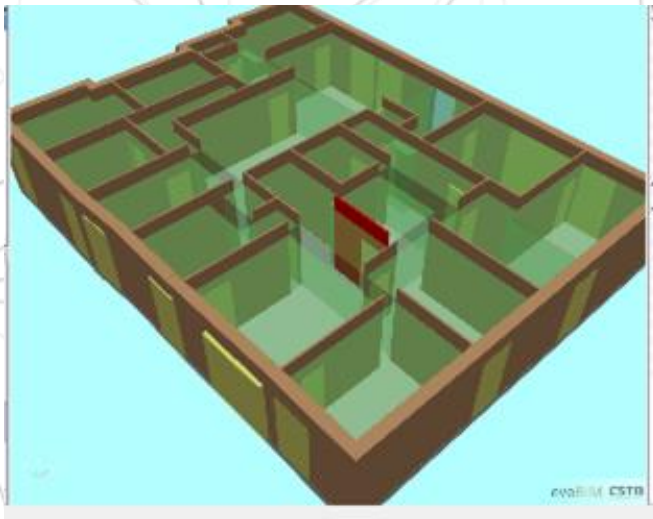
- AR2BUILD from BIMEO (<https://www.bimeo.fr/>)
- Matterport (<https://matterport.com/>)
- Navvis (<https://www.navvis.com>)



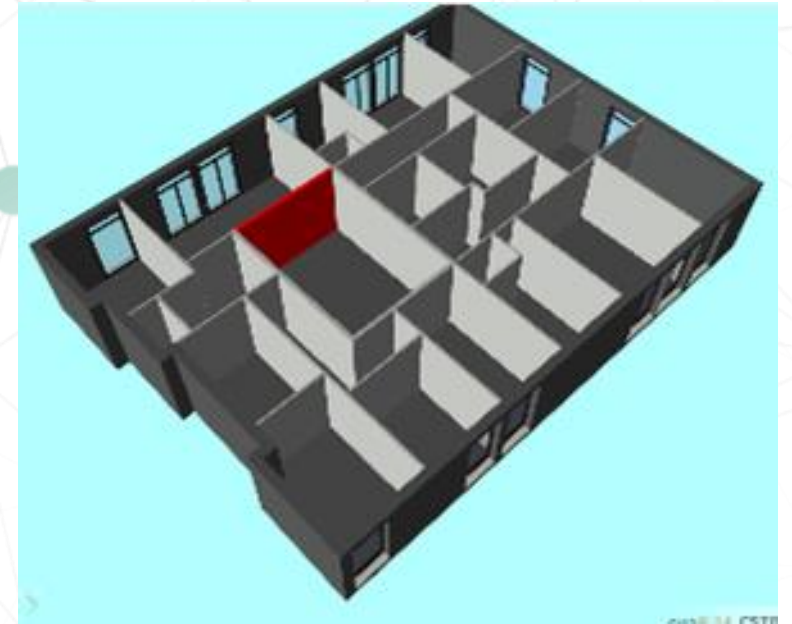
AR2BUILD solution



- 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)



30'



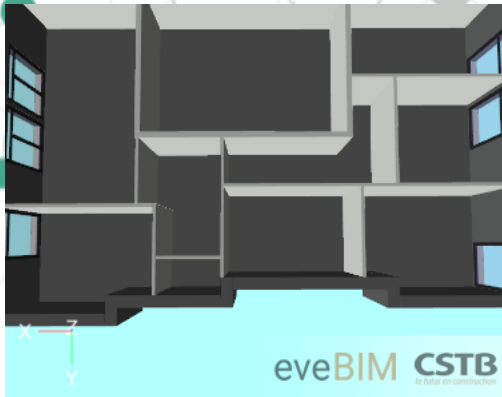
IFC4 "Raw file"

IFC2x3 corrected file

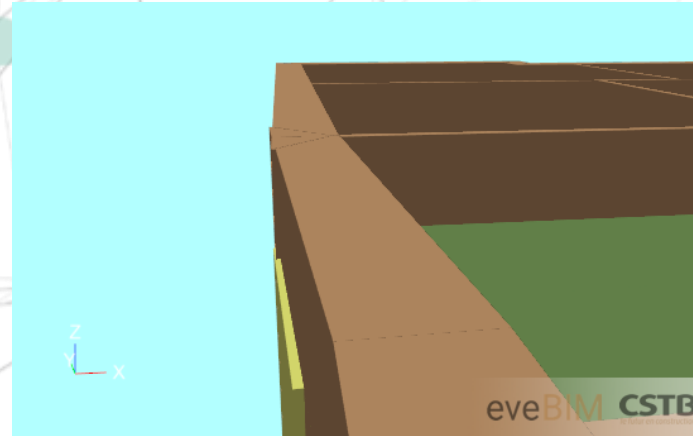


Work in progress...

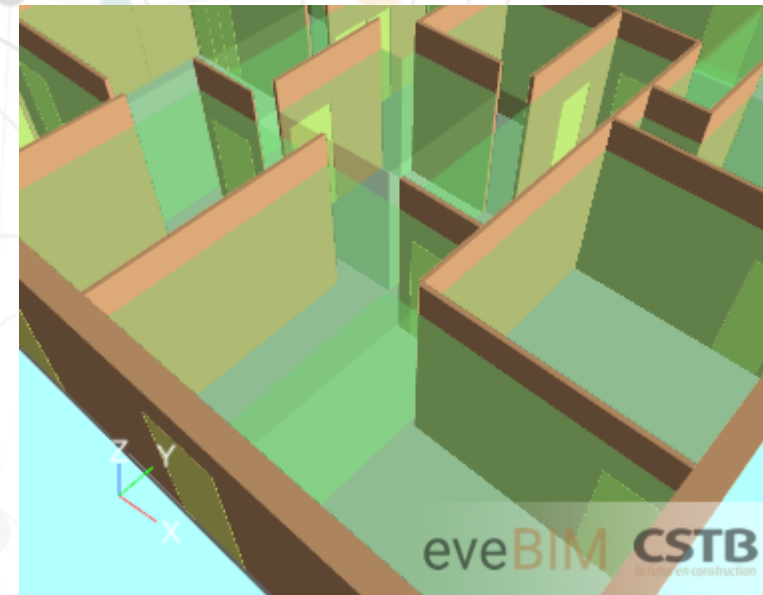
- Still some issues to be clarified...



Wall thickness



Alignment of elements



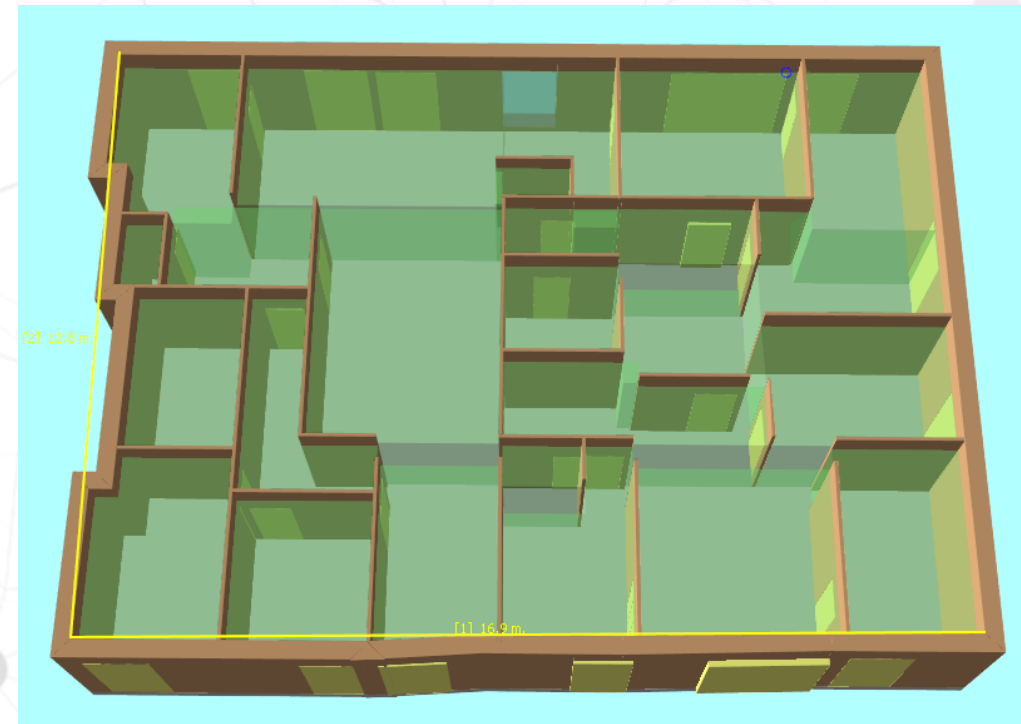
"Open" walls

AR2BUILD : First feeling



- 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



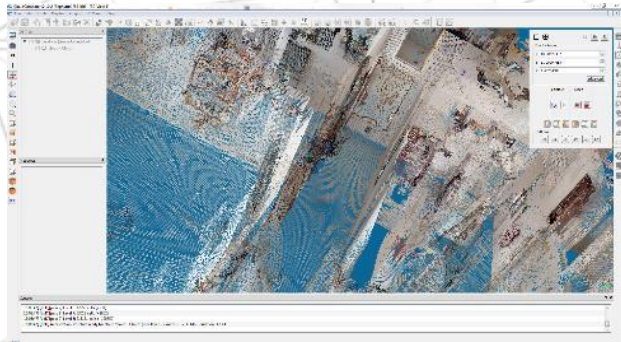
- Matterport initial purpose is to produce great virtual visit for real estate professionals.



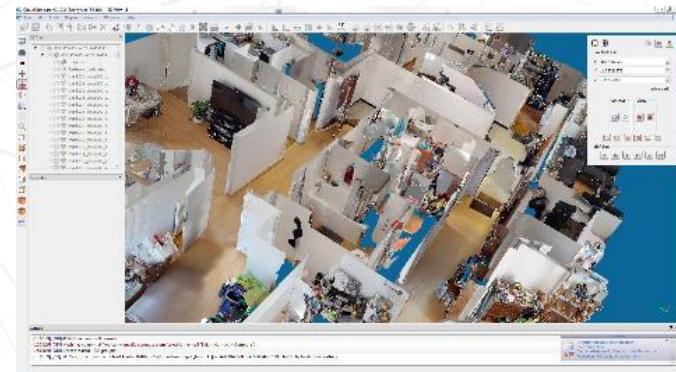
doll house view



“Immersive” view



Pointcloud

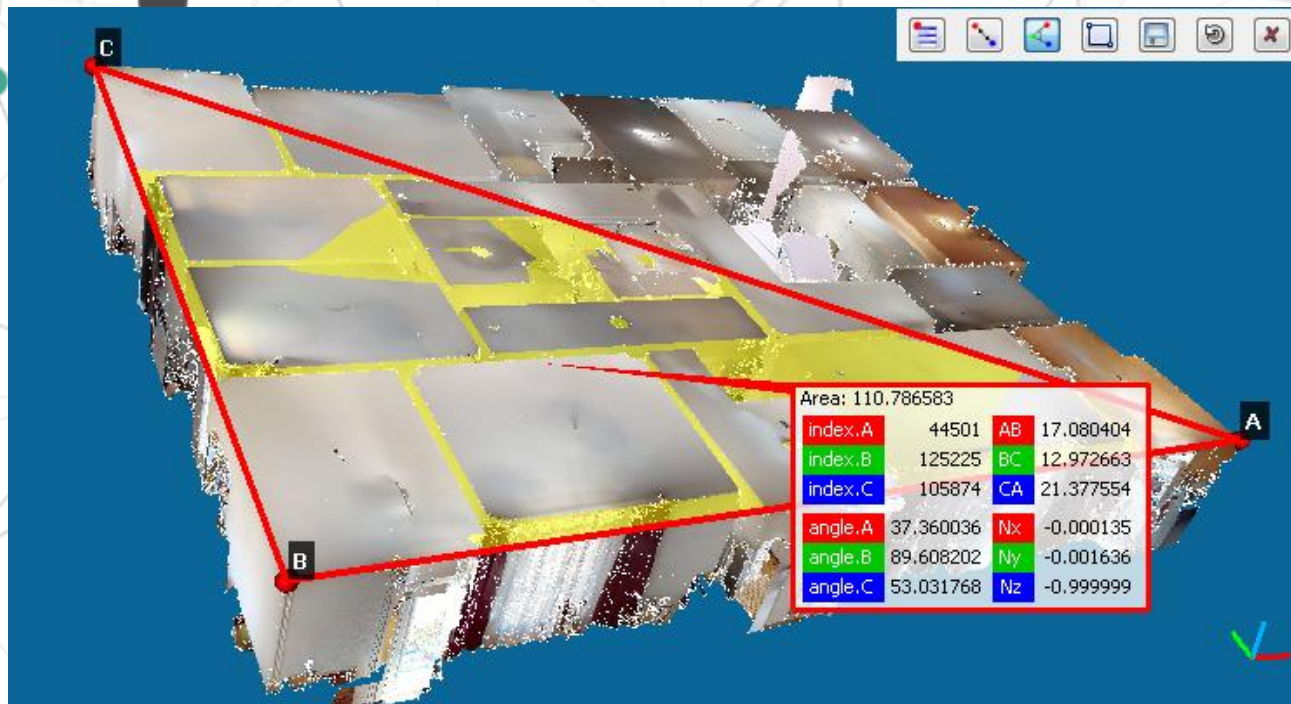


Mesh

Matterport: feedbacks

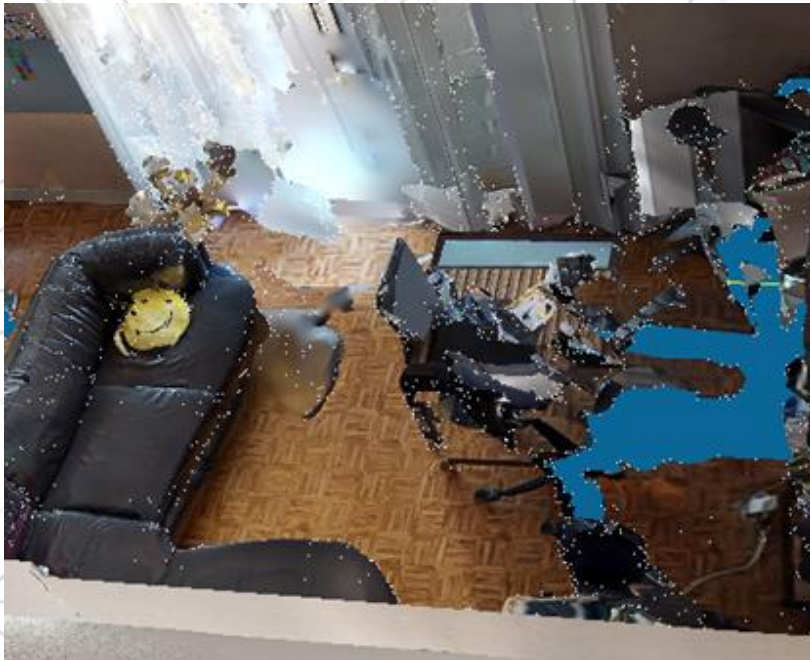


- Provides measures
- And a floor plan



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



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



The Navvis solution: presentation



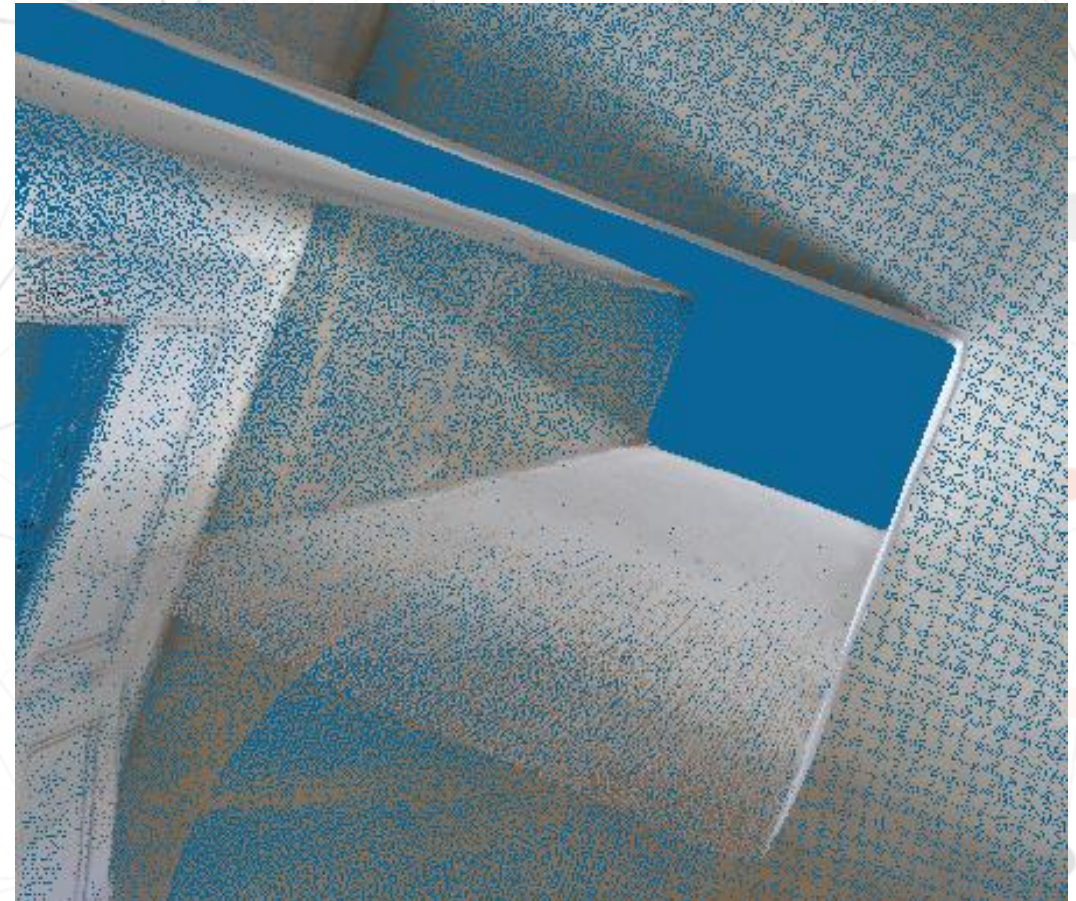
The NavVis M6 has:

- 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



Navvis: feedbacks

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



Navvis: feedbacks

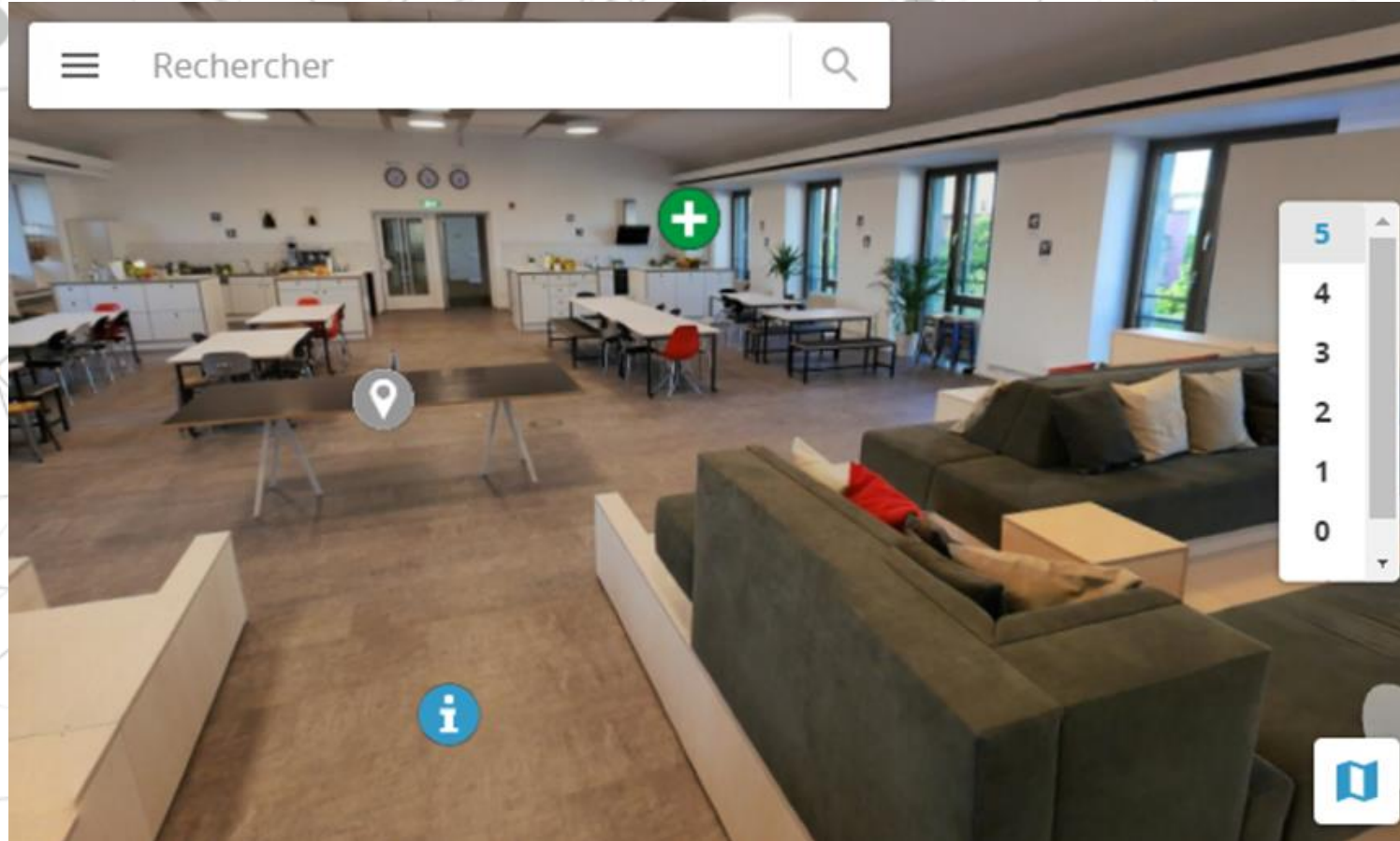
Exterior scanning: The result is also accurate.... But the upper floors are less defined (less samples, due to the angle of rays)



Navvis



It comes also with a web browser for virtual visits



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Navvis: First feeling

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



3D mobile device



Cloud Post-processing



Points Cloud



BIM

?



Panoramic pictures

SCAN2BIM processes - Onsite Techno

Recap

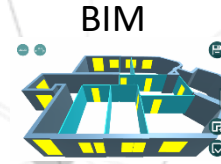


- AR2BUILD:

Smartphone



Direct generation in the apps



- Matterport:

Dedicated acquisition device



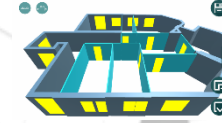
Cloud Post-processing



3D & 2D



BIM



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

3D mobile device



Cloud Post-processing



Points Cloud



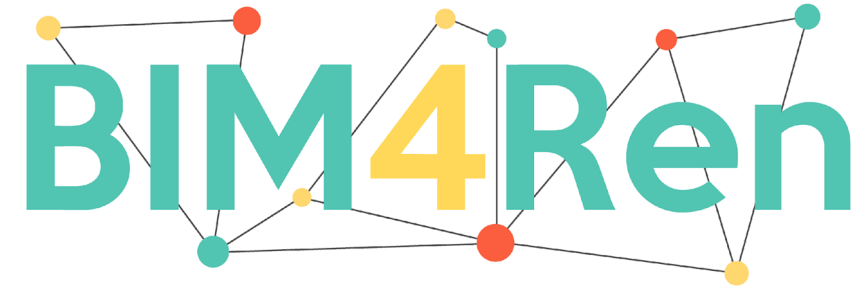
BIM



Panoramic pictures



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



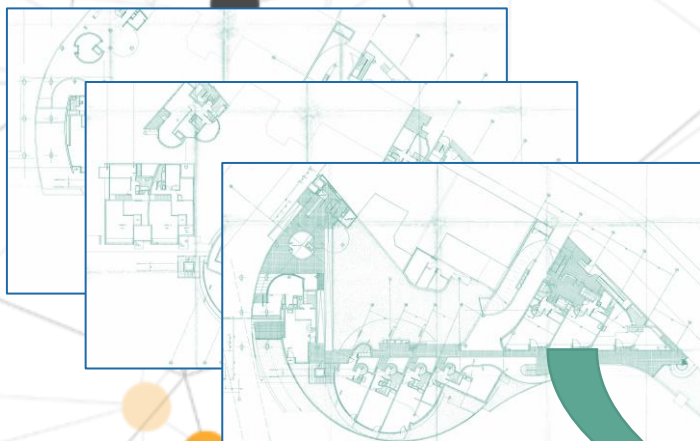
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Presentation title + Location + Date

Plans2BIM : concept



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 *
frederic.suard@wisebim.fr
password *

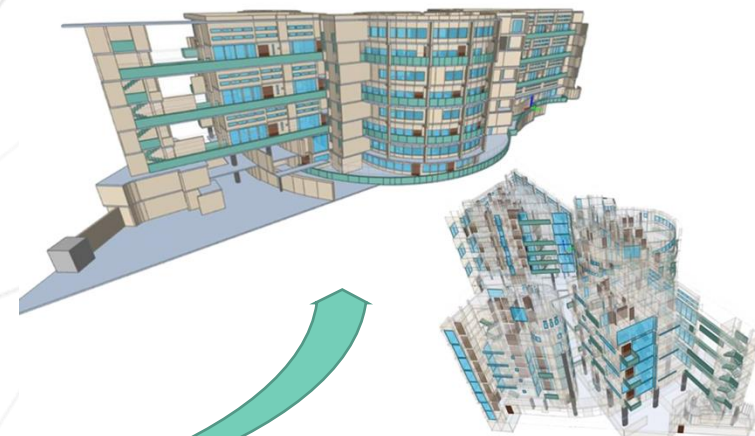
Sign in

Create account

Reset password

OR TRY OUR DEMO

Free demo



BIM (IFC)



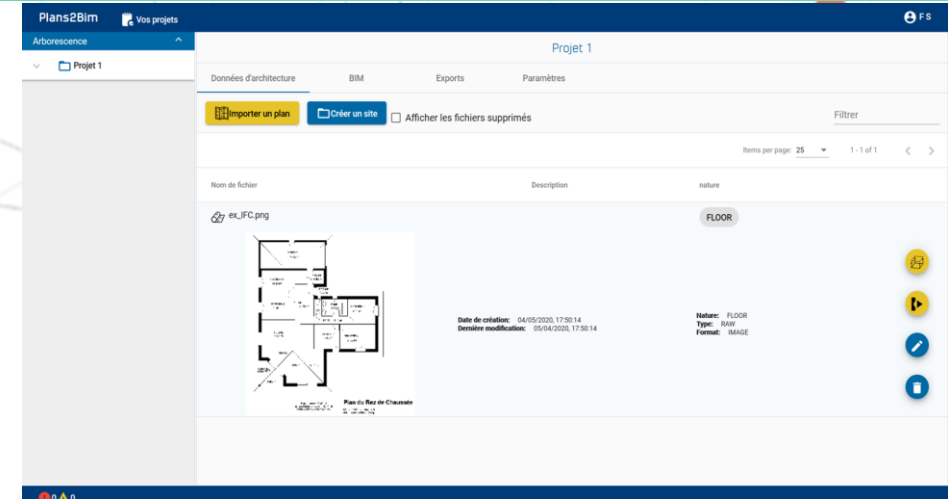
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Plans2BIM : functions



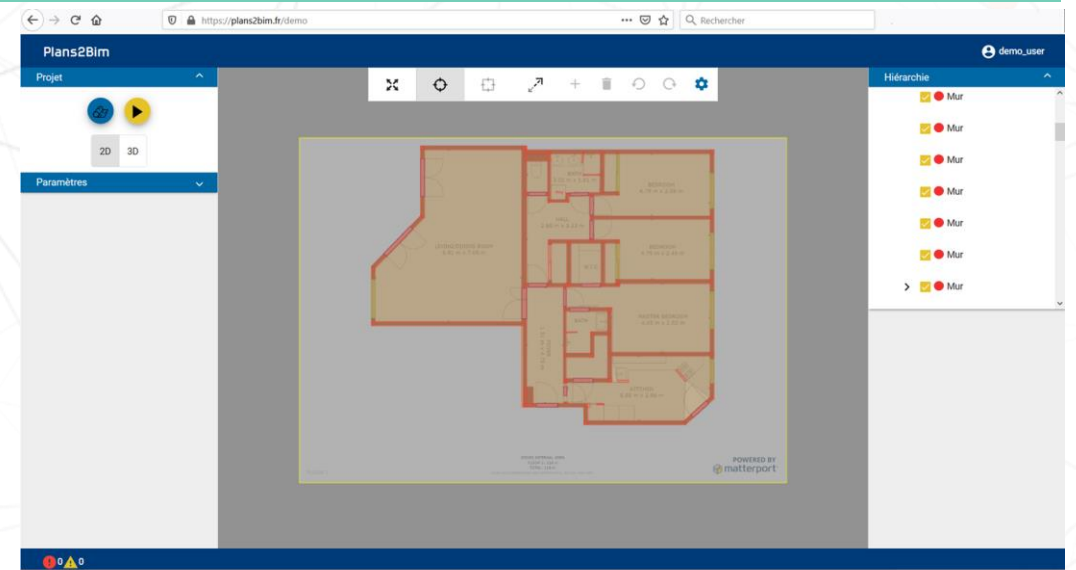
Project

- 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



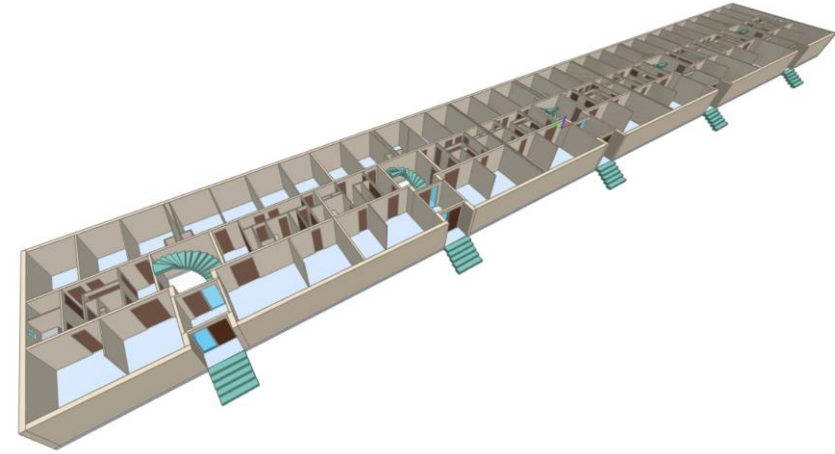
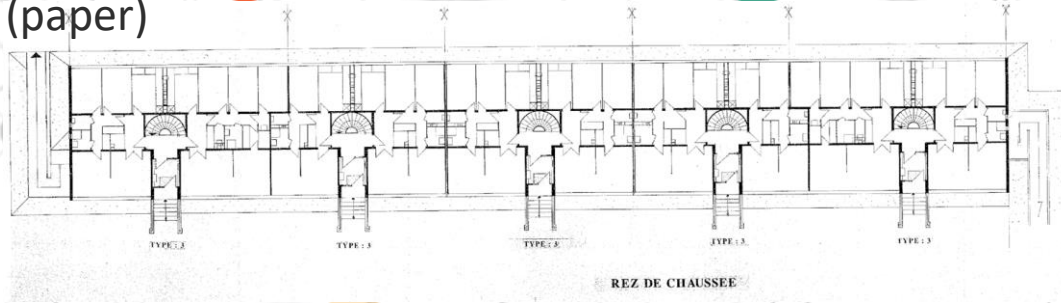
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Plans2BIM : Use case



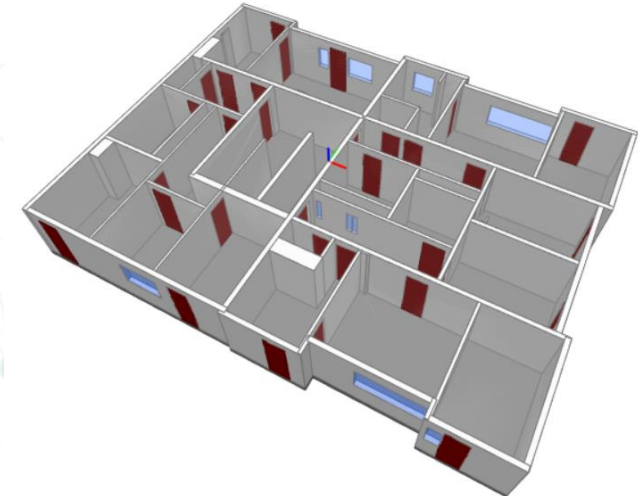
As designed

- 100% offsite
- Original architectural plan (paper)



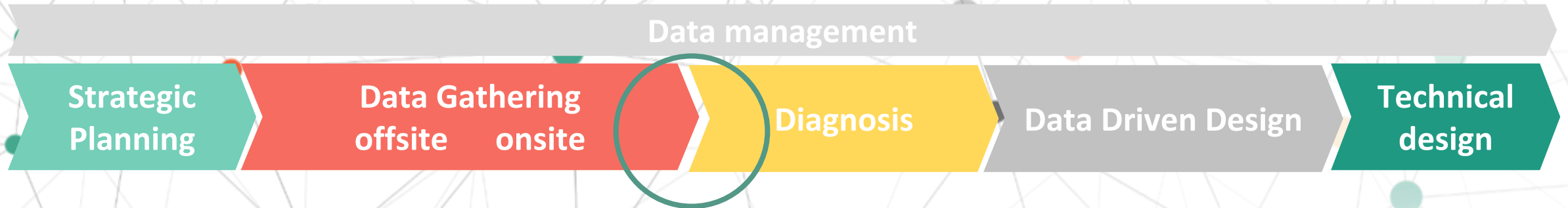
As built

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



Model Enrichment

Where are we in the renovation process?



LODlifter



Where are we in the renovation process ?



- Step 3 : Model Enrichment

Data management

Strategic
Planning

Data Gathering
offsite onsite

Diagnosis

Data Driven Design

Technical
design

LODLifter



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Vendor / Industrial

Where are we in the renovation process ?



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Automatic retrieval (LODlifter 1)

Cadastral DB



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Assignment of products (LODlifter 2)

Automatic retrieval (LODlifter 1)

Catalogues
of Products
(Iso23386)

Cadastral DB



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Vendor / Industrial

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Assignment of products (LODlifter 2)

Automatic retrieval (LODlifter 1)



Catalogue
Editor

Catalogues
of Products
(Iso23386)

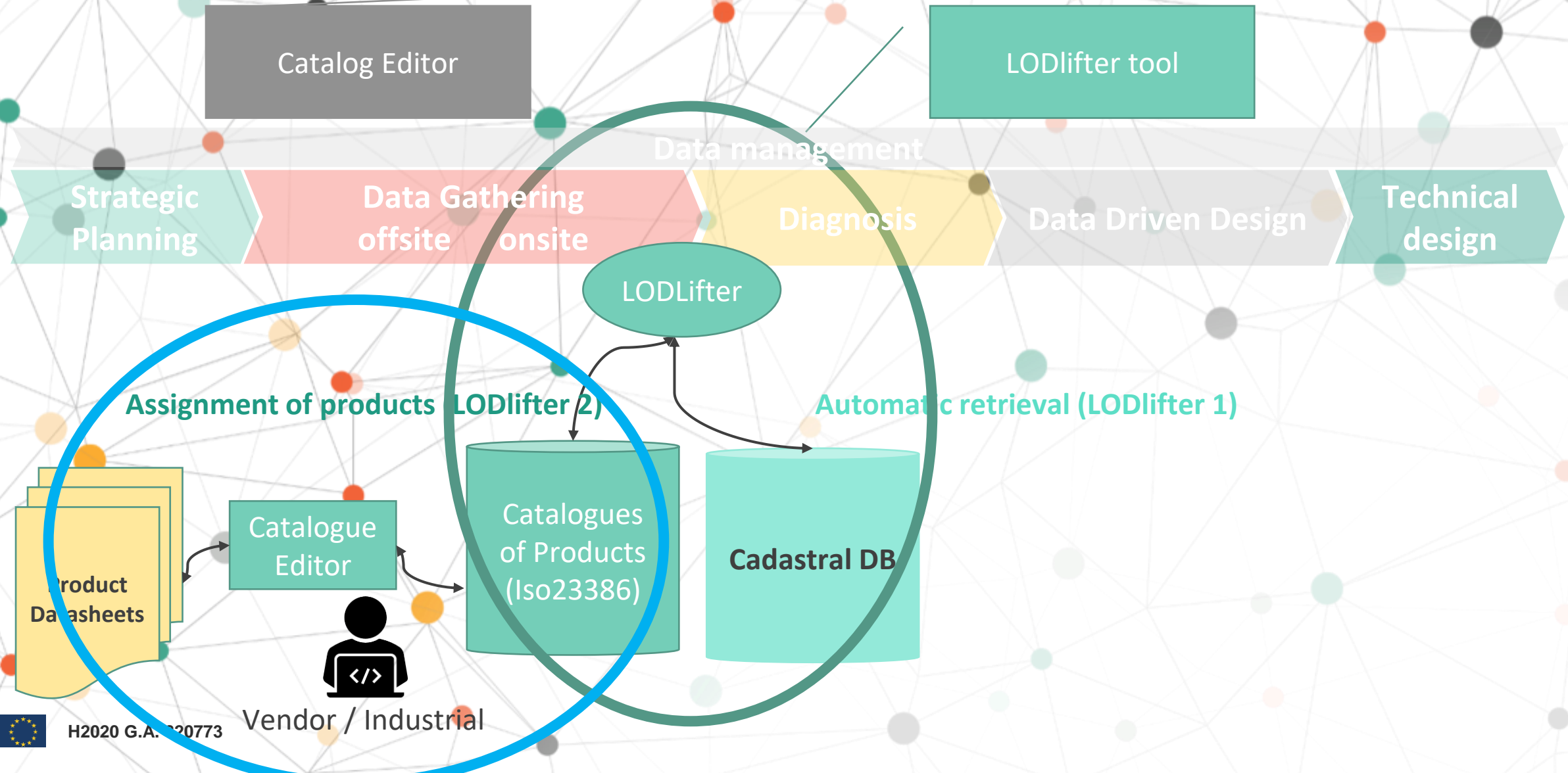
Cadastral DB



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Vendor / Industrial

Where are we in the renovation process ?



DEMO



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BIM4Ren

TRAINING

Thank you for
your attention



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<http://bim4ren.eu/>



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