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Project Manager



GEONARDO®

BIM and GIS data assisted by TLS for Asset Information Models and design

GEODESIGN+BIM 2017

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WHAT WE DO

Working with spatial and 3D data to provide a range of services for:

- Surveying and assessments
- Improve energy efficiency
- Develop tools and methods



GEONARDO®

WHAT

WE DO FOR

CONSTRUCTION SECTOR

R&D actions for improved building modeling and energy efficiency:

- IMPRESS project
- PROCEED project
- And further client/demand-based solutions



IMPRESS PROJECT

ENERGETIC RETROFITTING BUILDING
ENVELOPE ASSESSMENT

- BIM and architectural modeling
- Thermal simulations and energy design of panels
- Precast panel development based on formwork modeling and 3D printing



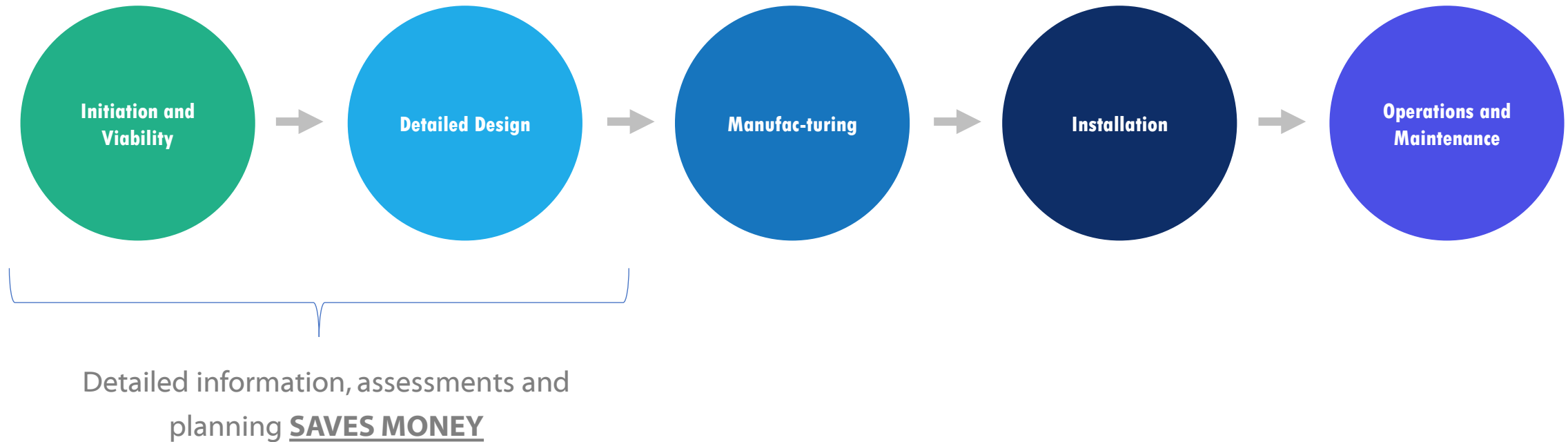
NEW EASY TO INSTALL AND MANUFACTURE PRE-FABRICATED MODULES SUPPORTED BY A BIM BASED INTEGRATED DESIGN PROCESS

<http://www.project-impres.eu/>

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 636717

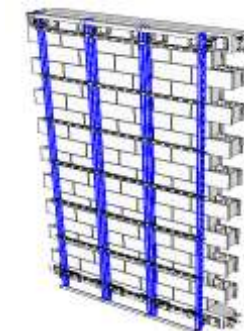
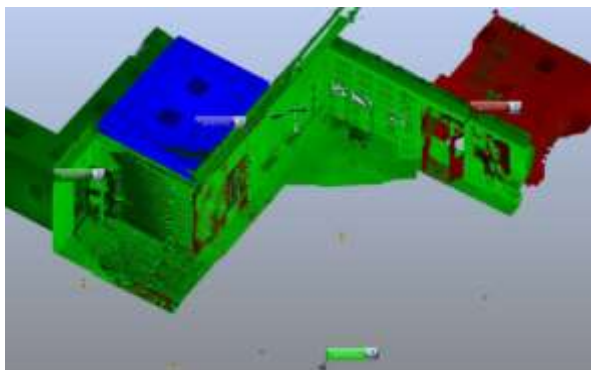


IMPRESS WHY IS IT IMPORTANT?



DEMONSTRATION SITES

OPTIONS FOR
OVER/RE-CLADDING



1. NAPLES / ITALY

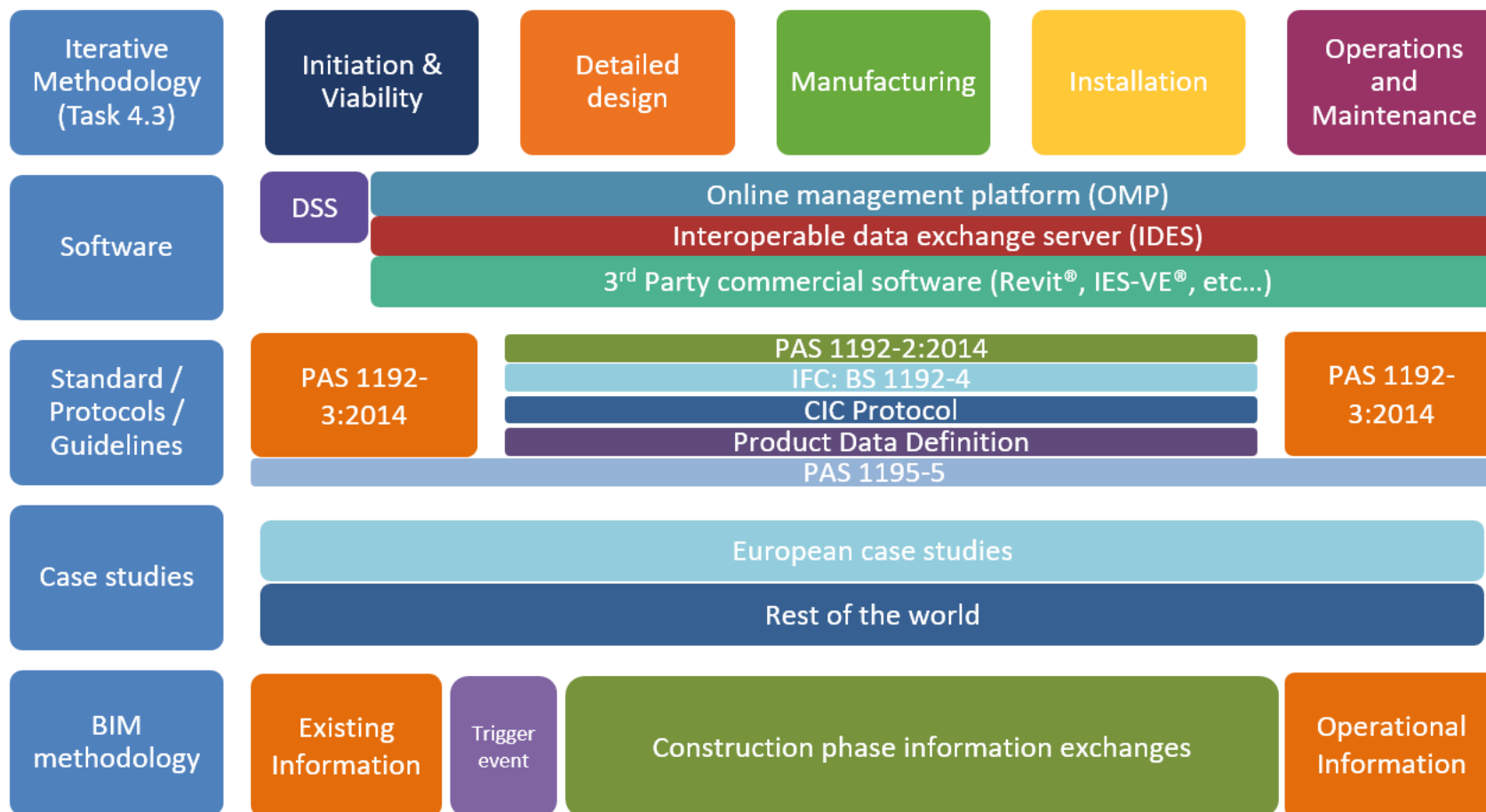
2. SEVERIN / ROMANIA

3. COVENTRY / UK




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FUNDAMENTALS IMPRESS METHODOLOGY



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BENEFITS OF 3D DATA

EXAMPLES



GEONARDO™

Survey building facades and wall surfaces by the TLS (on site work, save to native file)



Pre-processing (remove duplicate points) and registering of point clouds (native software e.g. SCENE)



Decimation of point cloud, segmentation and save to desired format (e.g. Ascii)

Polygonal mesh (PLY, OBJ, STL object model) and/or creation of CAD files (DXF, DWG etc.)



Creation of standard and interoperable file formats (IFC, gbXML)

STAKEHOLDERS

MULTIPLE USE



ARCHITECTURAL MODELS

EARLIER DELIVERY



1 3D South-West



2 3D North-West



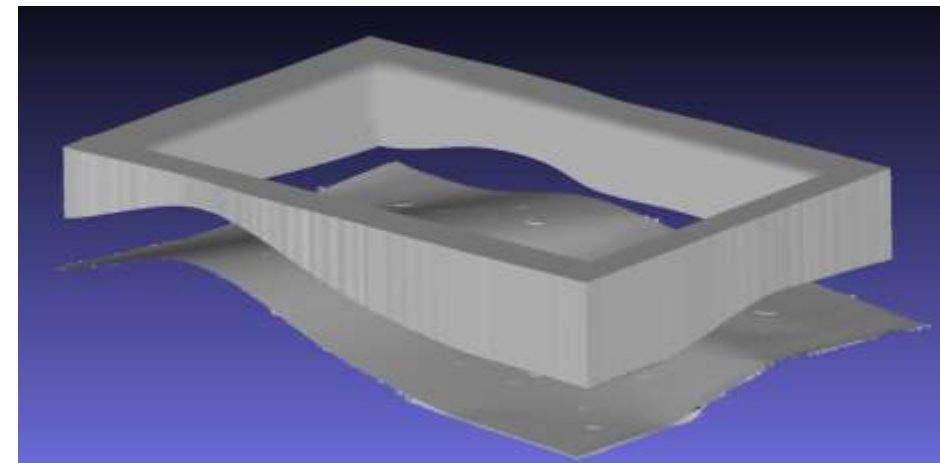
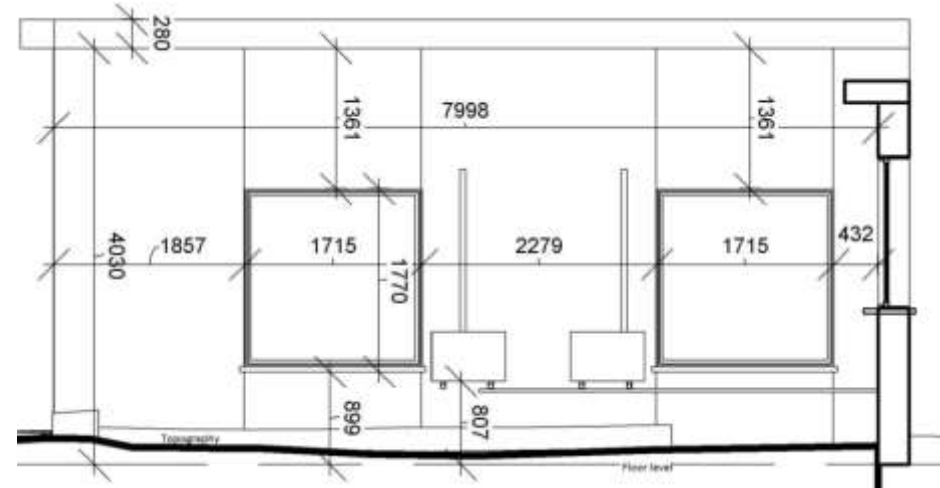
3 3D East-North

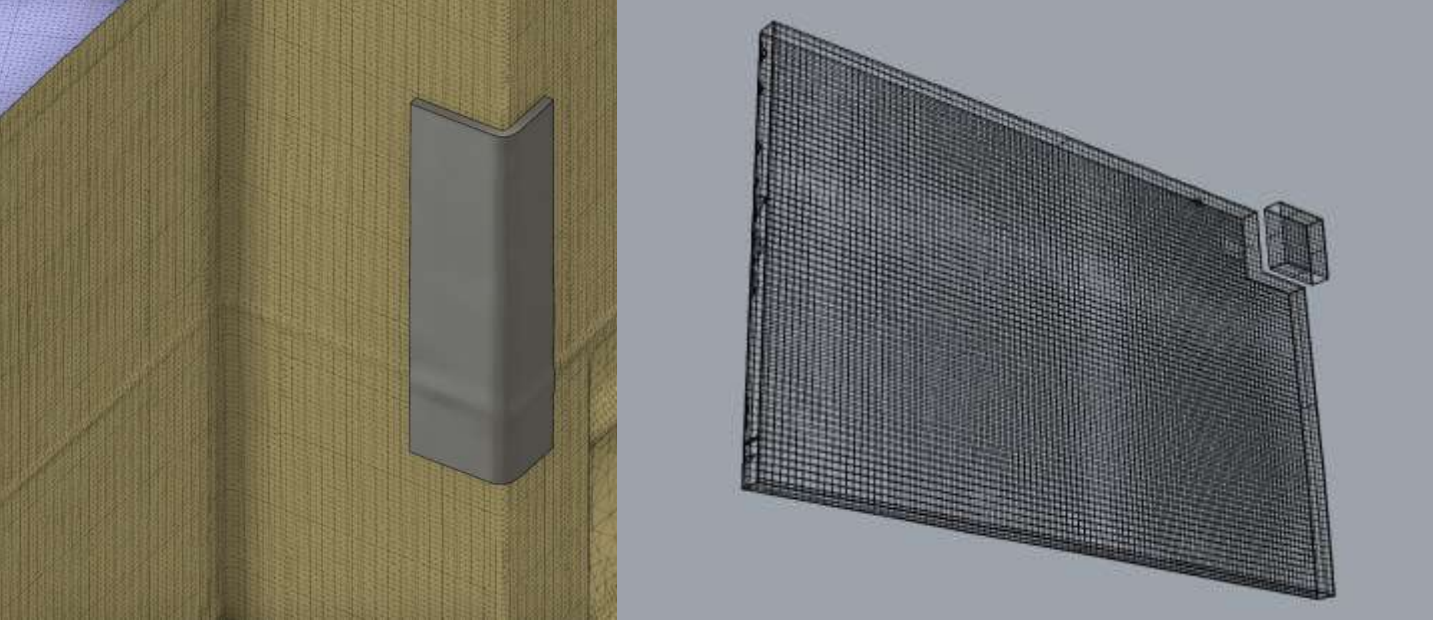


FACADE MODELS

DATA PRODUCTS

- Data exchange (IFC)
- Documentation (DWG)
- 3D printing (STL)





FACADE MODELS PANELING

Input is raw pointcloud data XYZ

Automatic detection of planes

Mapping of surface features



pointclouds.org



GEONARDO

CONCLUSIONS

LESSONS LEARNT AND OUTLOOK

- ✓ Faster, (more) accurate, multifunctional data - develop district/city based decision systems e.g. FeliCity tool
- ✓ Validated data and tools for initiation and design phase - populate data towards AIM and BMS
- ✓ Supporting logistics, contractors' needs - volumes and financial assessments etc.
- ✓ Ensuring outputs and interoperability with the construction and engineering industry



Find out more at

- ✓ <http://www.project-impress.eu/>
- ✓ <http://felicity.tools/>
- ✓ <http://geonardo.com/>





THANK YOU FOR YOUR ATTENTION!

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