

# Platforms for EeB Renovation BIM-Speed project

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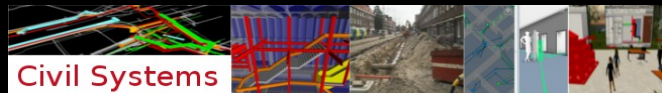
- 5,310,875.34 EUR
- 2016 – 2020
- 54% SME; 28% IND; 13% HES;  
5% PUB

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- 6,997,781.25 EUR
- 2018 – 2022
- 36% SME; 18% IND; 23% HES;  
12% RES; 11% PUB / non-profit



## European Union (EU) (Meijer et al., 2012)(Artola et al., 2016)

- 40% of the total energy consumption and 36% of CO2 emissions
- 90% of the total stock was built before 1990 of which 40% before 1960 when building energy performance standards had not yet been published
- 75% of the total floor area of the existing stock belongs to residential buildings
- 85% of all renovation projects led to an energy reduction between 0 and 30%; 10% of the projects resulted in an energy reduction of 30%-60%; only 5% of the projects reduced energy consumption by 60-90%

## EU renovation wave

- improving the energy efficiency of buildings,
- stimulate investments,
- boost job creation in the sector
- address social aspects related to the energy-poverty and living conditions.

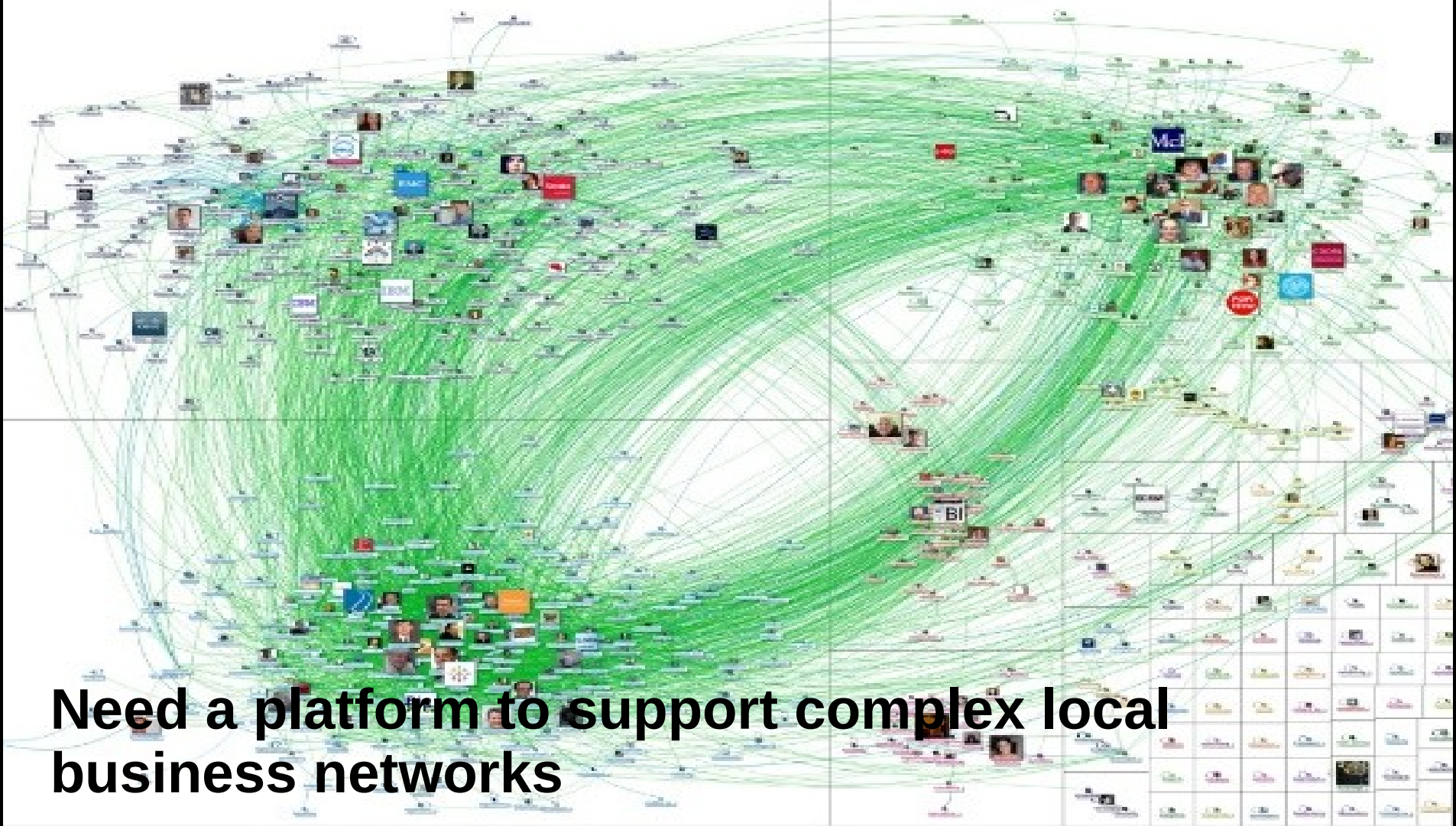


2010 the renovation  
market has  
surpassed the  
construction of new  
buildings



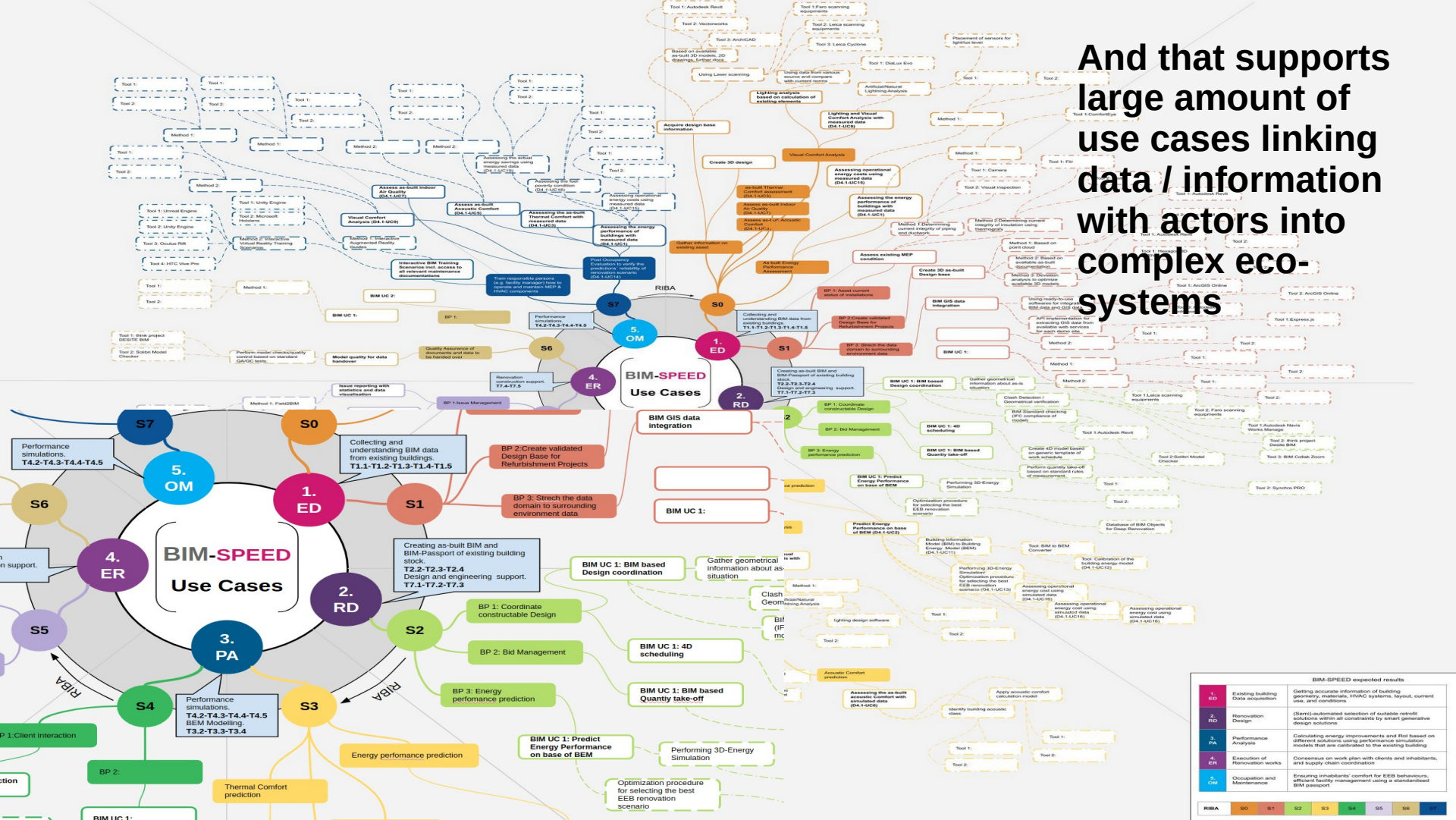
# Why is it so hard to scale deep renovation efforts?





**Need a platform to support complex local business networks**

And that supports large amount of use cases linking data / information with actors into complex eco-systems





**BIM- SPEED demonstrated how all stakeholders in the housing renovation market can be supported with a eco-system platform (TRL 6-7 = subsystem level):**

**1. An affordable cloud-base BIM platform**





















**2. A set of inter-operable BIM tools**

**3. Validation and standardised procedures for implementing renovation solutions with guaranteed energy performance and inhabitants' comfort**





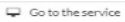
Paved the way by demonstrating how a cloud platform/architecture could look like

|                                                                                  |                            |    |                                                                                   |
|----------------------------------------------------------------------------------|----------------------------|----|-----------------------------------------------------------------------------------|
|    | ANTONY_FRANCE              | 79 |    |
|   | BARLAD_ROMANIA             | 74 |   |
|  | BERLIN_LICHTENRADE_GERMANY | 7  |  |
|  | BERLIN_TEMPELHOF_GERMANY   | 74 |  |
|  | BERLIN_TUBerlin_GERMANY    | 76 |  |
|  | FRIGENTO_ITALY             | 74 |  |
|  | GDYNIA_POLAND              | 95 |  |
|  | JAZDY KONNEJ_WARSAW_POLAND | 75 |  |
|  | MALKO TARNOVO_BULGARIA     | 77 |  |
|  | MASSY_FRANCE               | 79 |  |

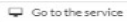

BERLIN\_LICHTENRADE\_GERMANY > Variants

- Scan-Dateien
- IFC-Dateien
- Grundlagen Pläne
- 20190221-Neubau (Dachvariante 2-fach Keil) (kopieren).rvt
- 20190604-Ist 60(Revit 2019) (kopieren).rvt
- 20190212-Aufgestockt (gedämmt mit Balkon, gleiche Dach) (kopieren).rvt
- 20190219-Aufgestockt mit neuen Dach (Variante 1-fach Keil) (gedämmt) (kopieren).rvt
- 20190219-Aufgestockt mit neuen Dach (Variante 2-fach Keil) (gedämmt) (kopieren).rvt

**KROQI service example**  
A "toy" service, used to illustrate the basics of implementing KROQI services.




**Files naming convention tool**  
This service can be activated on folders in order to create and check naming conventions ...


 

Third-party services

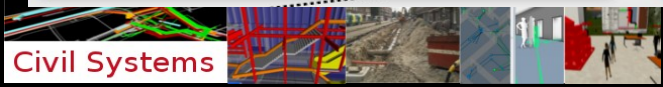
**CSTB** le futur en construction  
► CSTB Sophia Antipolis  
Semantic model checker



**BIM SPEED** Weather data service



<https://bimspeed.kroqi.fr/login/#!/>



Civil Systems





Integrated illustrative apps for supporting the renovation project life-cycle to start the race

BIM-SPEED services and extensions

|            |                  |                            |
|------------|------------------|----------------------------|
| Integrated | Being integrated | Not technically integrated |
|------------|------------------|----------------------------|

Types of services

- Cloud service
- Desktop/device app
- File

crowdsourcing of inhabitant's input

BIM Maturity Tool

BIM Passport

BIM-SPEED BIM library

WP2 : Creating As-Built BIM, BIM Passport, Family & Library

BIMtoBEPs

BEM calibration procedure/tool

WP7 Generating EEB renovation solutions and implementation strategies

VR AR/MR tools

BIM Execution Plan

Material Service

Open BIM Construction System  
Open BIM Analytical Model

CYPETHERM Eplus  
CYPETHERM Improvements

Acoustic soft-sensor

Comfort eye

ECOfloor

KPI Dashboard

Multicriteria decision making tool

WP4 Conducting performance simulations of renovation scenarios

BIM-based Life Cycle Cost and Asset Management

Some stunts: Develop some innovative apps (for, for example AI support





Model Folder

Resnet101

Backend

OPENCV

Target

CPU

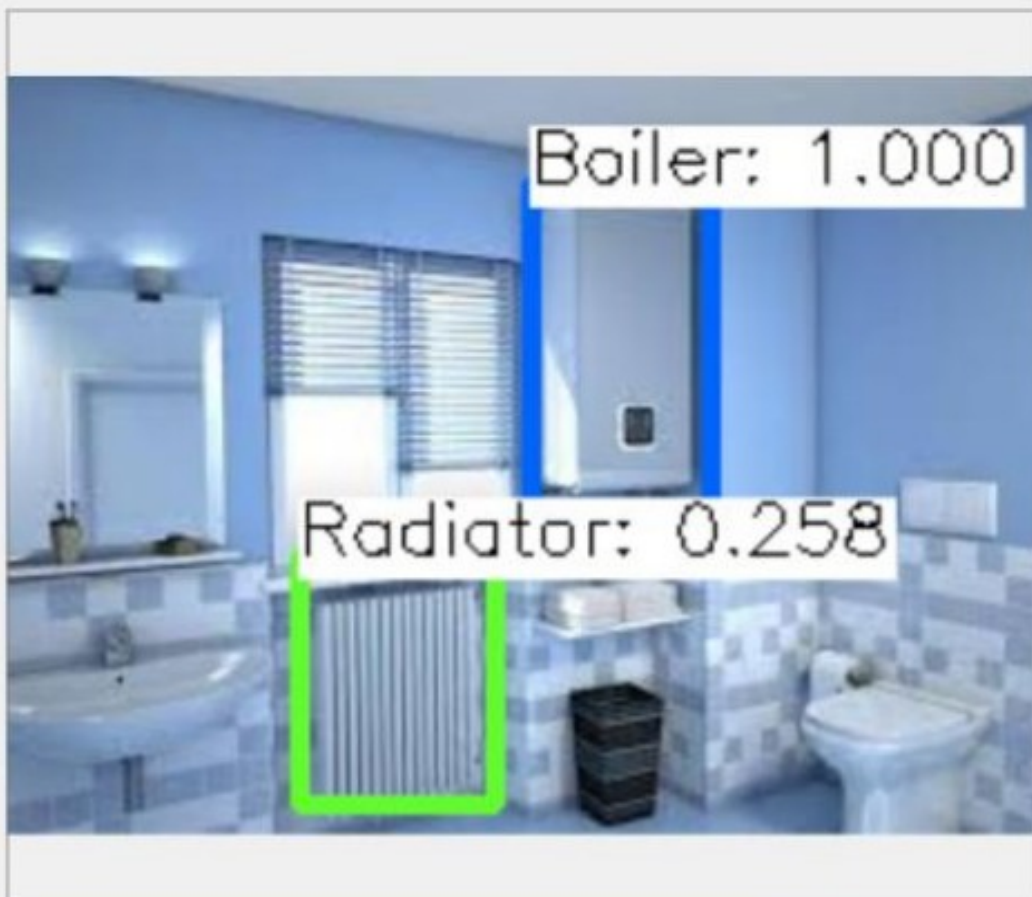
Confidence: 0,15

NMS: 0,5

Size: 700 X 700

Inference

Save Results



Remove

Image number: 33

Image Validation (22).jpg

Inference (ms): 6688,55

| Id | Class    | Confidence |
|----|----------|------------|
| 0  | Boiler   | 1,000      |
| 1  | Radiator | 0,258      |

Resnet101

OPENCV

CPU

Confidence: 0,15

NMS: 0,50

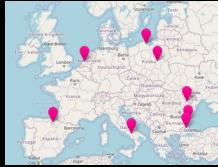
Size: 700 X 700



How can we establish the eco-system that is required around the platform?

We did:

12 demonstration projects (building renovation)  
10+ illustrative apps and services integrated in the platform

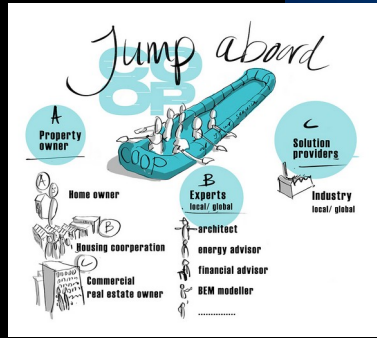


Formalization of 20+ BIM-Speed use cases for BIM for renovation  
<https://ucm.buildingsmart.org/>

TRAINING MATERIALS

Detailed training material

<https://www.bim-speed.eu/en/training-materials>



COMPETITION

BIM-Speed competition

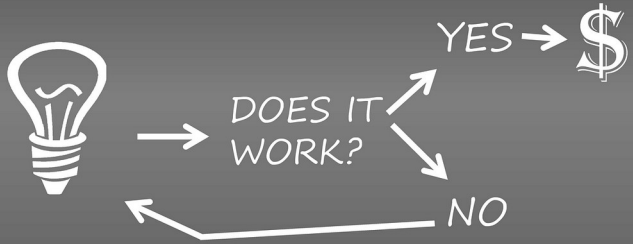
<https://www.bim-speed.eu/en/competition>



But this will not be enough ...



## Business Plan



What is the required scope for a platform – renovation, all projects, infra?

Who will provide, manage, maintain, market, finance it?

What does it take to establish a cloud platform and eco-system for building renovation?

Can a solution compete with existing platforms?

