

# Réemploi et numérique

Entrée en matière par le matériau bois



Maxence Lebossé

04/04/2022



UNIVERSITÉ  
DE LORRAINE IAEM



climaxion  
anticiper • économiser • valoriser



LORRAINE  
INP Enstib  
ÉPINAL



LES  
CONSTRUCTEURS  
DU BOIS

# Des déchets aux ressources

L'exemple du bois

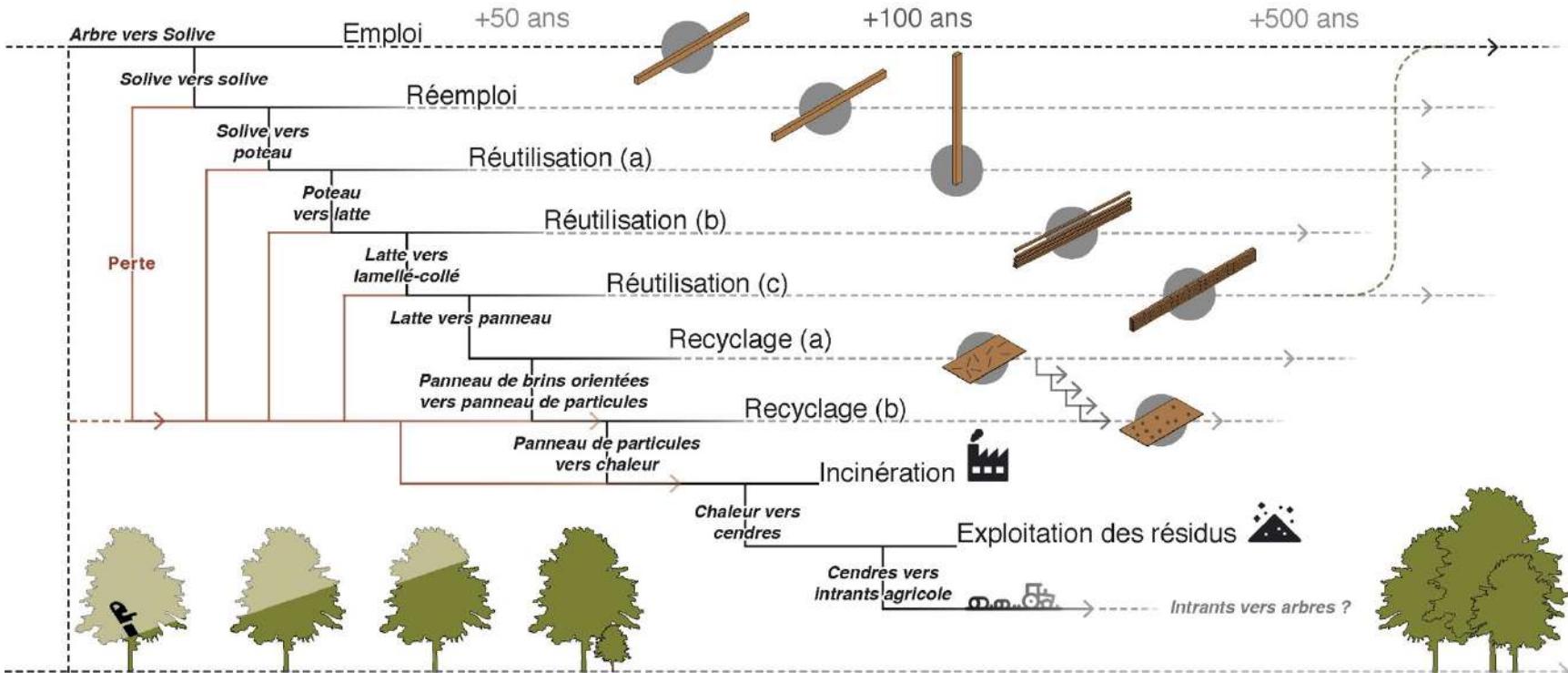
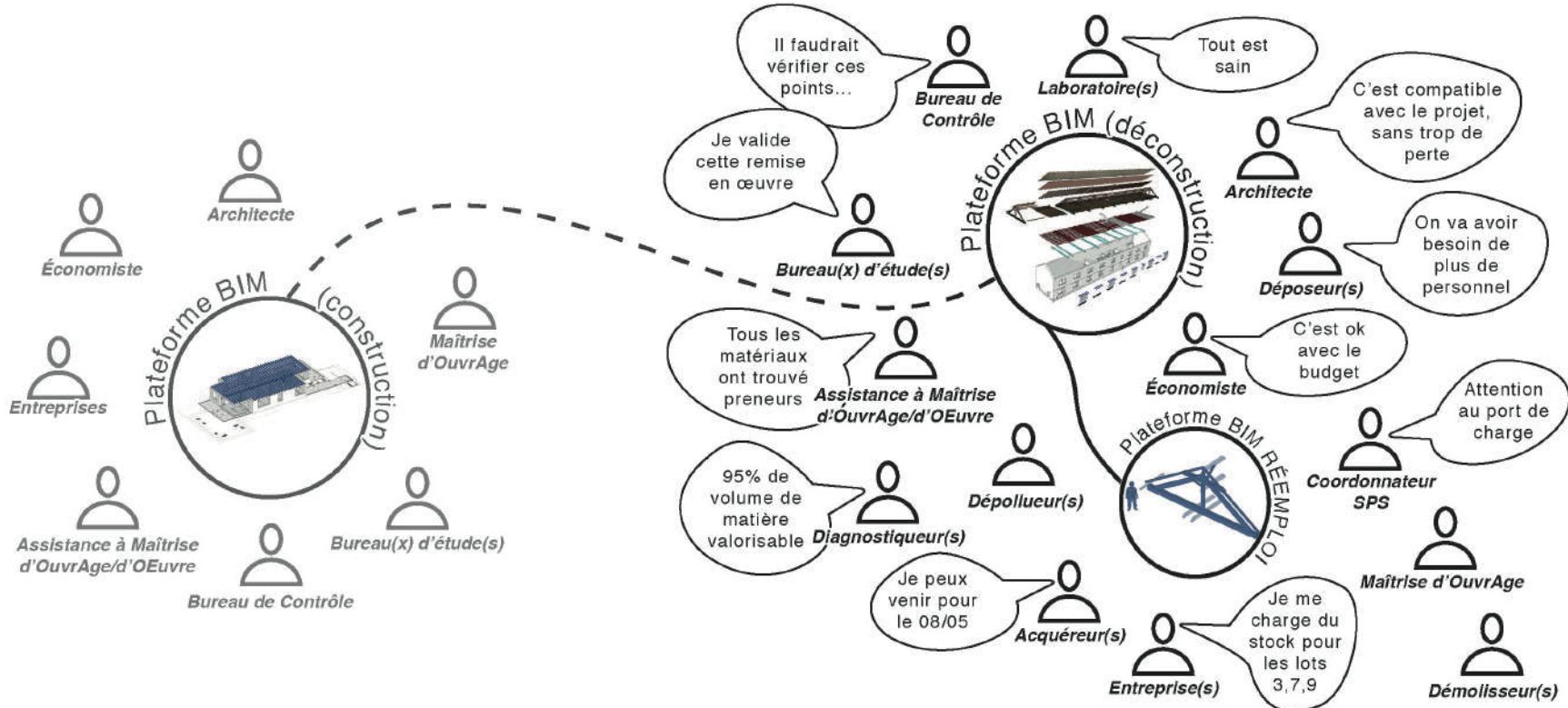


Schéma d'après la thèse de master de D. Sakaguchi, Potential for cascading wood from building, Université Aalto, 2014.

# L'Orchestration

BIM et Réemploi, convergence des processus



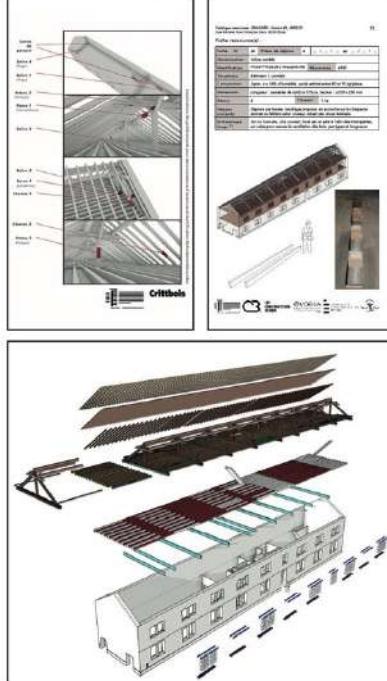
# Numériser le réemploi ?

L'histoire d'une solive

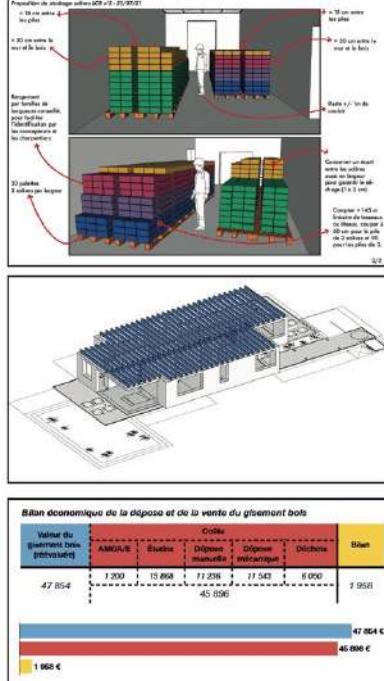
## Récolter



## Représenter



## Valoriser



## Réaliser

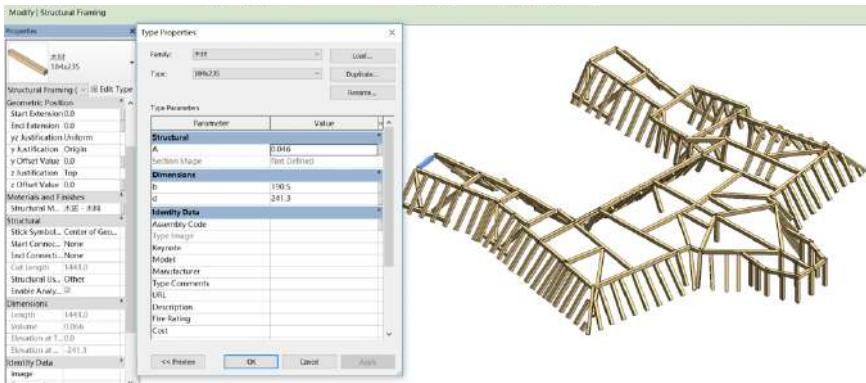
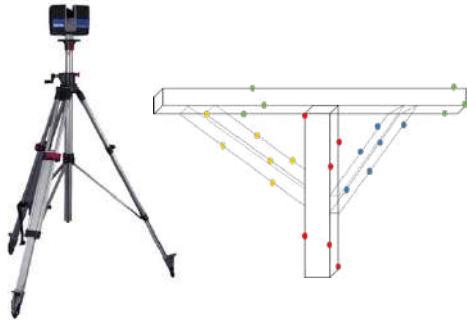


© Xyolab

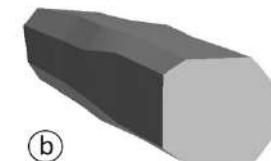
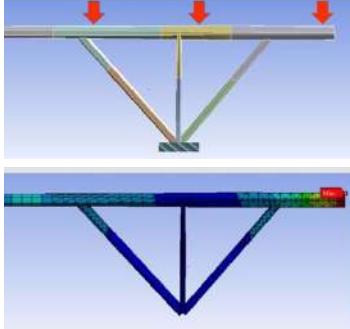
Extraits des documents et photographies issus de l'enquête menée durant la déconstruction de l'ancienne filature « Bragard » à Épinal, 2021

# Rétro-modélisation

Numériser et caractériser le bois d'œuvre en usage



X. Yang, M. Koehl, P. Grussenmeyer. Photogrammetry and Geomatics Group, ICube Laboratory UMR 7357, INSA Strasbourg, France, 2018



D.Santos (1), M.Cabaleiro (1),  
H.S. Sousa (2), J.M. Branco (2)  
Apparent and resistant section  
parametric modelling of timber  
structures in HBIM, 2022.

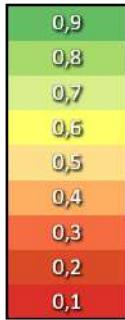
1 Department of Materials Engineering,  
Applied Mechanics and Construction,  
School of Industrial Engineering,  
University of Vigo, Spain

2 University of Minho, ISISE, Department of  
Civil Engineering, Guimarães, Portugal

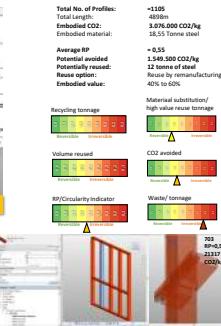
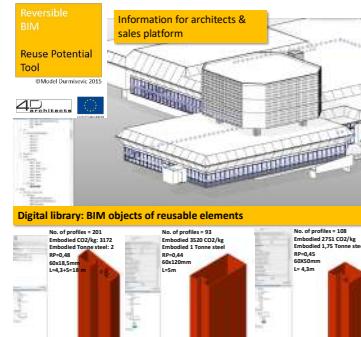
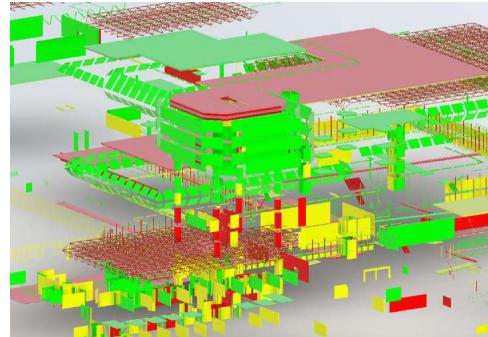
# Rétro-modélisation

Évaluer et exploiter le potentiel de l'existant

Reversible

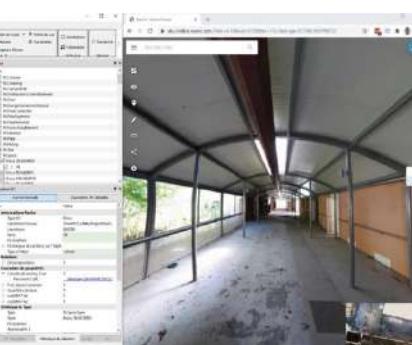
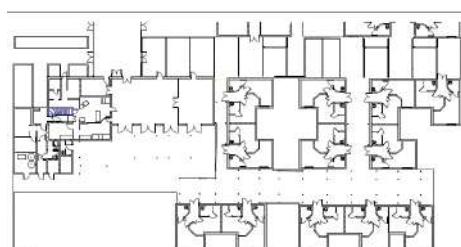


- Glass Facade [28360...]
- Glass Facade [28564...]
- Glass Facade [28581...]
- Glass Facade [28667...]
- Profile Facade
- Panel Vent.Facade
- Floors
- Floor
- Floor Slab 200 mm
- Floor [280579]
- Roofs



Interreg  
North-West Europe  
Digital Deconstruction

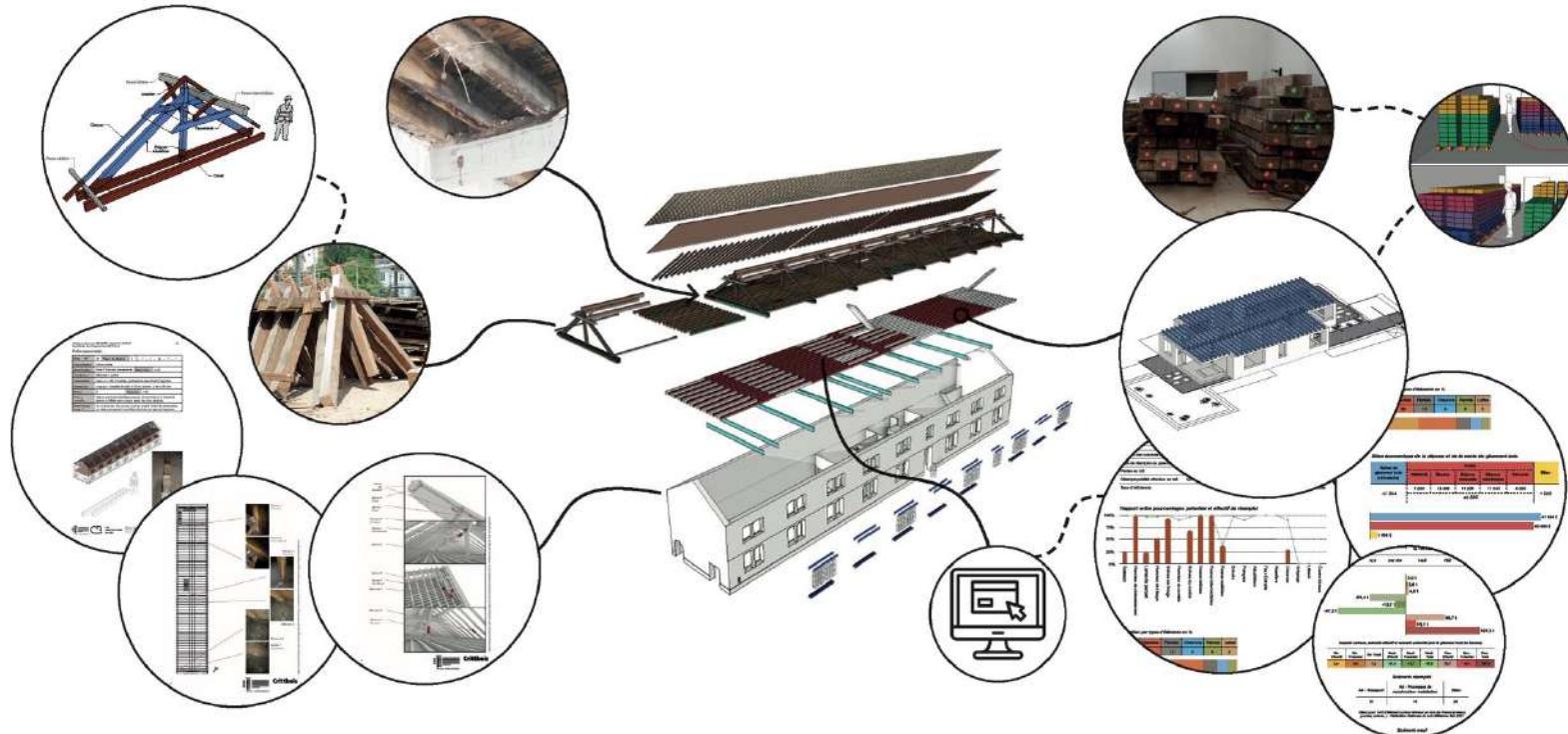
E.Durmisevic, 4D Architects, GTB LAB, Digital Deconstruction, Reversible BIM, Reuse potential tool, 2021. Roman Museum in Heerlen.



MyDigitalBuildings, CSTB, EPF Occitanie, Caprionis, EHPAD de Saint-Hilaire (Aude), 2020-2021.

# Modéliser et déconstruire

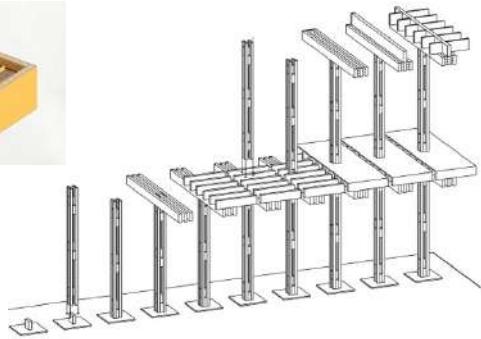
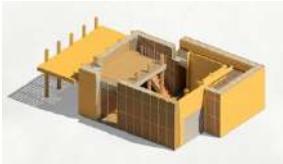
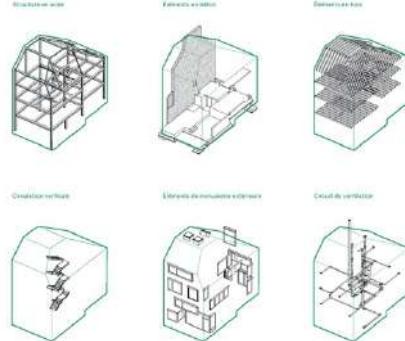
Centraliser, renseigner, visualiser, valoriser, planifier, ....



Extraits des documents et photographies issus de l'enquête menée durant la déconstruction de l'ancienne filature « Bragard » à Épinal 2021.

# Réemploi, recto-verso

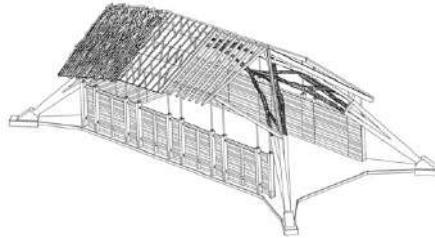
Le BIM, condition du réemploi futur



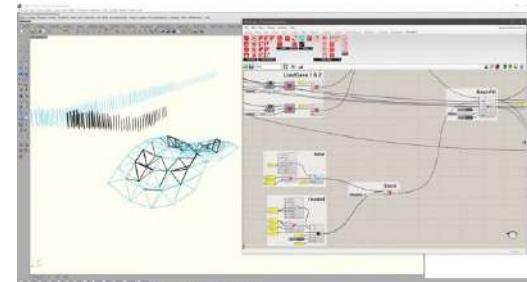
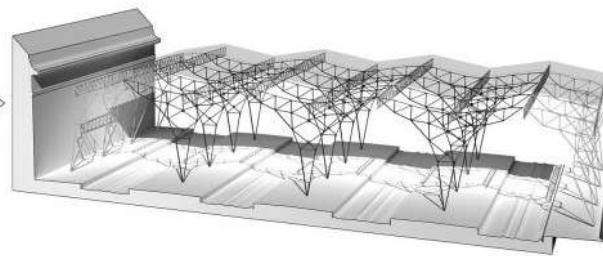
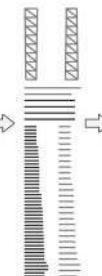
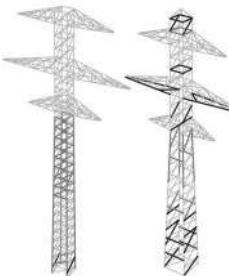
À gauche : observations de terrain; en haut à droite Projet 115, agence POLARIS 2020 ; en bas à droite expérimentations BRIC 1&2, Karbon 2018-2020.

# Outils d'appropriations

Composer avec le non-standard



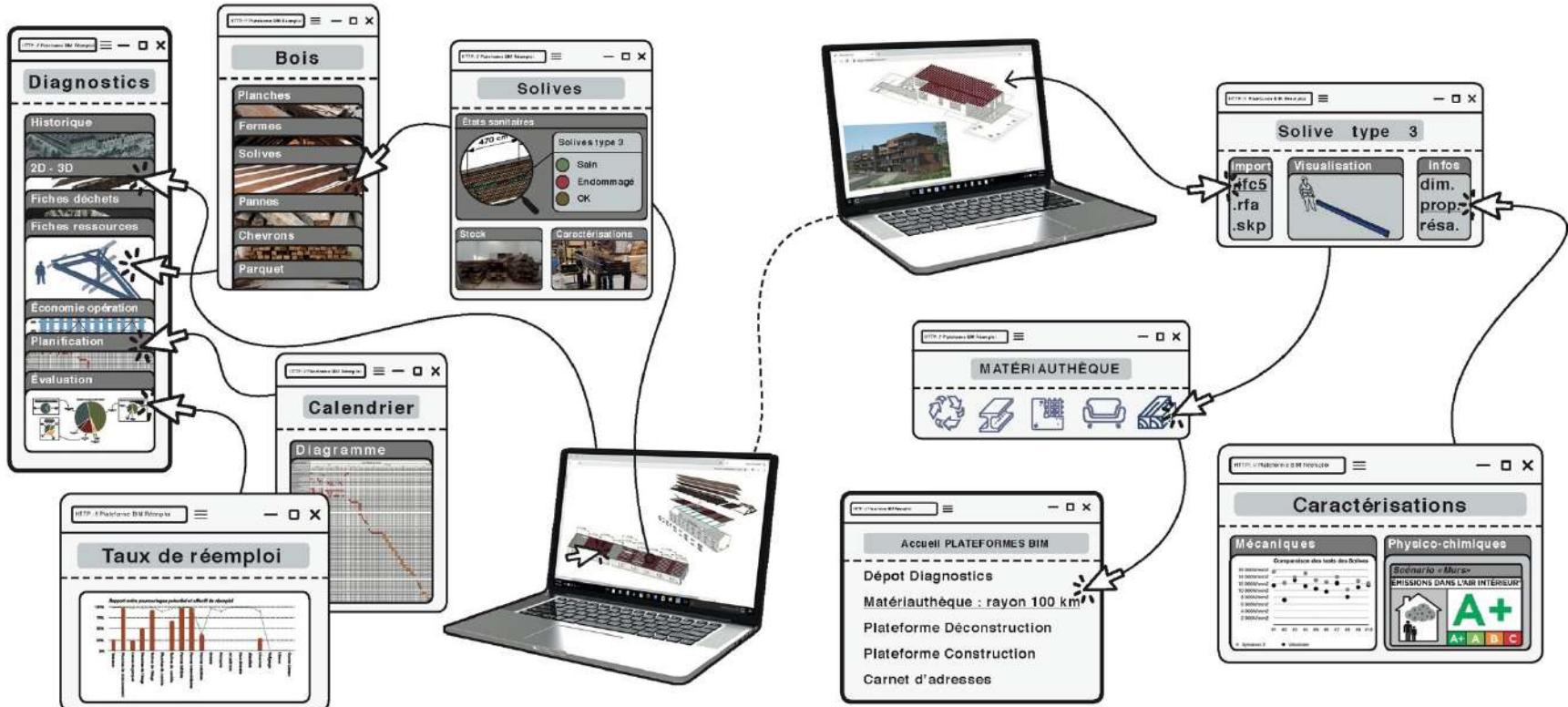
M. Islam, Z. Mollica, S. Shah, S. Vigesana, Y-C. Yang, T. Burgess, C. Brentnall, M. Self, E. Vercruyse, J. Draper, F. Archer, N. Minami, C. Van Egeraat, P. Devadass, «Wood Chip Barn». Hooke Park. 2015-2016.



J. Warmuth, J. Brütting, C. Fivet, EPFL, SXL, Phoenix3D, 2021.

# Perspectives de recherches

Numérisation du processus de réemploi du bois d'œuvre



# Merci de votre attention



maxence.lebosse@nancy.archi.fr

04/04/2022



UNIVERSITÉ  
DE LORRAINE

IAEM



marcrai  
culture  
cnrs  
ministère  
de la culture  
l'État  
égalité  
partage

MINISTÈRE  
de la CULTURE  
l'État  
égalité  
partage

climaxion  
anticiper • économiser • valoriser

ADEME  
AGENCE DE LA  
TRANSITION  
ÉCOLOGIQUE

LORRAINE  
INP  
Enstib  
ÉPINAL



LES  
CONSTRUCTEURS  
DU BOIS