



3D Point Clouds on the Web

A cost-efficient support for decision making

Florent Poux



Information gathering

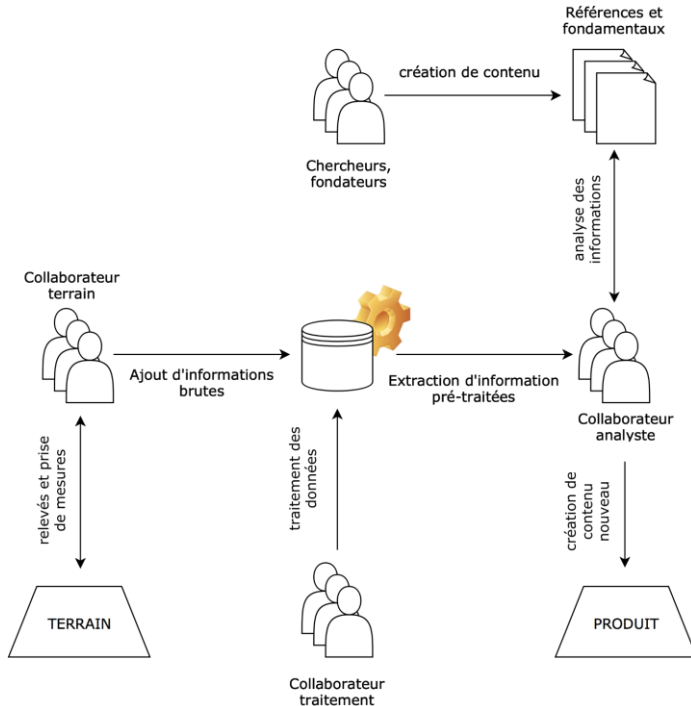


Information should be

- ▶ Immediate
- ▶ Interactive
- ▶ Complete
- ▶ Smart



The problems arising from 3D capture



▶ Storage, Archives

▶ Productivity

▶ Concurrency

▶ Added-value, Price

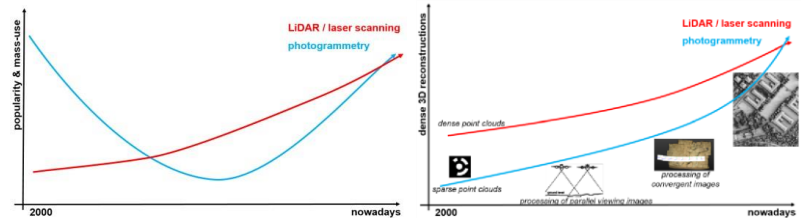


Which 3D measurement tools ?



Extracting 3D information :

- ▶ Laser Scanners
- ▶ LiDAR
- ▶ Caméra + Structure from motion





The Reality Capture cycle

CAPTURE
(as-is/as-built)



Sensors

Real world

The fusion of worlds provides dynamic and "actionable" data

Digital world



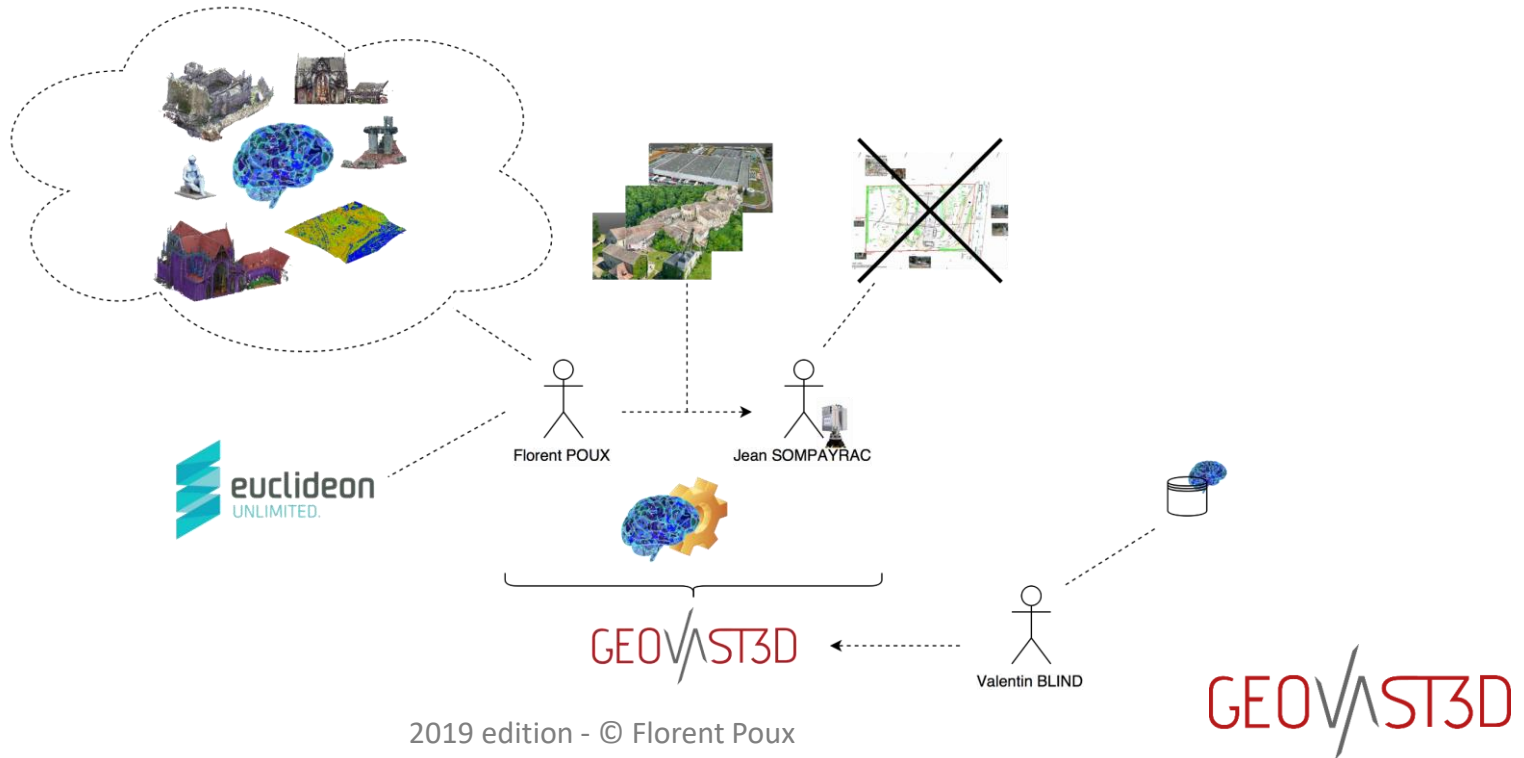
Process

(as-planned/as-designed)

ACTION



Small story





New tools



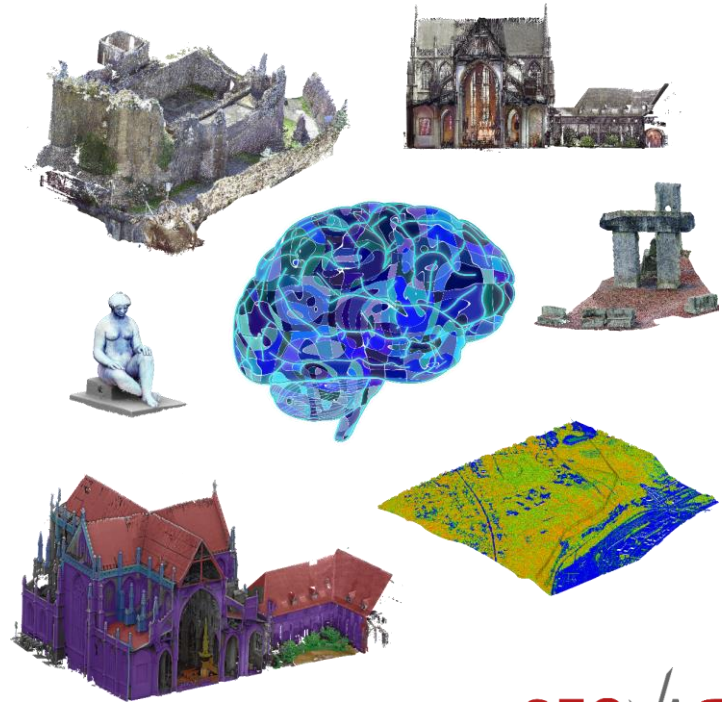
Devices are faster, more accurate, more automatic

- ▶ Smarter,
- ▶ The data collected is increasingly
 - complex,
 - Redundant
 - Heterogeneous
- ▶ Software gap



Intelligent processing

- ▶ Manage and store
- ▶ Detect and classify
- ▶ Query and analyze
- ▶ Share and visit



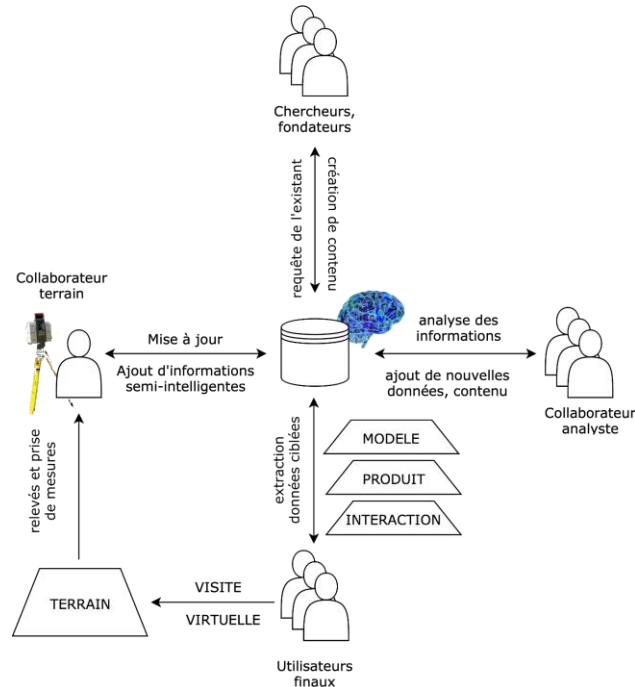


ÉLECTRICITÉ RÉSEAU DISTRIBUTION FRANCE





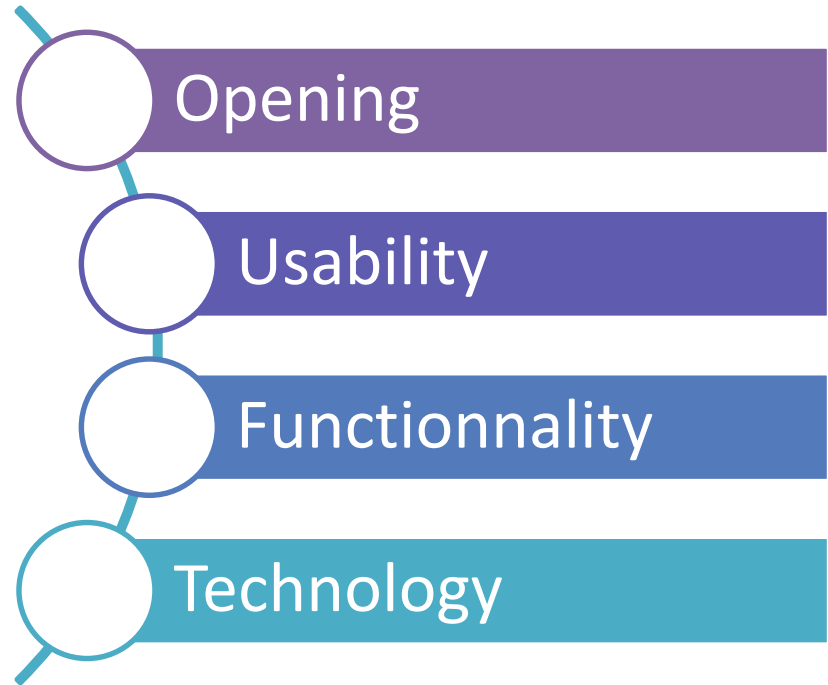
A new collaboration model



- ▶ An optimal processing chain
- ▶ The user is connected and collaborates directly,
- ▶ center of an interactive process that adapts the content
 - to the context of use,
 - to application knowledge.

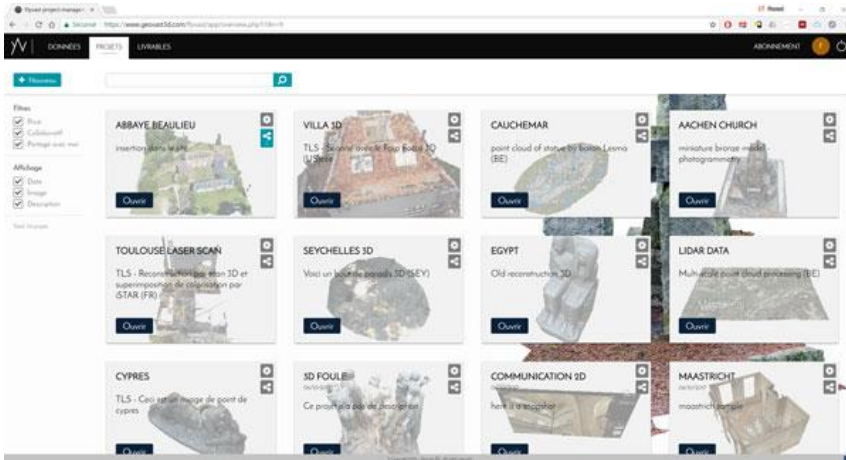


High-priority categories





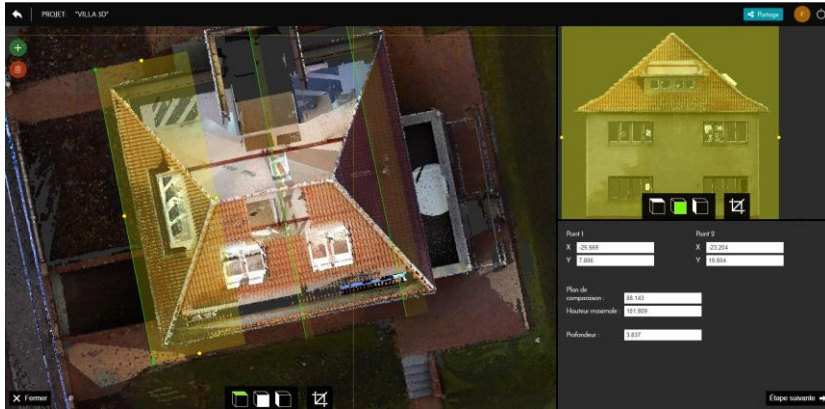
Interoperability and usability



- ▶ Open and highly transparent
 - Import in various formats (.las, .e57, .pts, .obj, .ply, .jpg, ...)
 - Direct link to external communication (social networks, emails, apps ...)
 - Export in various formats (.dxf, .las, .pts, ...)
- ▶ Simplicity of use
 - Data flow compression for low latency uploads
 - Management of data, projects and deliverable through Optimized Database
 - Expertise UI & UX



Functionnalités



▶ Point Cloud As-a-Service

- Double spatial indexing
- Unlimited combination
- Interoperability

▶ Tool

- Augmented web point cloud deliverable
- Point Cloud segmentation
- 2D, 3D cuts, sections and analysis



Technology

- ▶ Data management
 - For stability, interaction and concurrency
- ▶ Data processing
 - For assembly, extraction, segmentation, classification, interpretation
- ▶ Visualization process
 - For real-time use of full resolution billion of points
- ▶ Collaboration process
 - For real-time concurrent usage and rights management



Live démo

F L Y V A S T



Conclusion



- ▶ A web platform to manage
 - Point Cloud Data
 - Raster Data
 - Vector Data
- ▶ The ability to work with full resolution
 - To retain all your data and projects
 - To annotate, segment, classify and export
 - To use as a direct support for additional services, including external DBMS and GIS systems
- ▶ Reference work : [1,2,11–13,3–10]



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fpoux@uliege.be



LIÈGE université
Sciences