



Liege - Nantes : historical scale models acquisition and data modeling

VISIONAIR General Assembly 4

December 4th 2014

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Géomatics Unit - University of Liege, Belgium

Outline

- ▶ Scientific objectives and results
 - Liege project overview
 - Nantes project overview
- ▶ Collaboration
 - Data models: Nantes - Liege
 - Common purposes
 - History
- ▶ Further works



Scientific objectives and results

Liege project overview
University of Liege

Liege - Virtual Leodium - Scale model



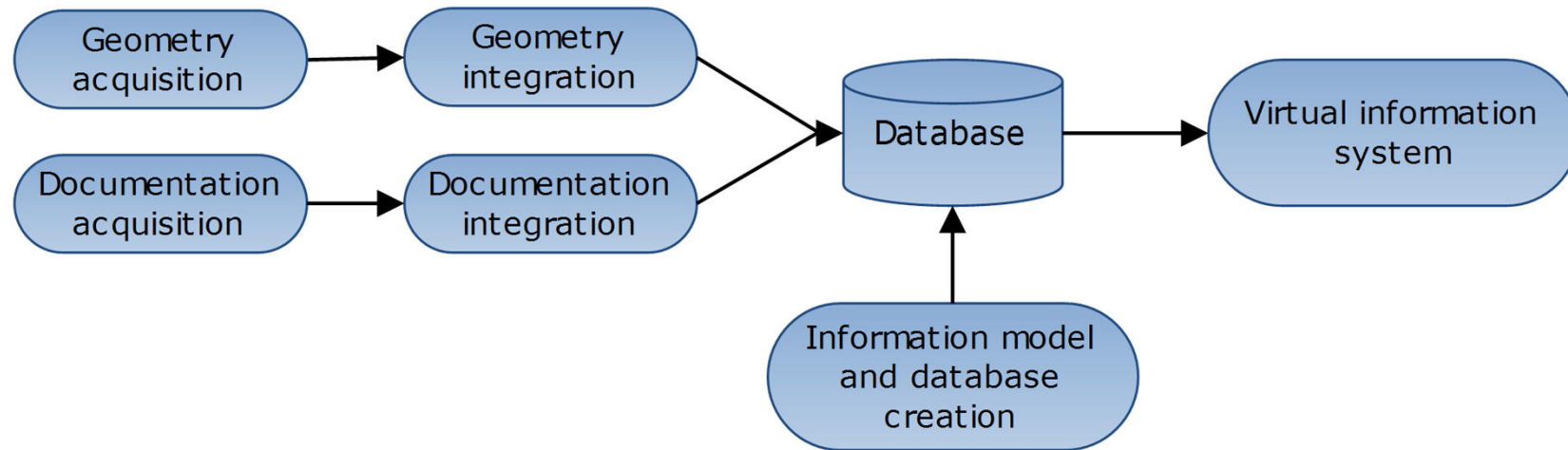
- The City of Liege around 1730
- Building date: 1900 - 1911
- 1 x 1 m
- Scale : ~ 1/1200



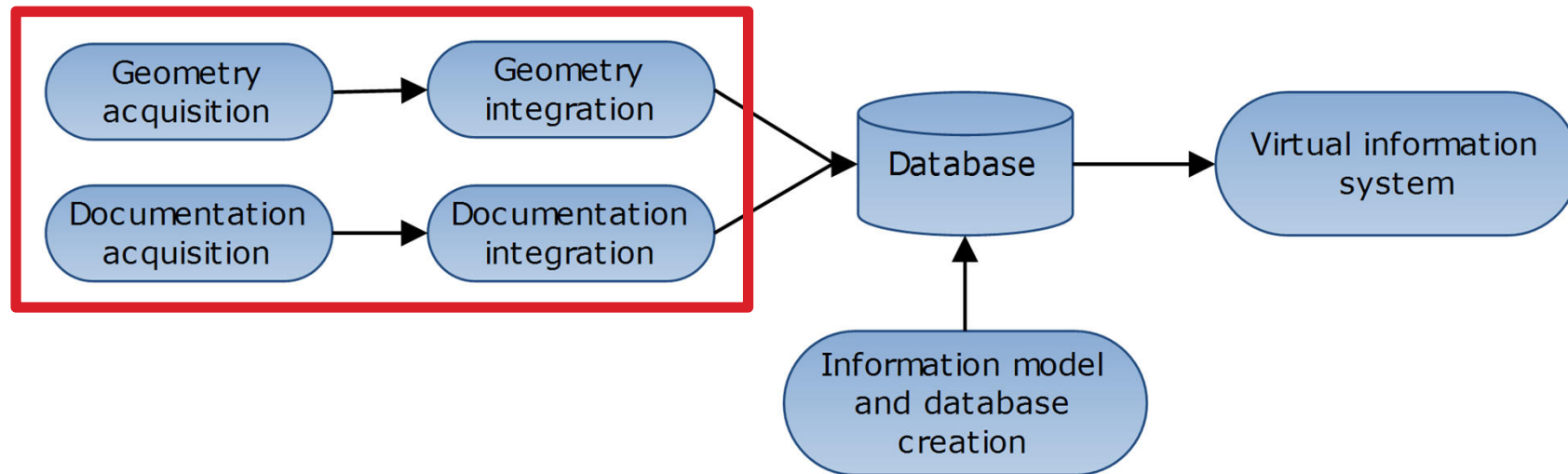
Liege - Virtual Leodium - Scale model

▶ Vidéo

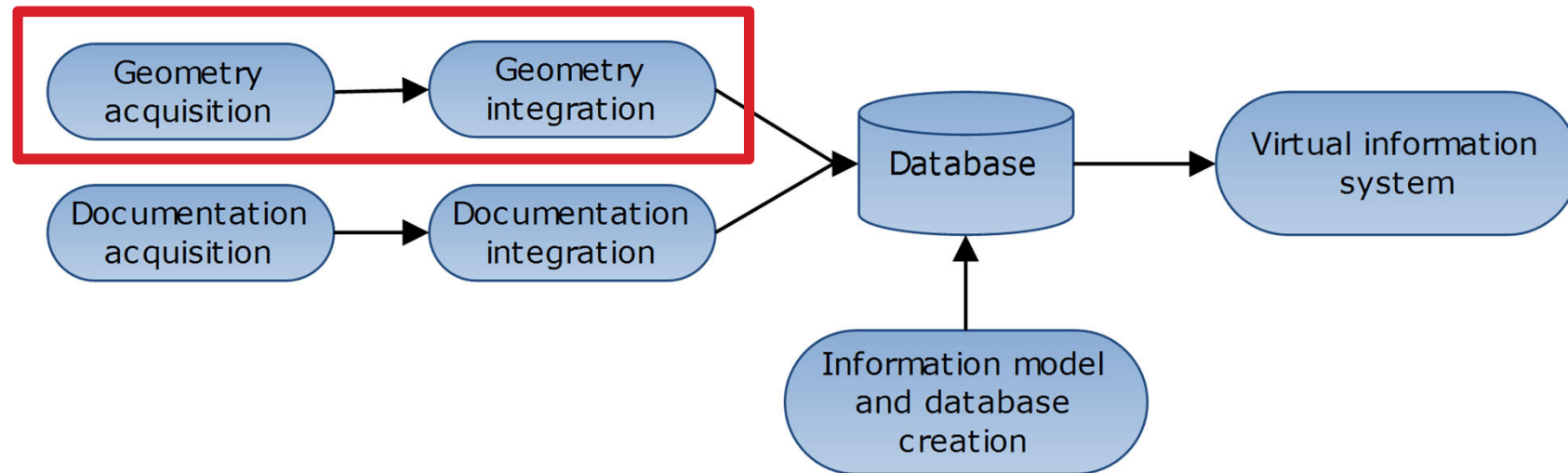
Liège - Virtual Leodium - Workflow



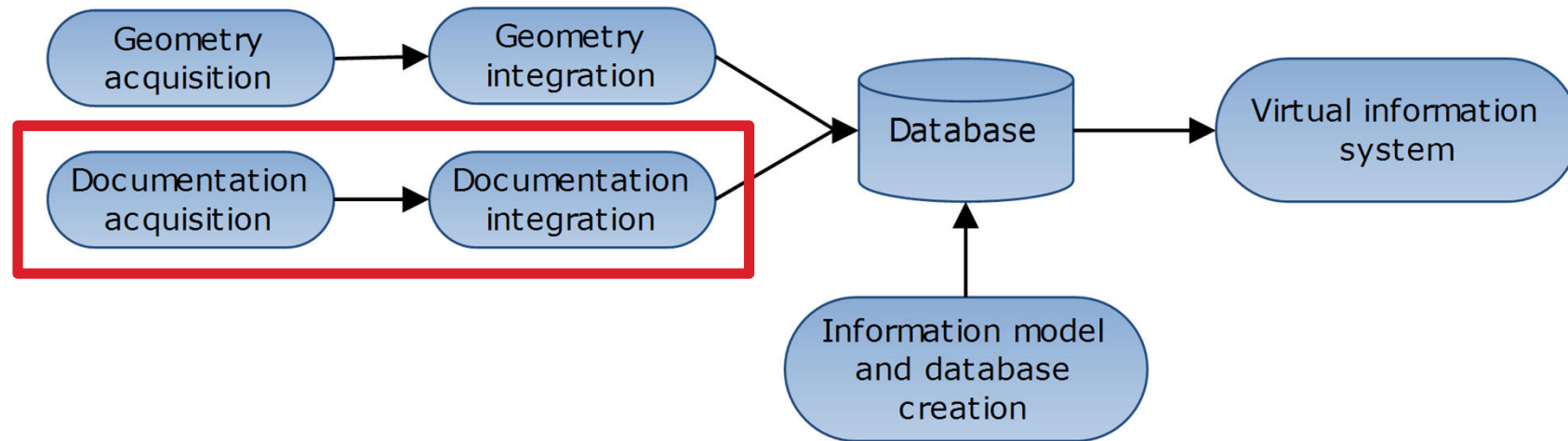
Liège - Virtual Leodium - Workflow



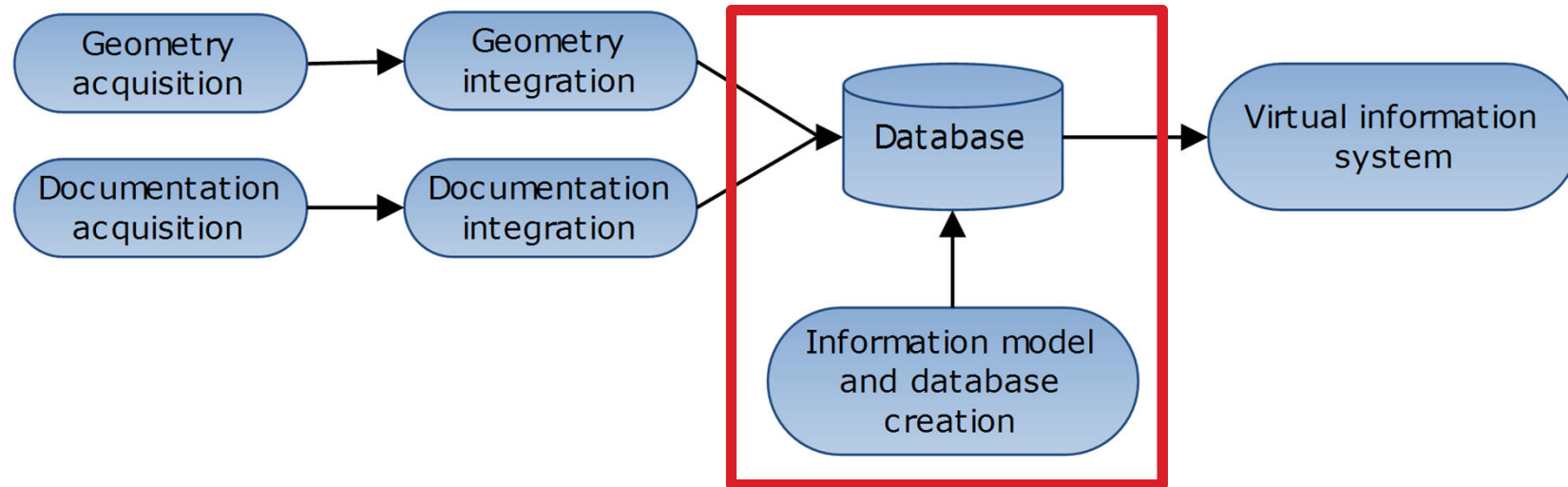
Liège - Virtual Leodium - Workflow



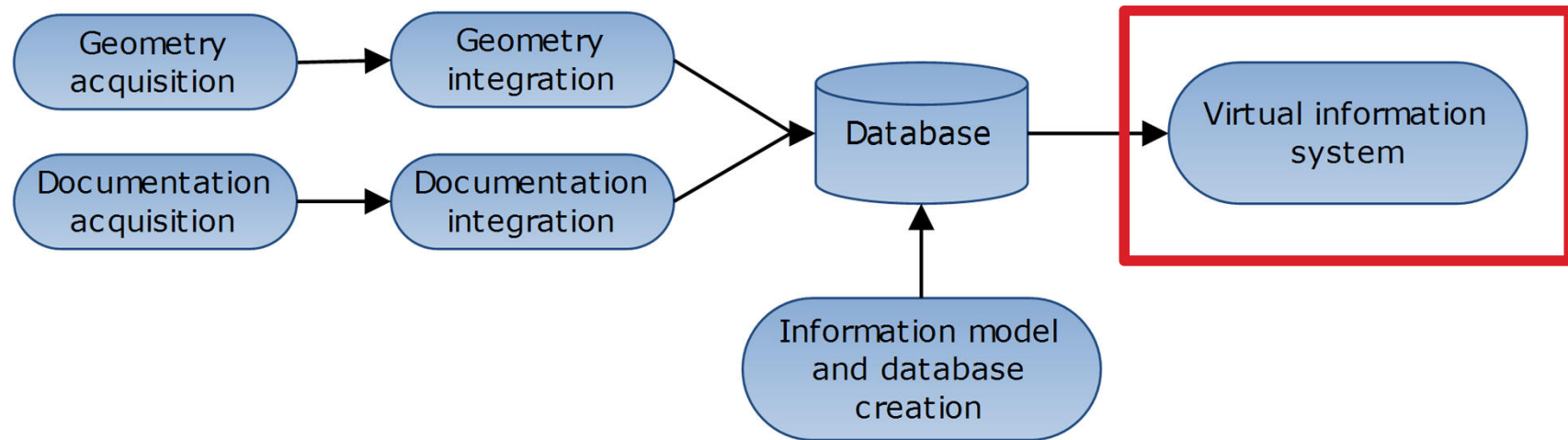
Liège - Virtual Leodium - Workflow

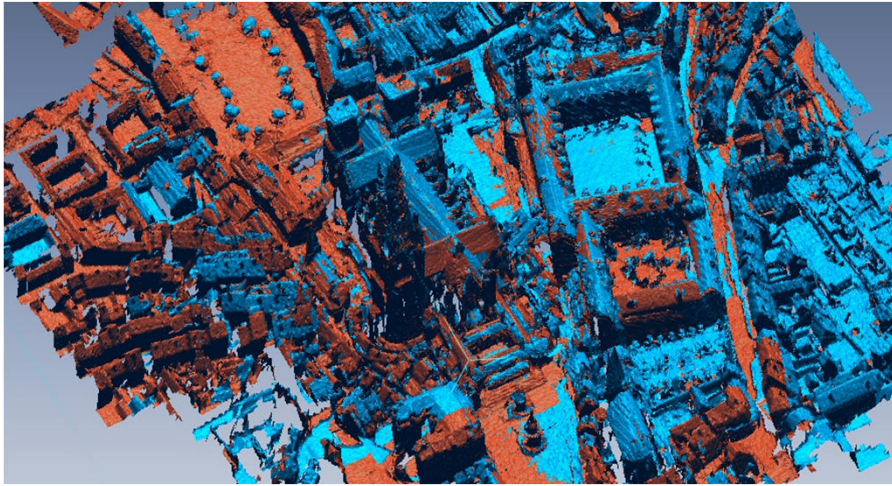


Liège - Virtual Leodium - Workflow



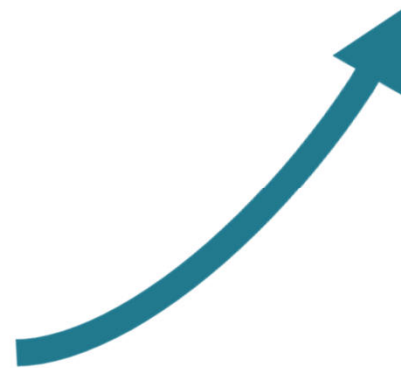
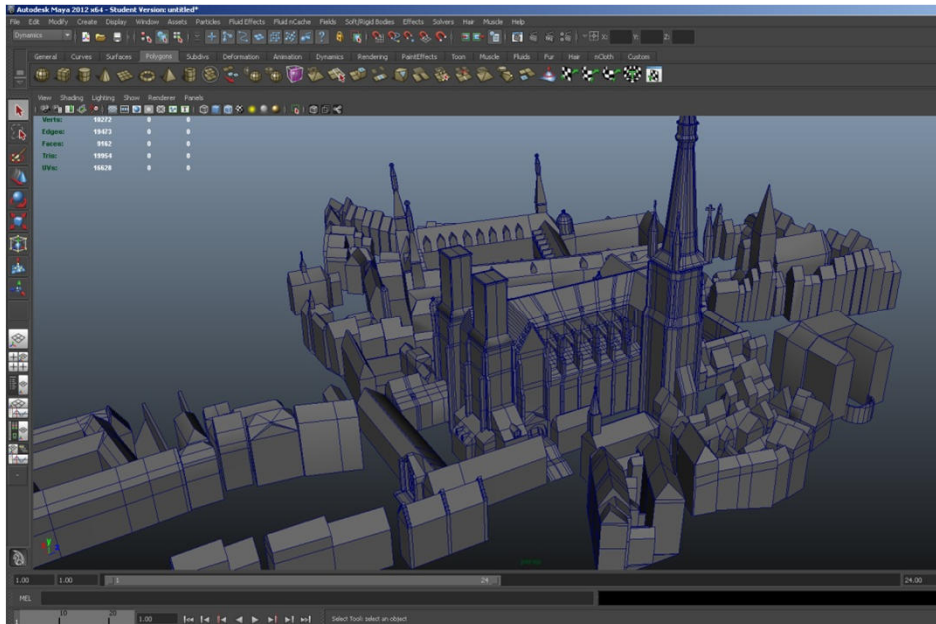
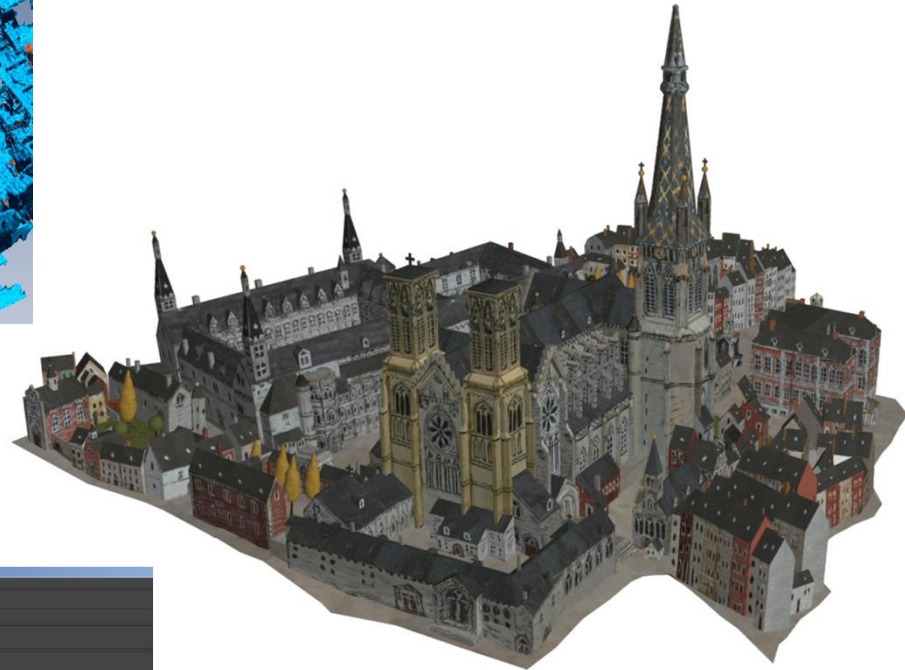
Liège - Virtual Leodium - Workflow





3D scan

3D reconstruction



Texturing

Liege - Virtual Leodium - 3D reconstruction

▶ Vidéo



Documentation

à l'Université de Liège, à condition qu'il reste à son emplacement, par lettre adressée en 1920 à Monsieur Jules Destrée Ministre des Sciences et des Arts, qui a acquiescé à ma demande.

2) Le bois représentant la Cathédrale St. Lambert à Liège, par Demumoulin, fut jadis partie des Collections du Chanoine Nicolas Henrotte, qui l'avait donné à M^r Jean-Simon Renier archéologue à Tervoyers.

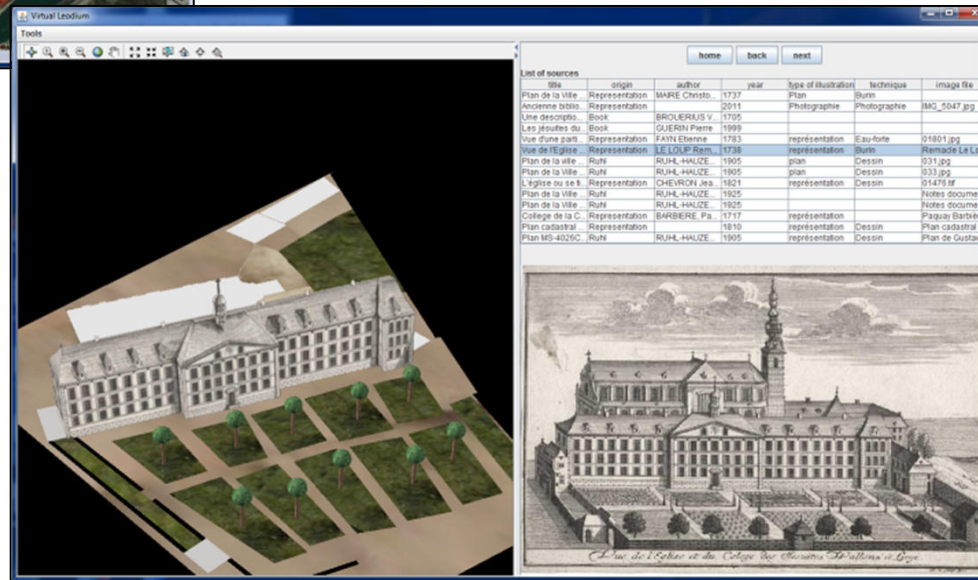
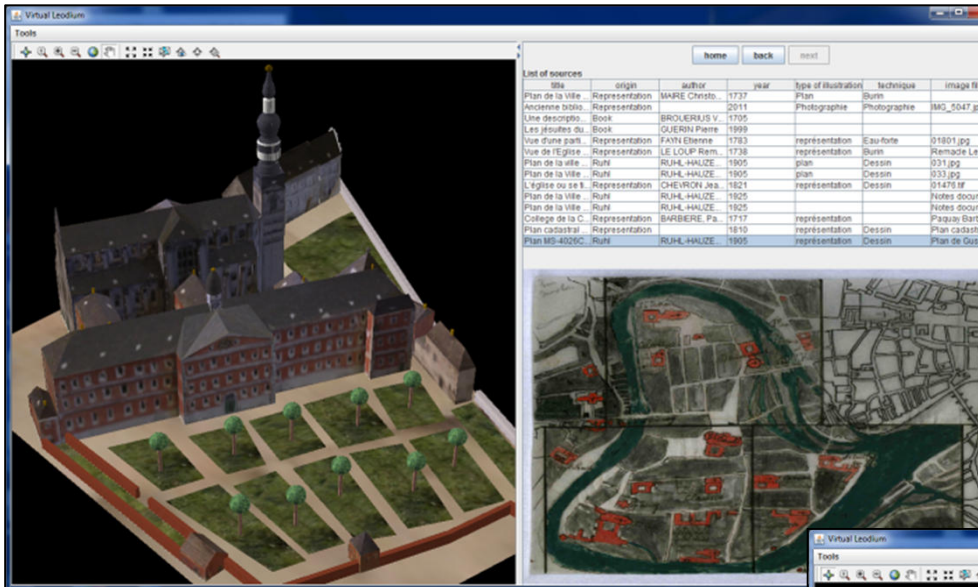
M^r Renier me l'avait donné à son tour. Persuadé que cette vue devait se trouver dans un Musée, je la déposai le 27 Janvier au Musée Witterl prêté et l'ai donné à l'Université de Liège le 24 Février 1925 par lettre adressée à Monsieur Brassim professeur et Bibliothécaire en chef de ladite Université.

Ce 24 / 2 / XXV.

Gustave Ruhl

Liege - Virtual Leodium : Virtual Information System

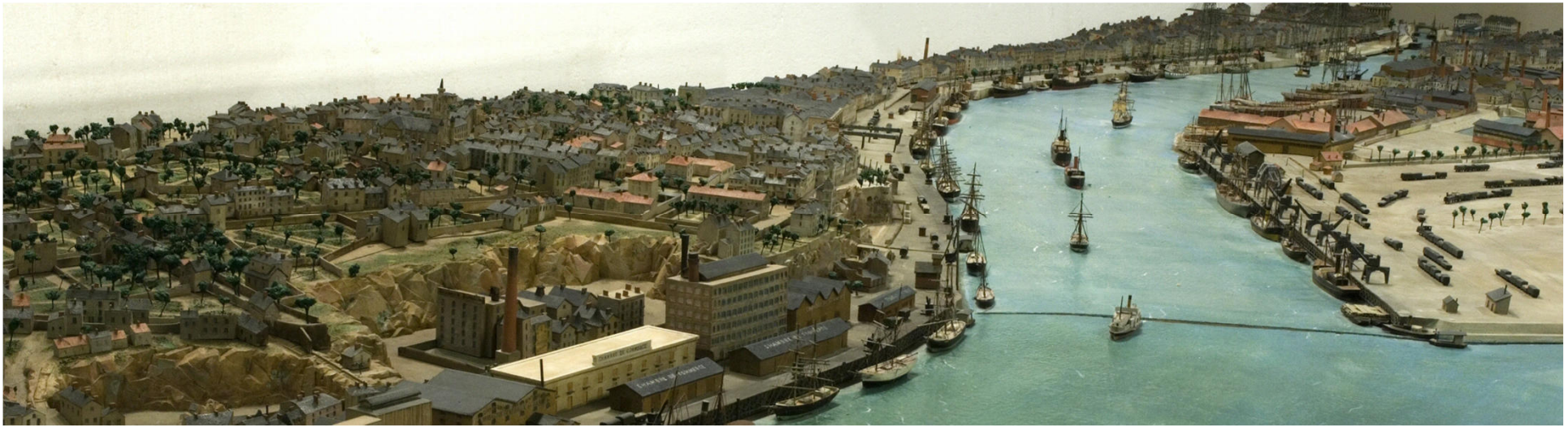
Archaeological Information System prototype



- Geometric selection
- Semantic selection
- Browse sources

Liege - Virtual Leodium : Virtual Information System

▶ Vidéo



Scientific objectives and results

Nantes project overview
IRCCyN, Ecole Centrale de Nantes

Nantes - Nantes 1900 - Museum



Château
des ducs de Bretagne



Nantes - Nantes 1900 - Scale model

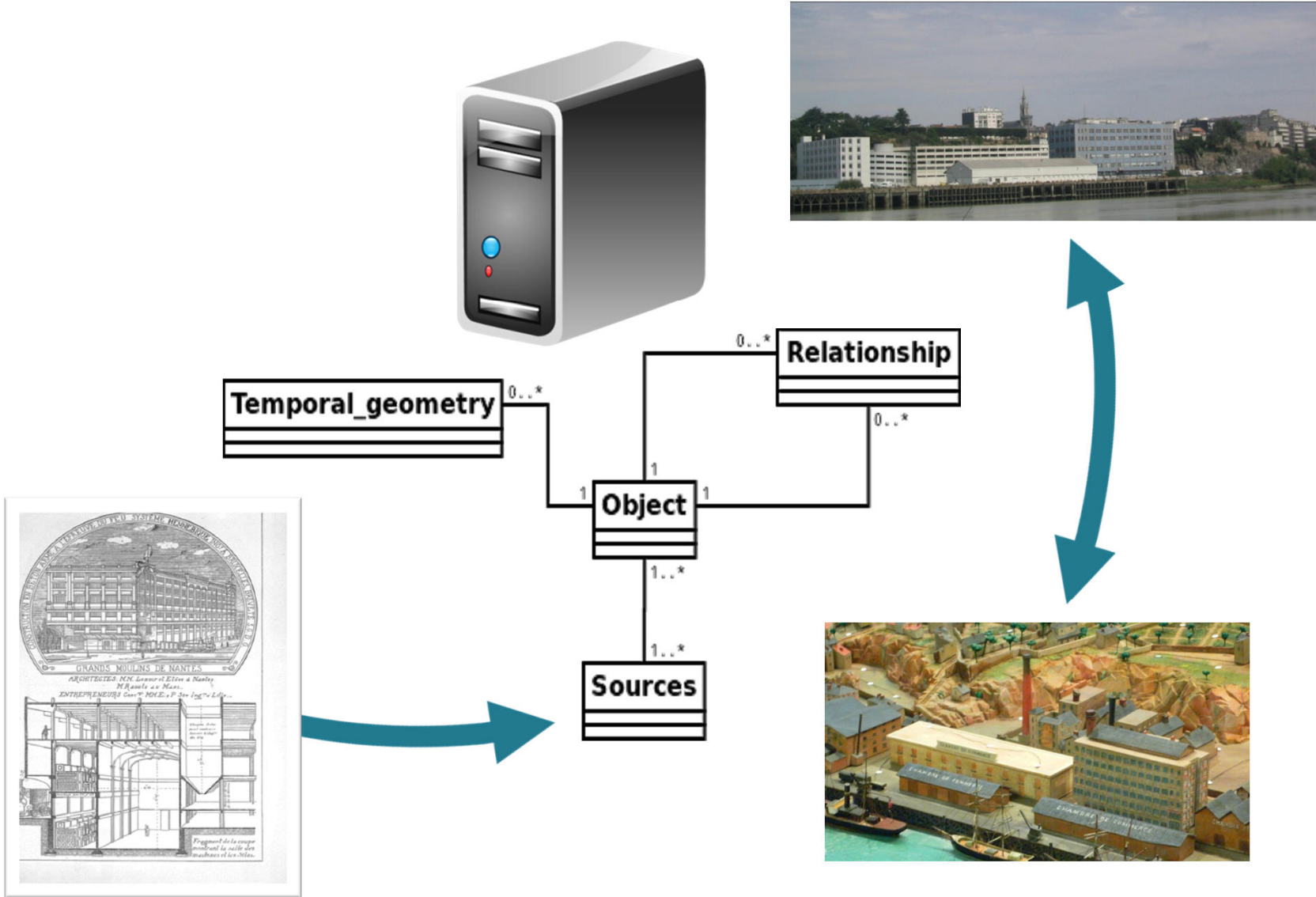


- Nantes harbour around 1900
- Built date : 1899

- 9.20 x 1.85 m
- Scale : ~ 1/500



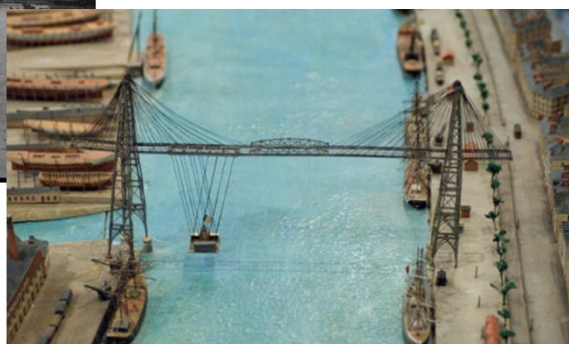
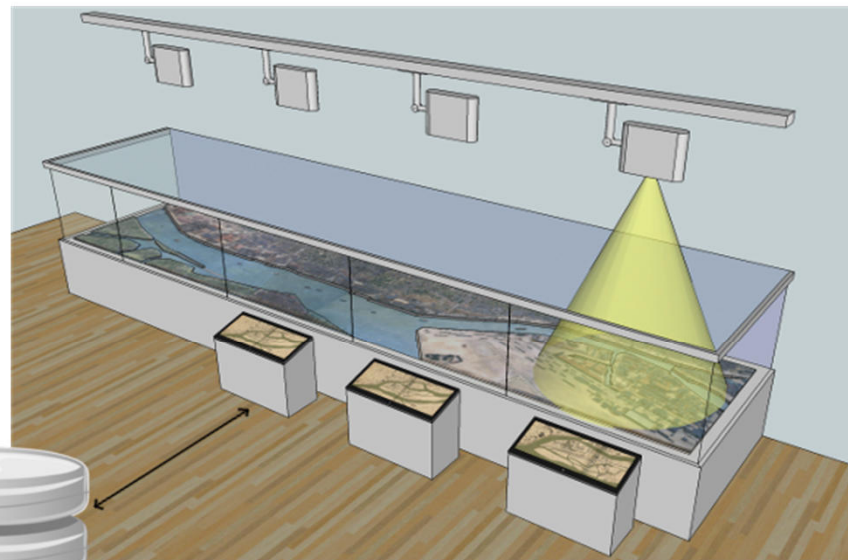
Nantes - Nantes 1900 - Database



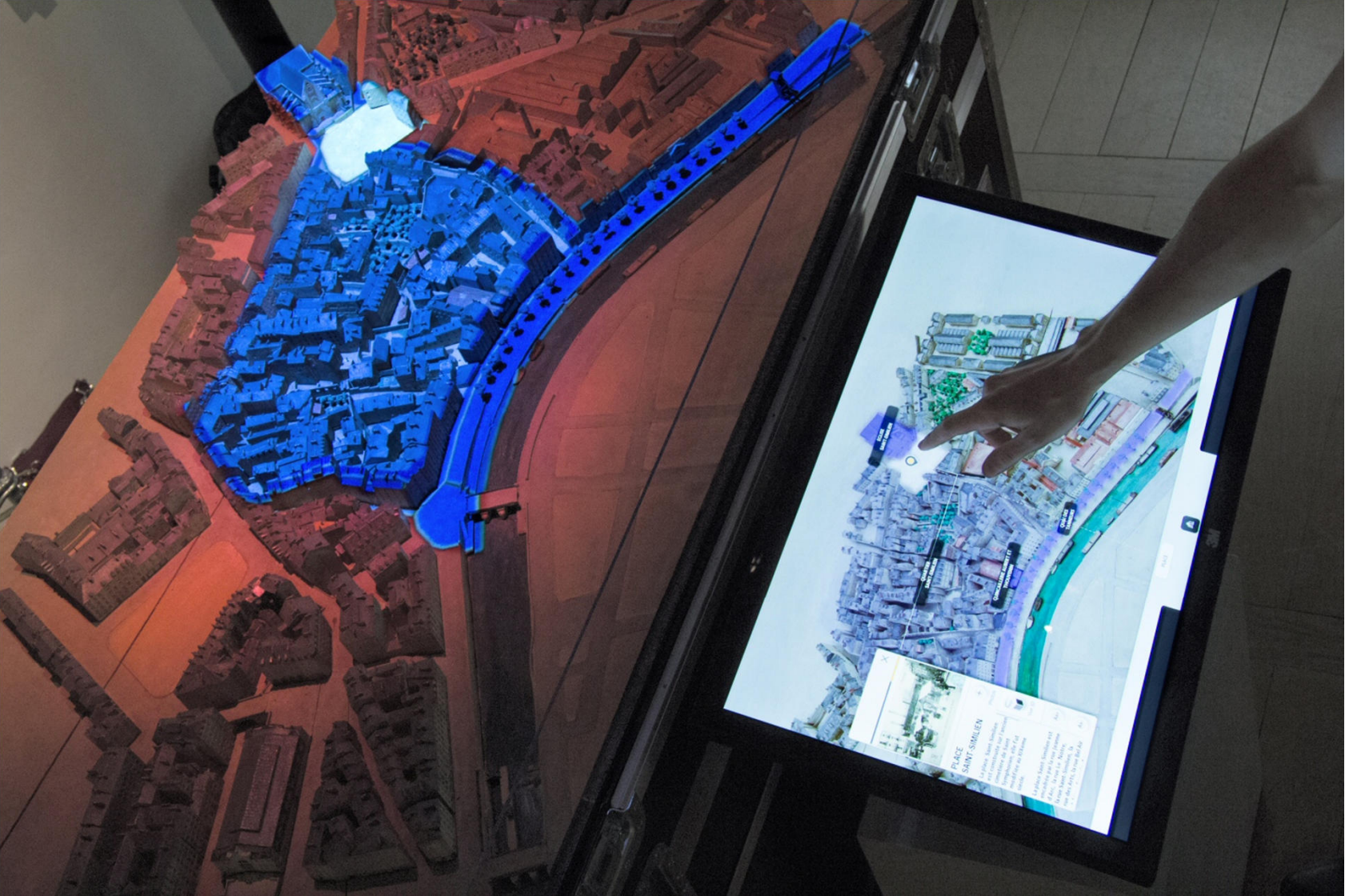
Nantes - Nantes 1900 - Museum interface



Base de données



Nantes - Nantes 1900 - Prototype



Nantes - Nantes 1900

▶ Vidéo

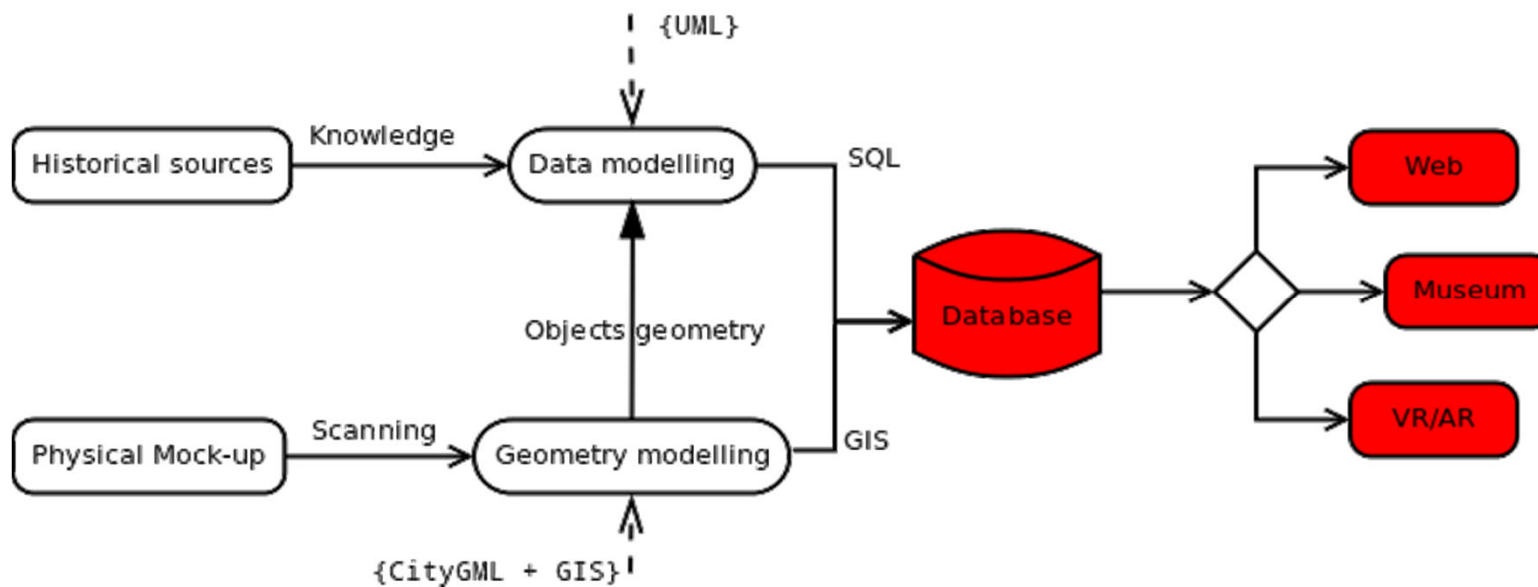


Collaboration

Data models

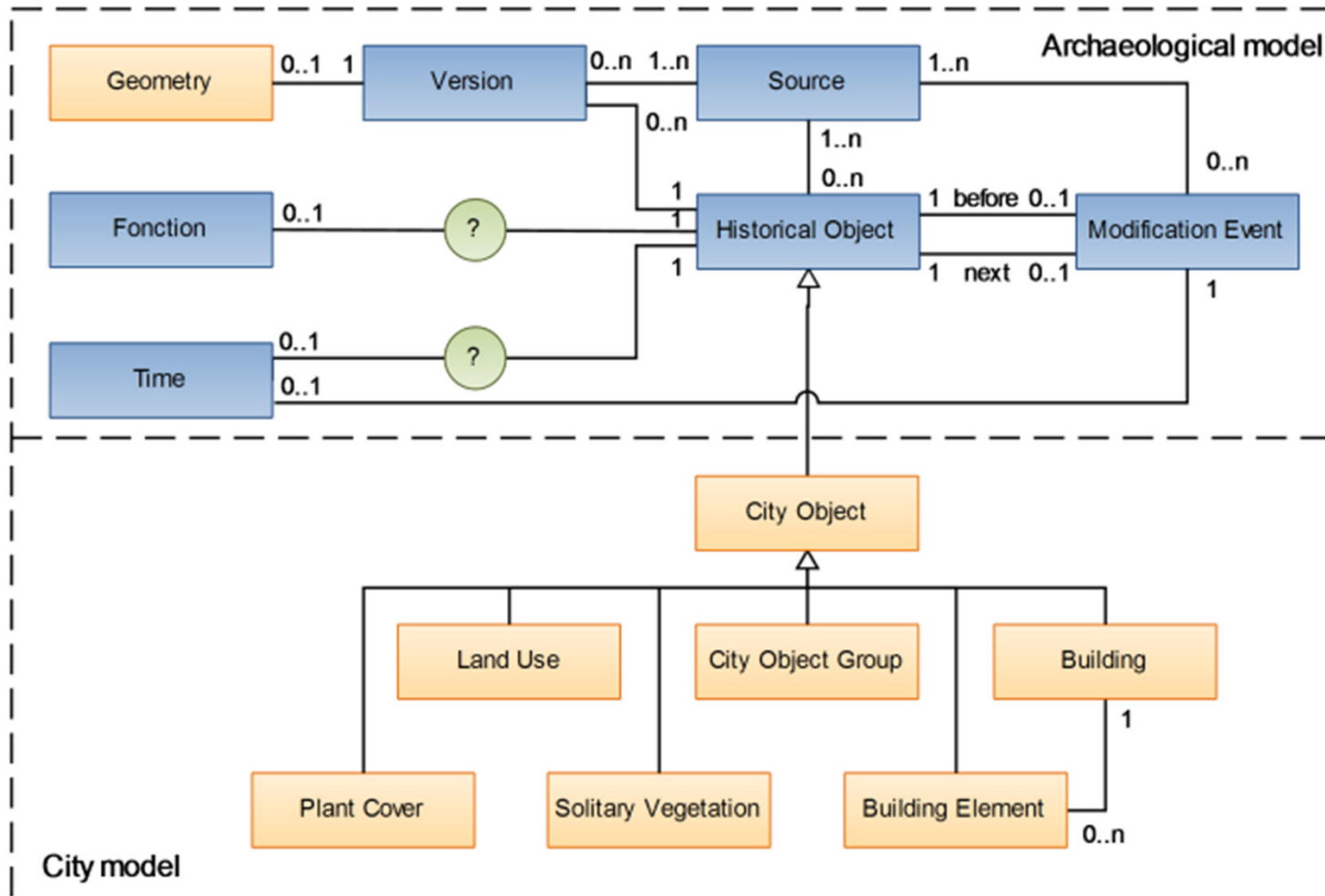
Nantes - Liege - Collaboration - Data models

Nantes data model



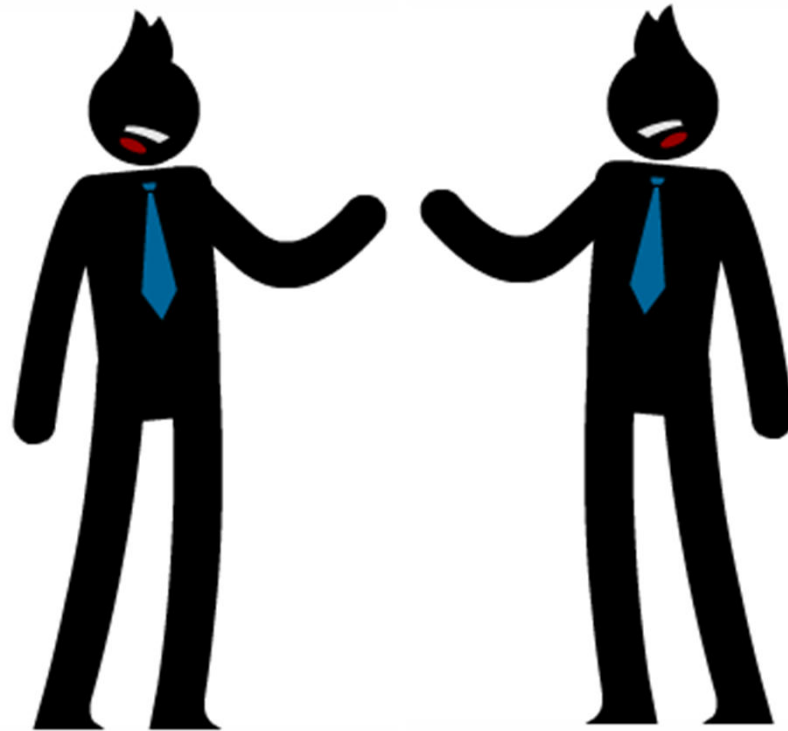
Nantes - Liege - Collaboration - Data models

Liege data model



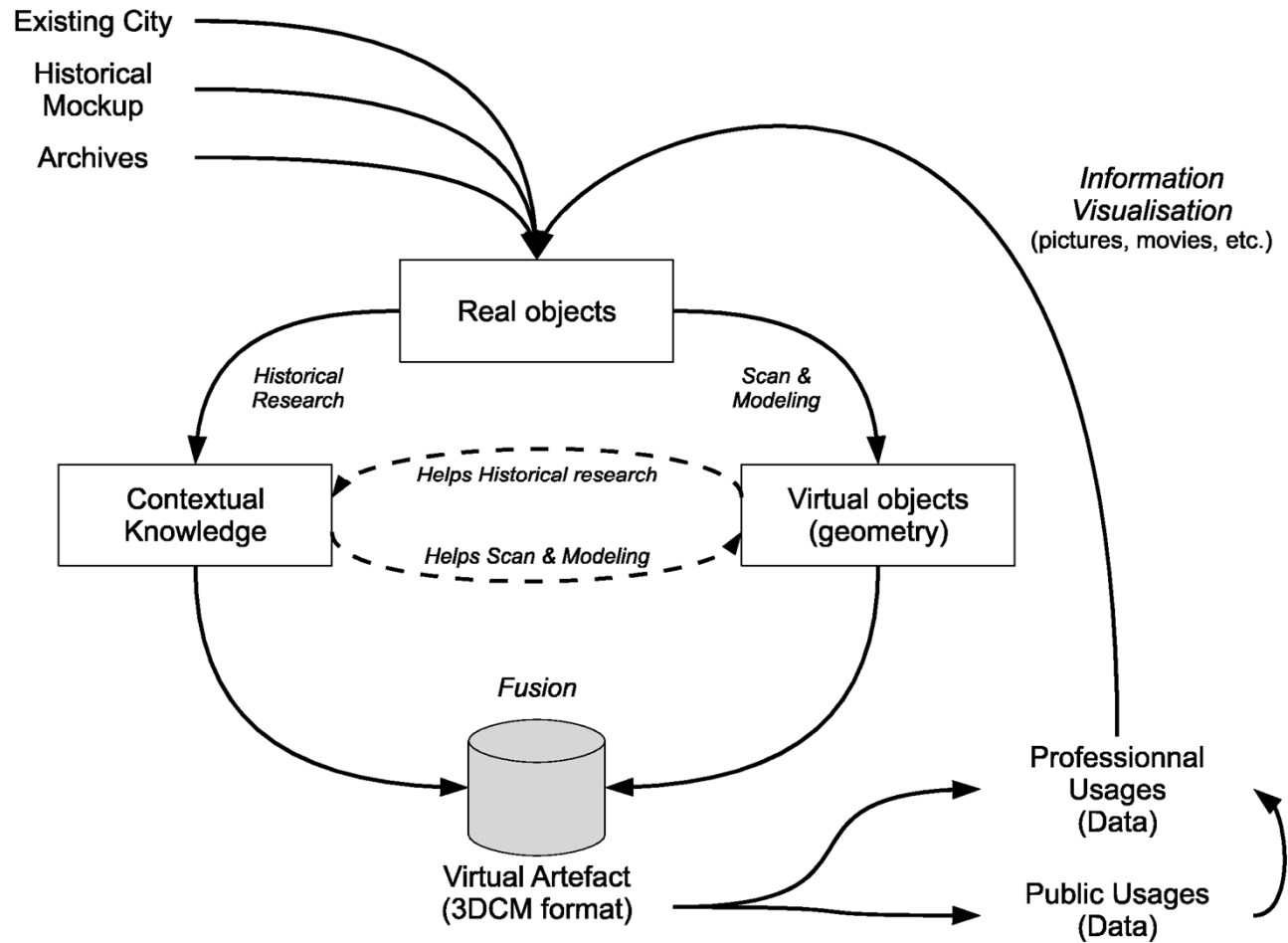
Nantes - Liege - Collaboration - Data models

- ▶ How to improve the data models ?



Nantes - Liege - Collaboration - Data models

Generalised approach proposition



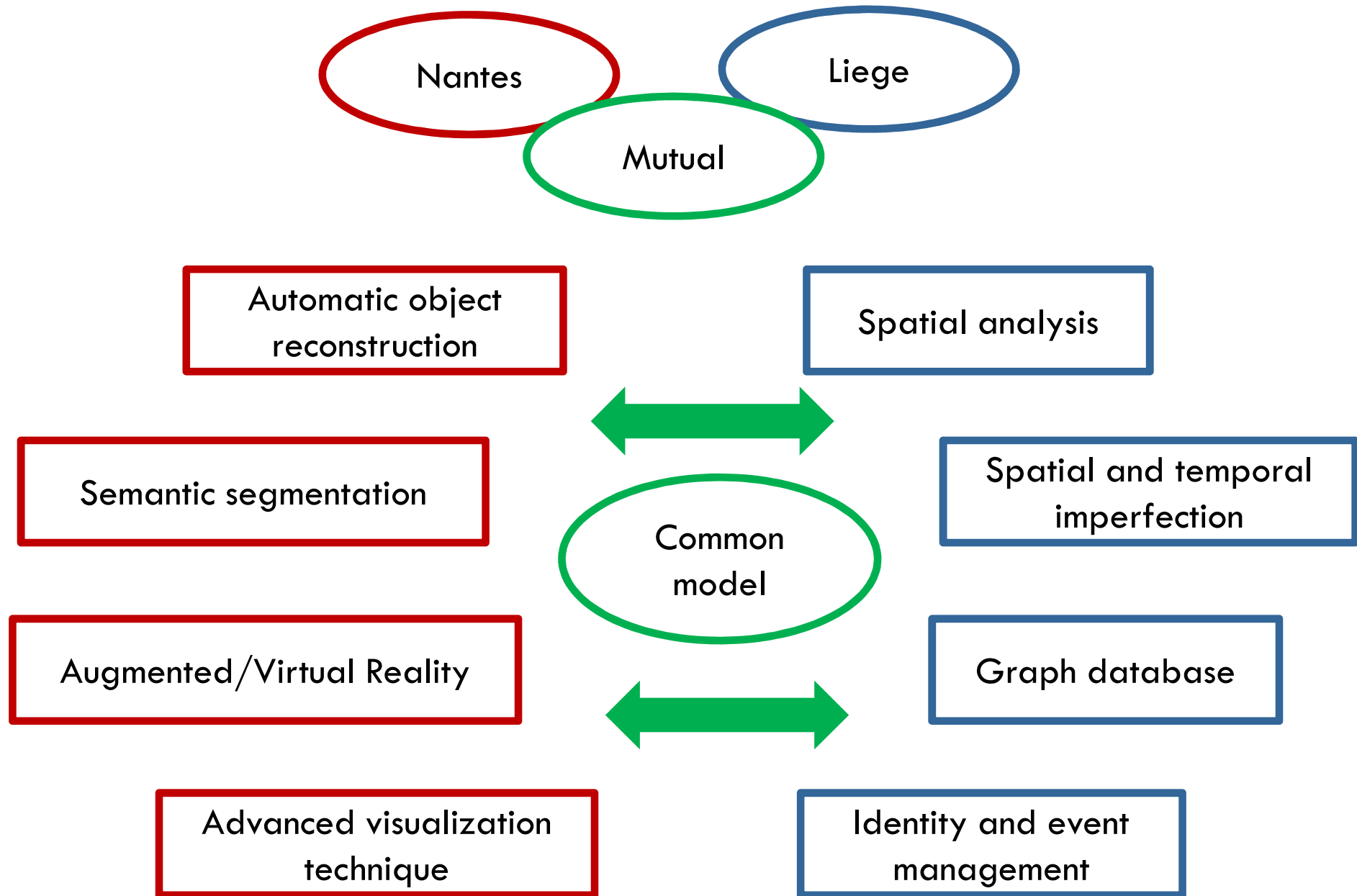


Collaboration

Common purposes

Nantes - Liege - Collaboration - Common purposes

- ▶ Sharing resources
- ▶ Sharing results
- ▶ Sharing sources code
- ▶ Reducing costs
- ▶ Improve our data model conception
- ▶ Develop new systems and prototypes
- ▶ Students internships





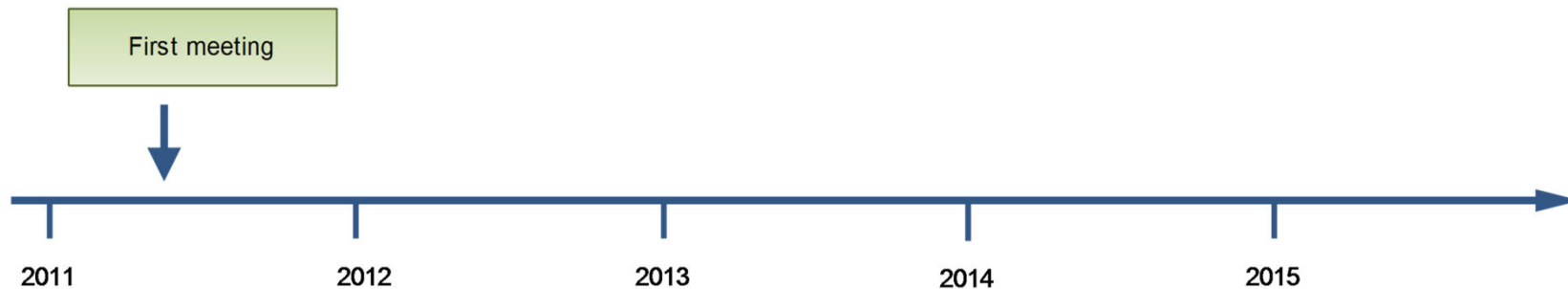
Collaboration

History

Nantes - Liege - Collaboration - History

▶ 2011

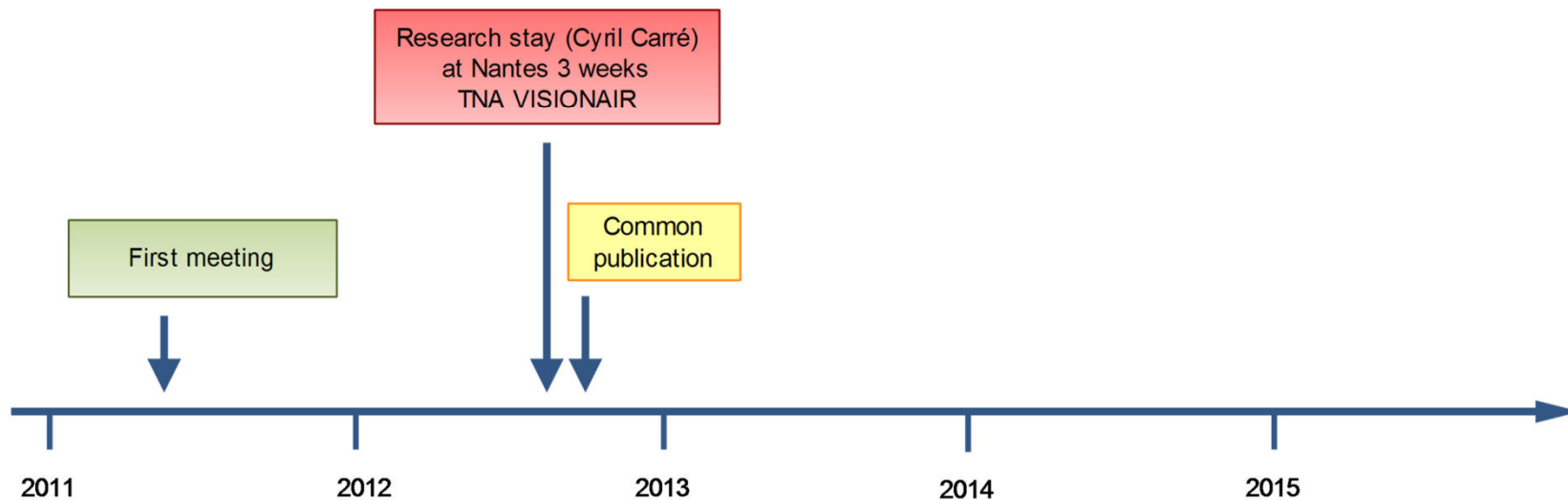
- First meeting
 - Similar case studies
 - Similar methodologies
 - Complementary skills and teams



Nantes - Liege - Collaboration - History

▶ 2012

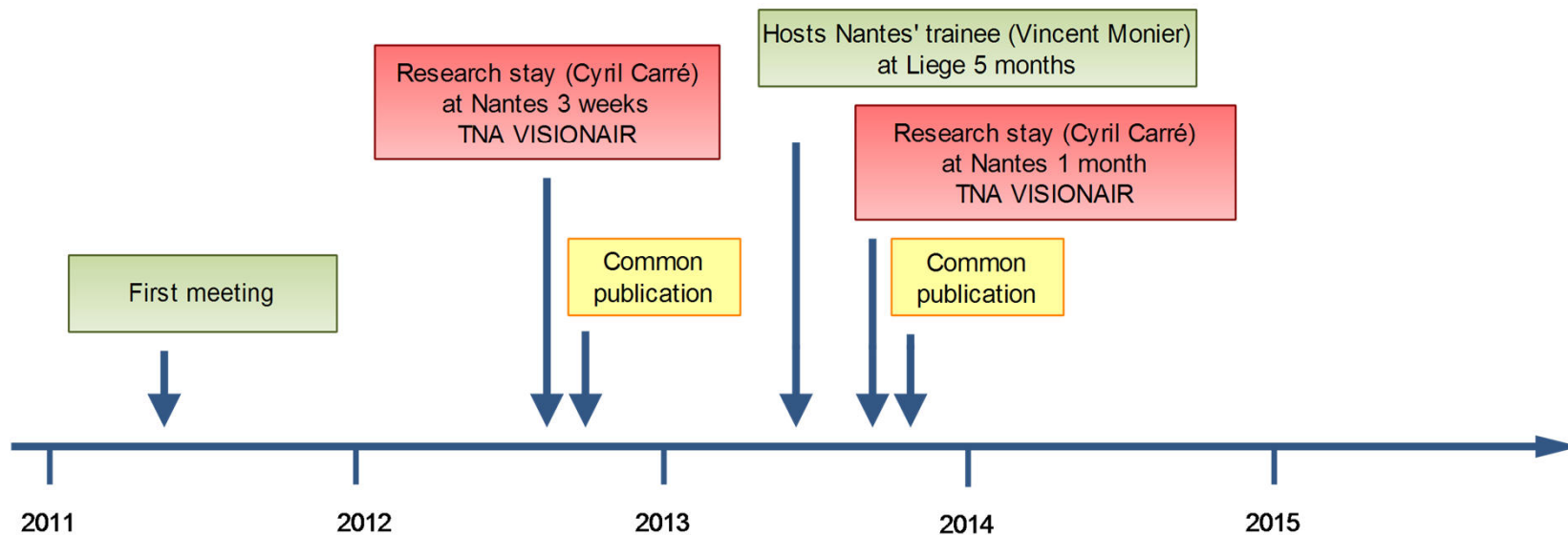
- Research stay (Cyril Carré) at Nantes - 3 weeks
- Common publication
 - Hervy B., Billen R., Laroche F., Carré C., Servières M., Van Ruymbeke M., Tourre V., *A generalized approach for historical mock-up acquisition and data modelling: towards historically enriched 3D city models, Usage, Usability, and Utility of 3D City models*, ISTE Ltd, London / United Kingdom, 2012



Nantes - Liege - Collaboration - History

▶ 2013

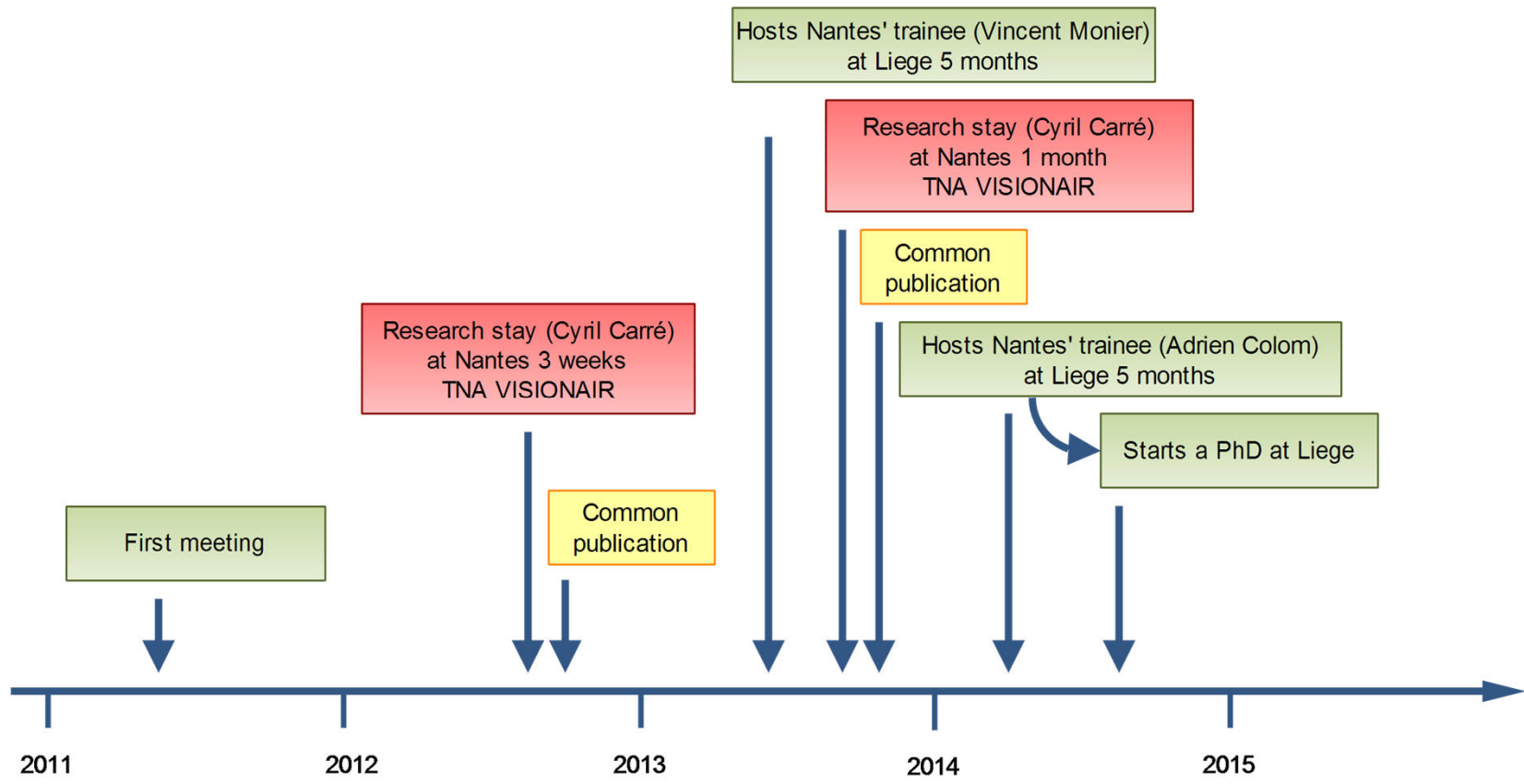
- Hosts Nantes' trainee (Vincent Monier) at Liege - 5 months
- Research stay (Cyril Carré) at Nantes - 1 month
- Common publication
 - Billen R., Carré C., Delfosse V., Hervy B., Laroche F., Lefevre, D., Servières M., Van Ruymbeke M., *3D historical models: the case studies of Liege and Nantes, 3D issues in urban and environmental systems*, Società Editrice Esculapio Srl, Bologna / Italy, 2013



Nantes - Liege - Collaboration - History

► 2014

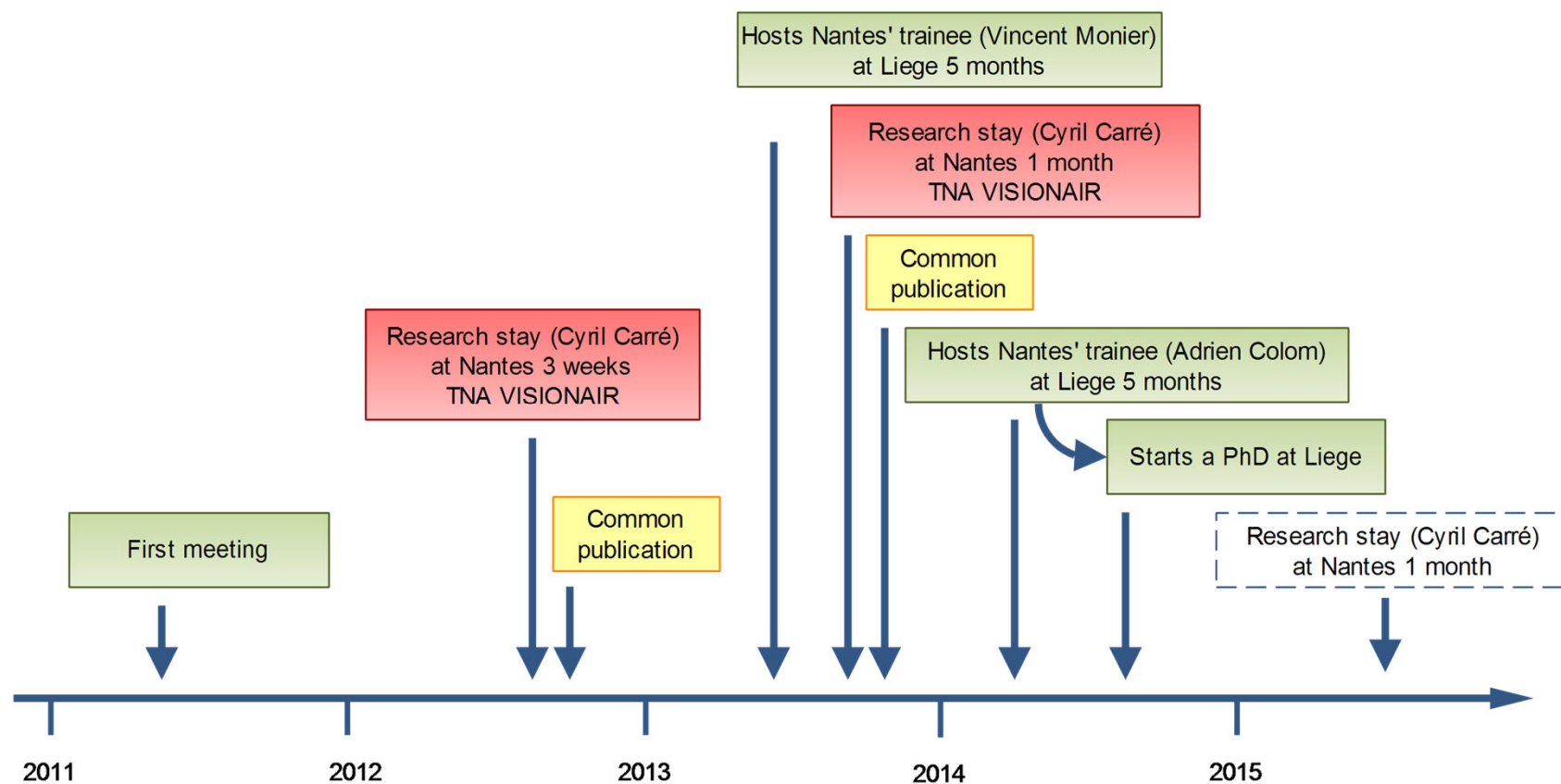
- Hosts Nantes' trainee (Adrien Colom) at Liege - 5 months
- The trainee start a PhD at Liege in September 2014



Nantes - Liege - Collaboration - History

► 2015

- Research stay (Cyril Carré) at Nantes - 1 month





Collaboration

Further works

Nantes - Liege - Collaboration - Further works

▶ Nantes

- Automatic object reconstruction
- Semantic segmentation
- Augmented/Virtual Reality
- Advanced visualization technique for historical knowledge

▶ Liege

- Identity and event management
- Temporal and functional imperfection
- Focus on international standards



Thank you for your attention!

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Virtual Leodium : <http://www.geo.ulg.ac.be/carre>

Nantes 1900 : <http://nantes1900.chateau-nantes.fr>