Information management in BIM Collaboration.
Renovation Projects.

Anabelle Rahhal, Architect Engineer, PhD Student in Science Engineering.
Co-promoters : Prof. Pierre Leclercq (ULiege) et Prof. Samia Ben Rajeb (ULB)
Why Renovation Sector?

Context of renovation
(Joblot, Paviot, et al., 2017)

Multiple terms used in renovation
(Rosenfeld & Shohet, 1999)

Granted building permits 2002-2019
(Statbel, Belgium Office of Statistics)

Housing built / renovated 2016-2050 in Europe
(Sandberg et al.)
Findings concerning Companies

- Complexity, multitudes of exchange
- Flaw and fragility at the decision node
- Loss of information during the various stages of the project
- Several ICT management and organization solutions
- Exceedances of deadlines or financial issues
- Lack of BIM maturity of companies

Attention to bring to Micro businesses and SMEs in the Renovation sector!

Activity sectors 2015
(CAPEB, France)

- Masonry Tiling
- Painting Glazier Coatings
- Roofing Plumbing Heating
- Electrical and electrical equipment
- Carpentry
- Insulation and Plaster
- Ironwork Metalwork

Statistics on the structure of construction companies 2016
(Statbel, Statistics Belgium)

<table>
<thead>
<tr>
<th>Section</th>
<th>Job class</th>
<th>Turnover (ca)</th>
<th>Values of production</th>
<th>Goofs and services</th>
<th>Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ F Construction</td>
<td>Between 0 et 9</td>
<td>33.295.601</td>
<td>32.613.606</td>
<td>26.376.682</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Between 10 et 19</td>
<td>6.820.293</td>
<td>6.673.567</td>
<td>4.778.163</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Between 20 et 49</td>
<td>8.490.494</td>
<td>8.276.173</td>
<td>6.091.943</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Between 50 et 249</td>
<td>13.425.812</td>
<td>13.475.360</td>
<td>10.395.815</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Between 250 and beyond</td>
<td>8.409.248</td>
<td>8.220.180</td>
<td>6.440.276</td>
<td>78</td>
</tr>
</tbody>
</table>
Why BIM (Building Information Management & Modeling)?

- **AN ANSWER** as needed in 3D models to effectively manage the building process, visualization, evaluation, documentation and maintenance of a building.

- **BENEFITS AND USES** similar as in new construction.
Despite its advantages in new construction, BIM does not attract enthusiasm in the sector of renovation...

Risk of disappearance of some companies without a change towards the BIM ...

- Develop LEVERS to accelerate BIM diffusion within the sector
- Need SOLUTIONS easier to implement
- Need of METHODOLOGY to develop, systemic approach

"50 scientific articles on BIM applied to renovation until 2019"

"75% of SMEs are non-BIM and work on 2D plans"
1. Propose **recommendations** to the actors of the renovation sector to carry out their BIM projects

2. Taking current practices into account by integrating, for example, **the 2D / 3D numerical annotation** on a digital model

3. Improving the **efficiency of the BIM process** in renovation projects (dataflow and workflow between the various stakeholders)
THANK YOU FOR YOUR ATTENTION