

Ingegneria e rappresentazione grafica: dai modelli geometrico-descrittivi ai sistemi interoperabili

WEBINAR – 28 febbraio 2023

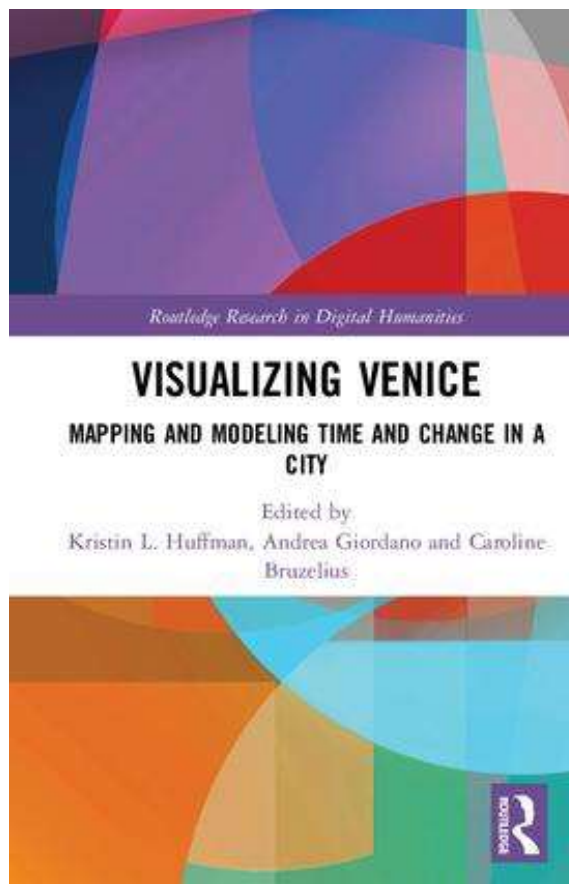
**Rappresentare/Conoscere/Condividere:
la gestione del patrimonio costruito.**

Andrea Giordano

Università di Padova

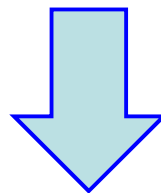
Dipartimento di Ingegneria Civile, Edile e Ambientale

VISUALIZING VENICE



Caroline Bruzelius (Duke University – NC/ USA)
Donatella Calabi (IUAV – Venezia)

VISUALIZING VENICE



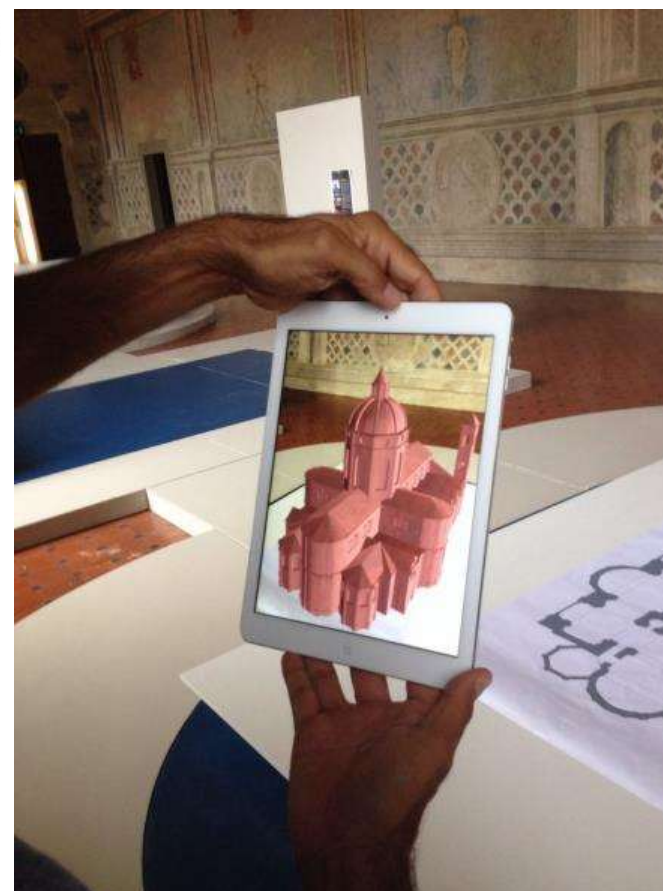
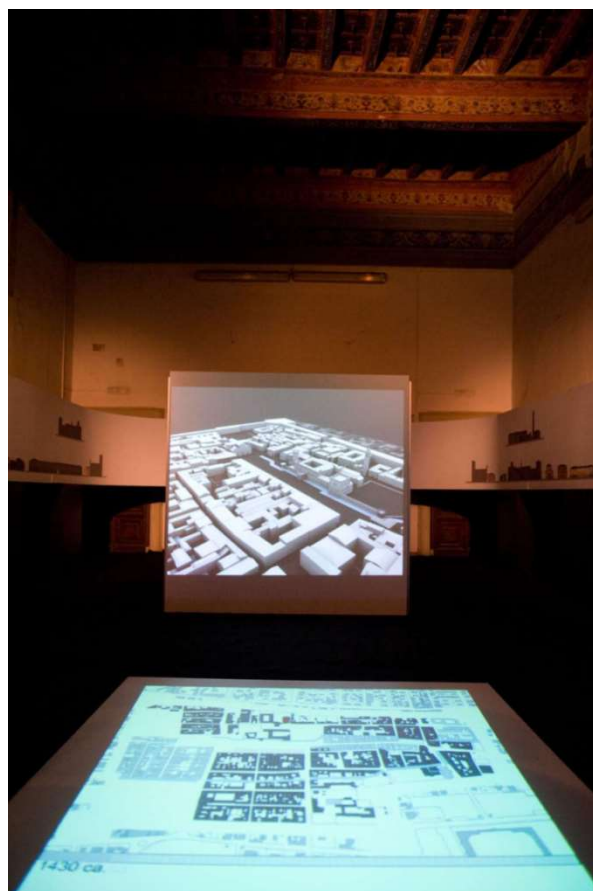
VISUALIZING CITIES

Visualizing Art, Architectural, and Urban History

UNIPD / IUAV / DUKE UNIVERSITY

Visualizing Carpi UNIPD / MUSEO DEL PALAZZO PIO / COMUNE DI CARPI

Elena Svalduz (Unipd)



Visualizing Padua's Churches UNIPD / DUKE UNIVERSITY / COMUNE DI PADOVA

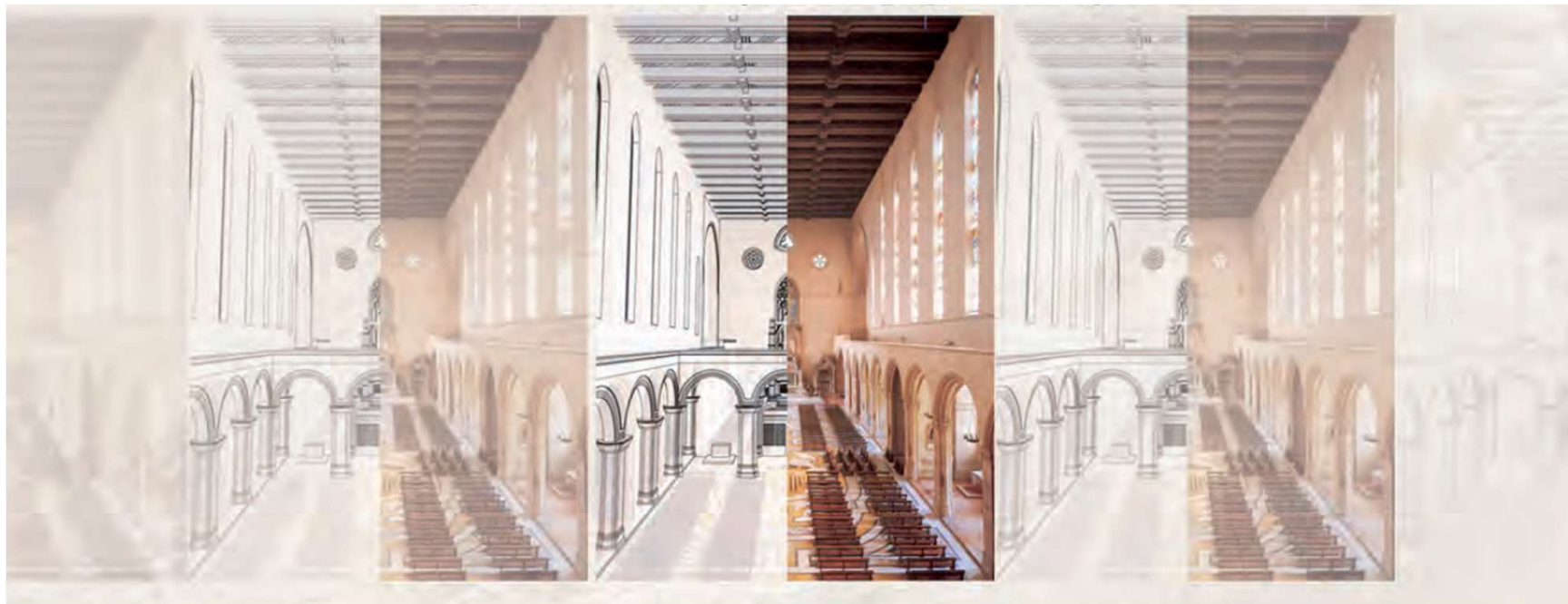
Cosimo Monteleone (Unipd)



Visualizing Neaples Churches UNIPD / UNINA / DUKE UNIVERSITY/ SUOR ORSOLA

Caroline Bruzelius (Duke University – NC/ USA)

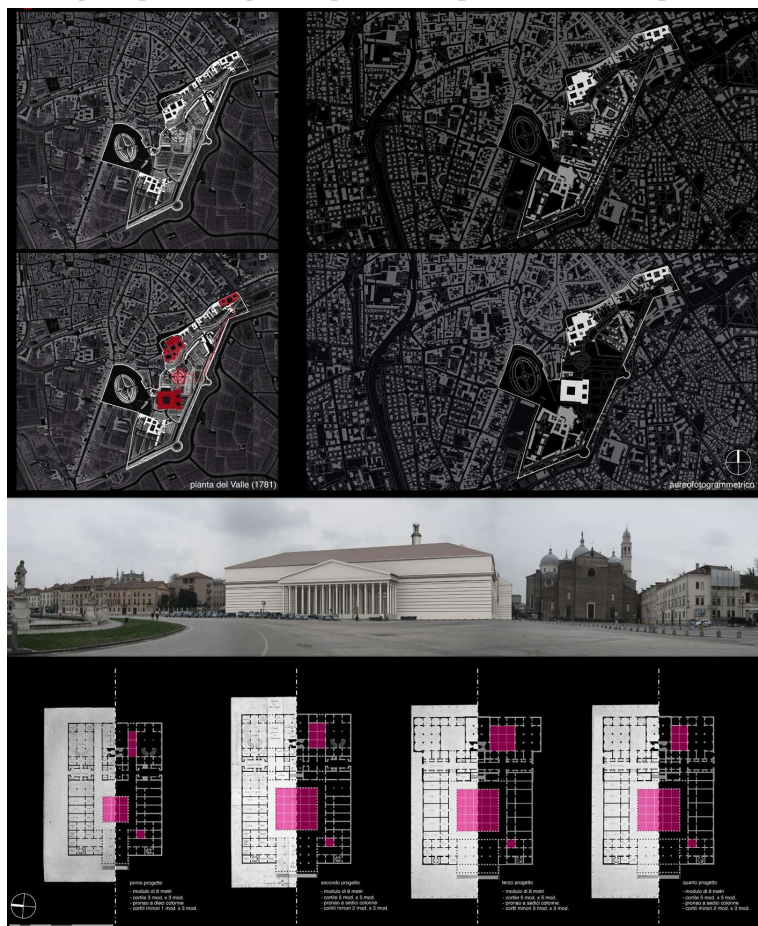
Leopoldo Repola (Suor Orsola Benincasa)



Visualizing Unbuilt Padua

UNIPD / IUAV / DUKE UNIVERSITY / COMUNE DI PADOVA

Stefano Zagaglia (UniPD)



A Portrait of Venice: Jacopo de' Barbari's View UNIPD / IUAV / DUKE UNIVERSITY / MUSEO CORRER

Krisitn Huffman (Duke)

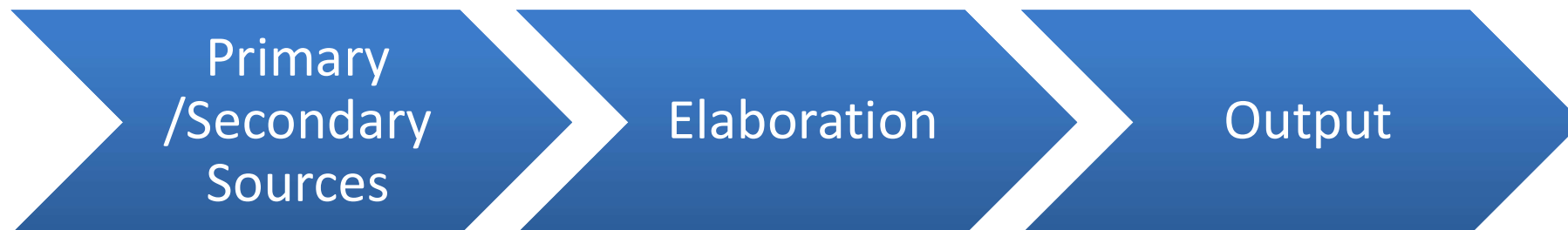


What: Visualizing Cities is conceived as a new type of research project that will **interrogate the history and development of historical sites** (spatial, architectural and urban history transformation process)

How: to operate outside of normal historical practice in five ways:

- being **collaborative and interdisciplinary**
- using **visualization**
- depending on the **ICT**
- being **open-ended**
- having a conceptual focus on **space** and on **its dynamic transformation**

Methodology



Methodology

Primary
/Secondary
Sources

A preliminary set of maps,
cartographies (drawings) and aerial
photos of the whole Venice was
collected.

Methodology

Primary
/Secondary
Sources

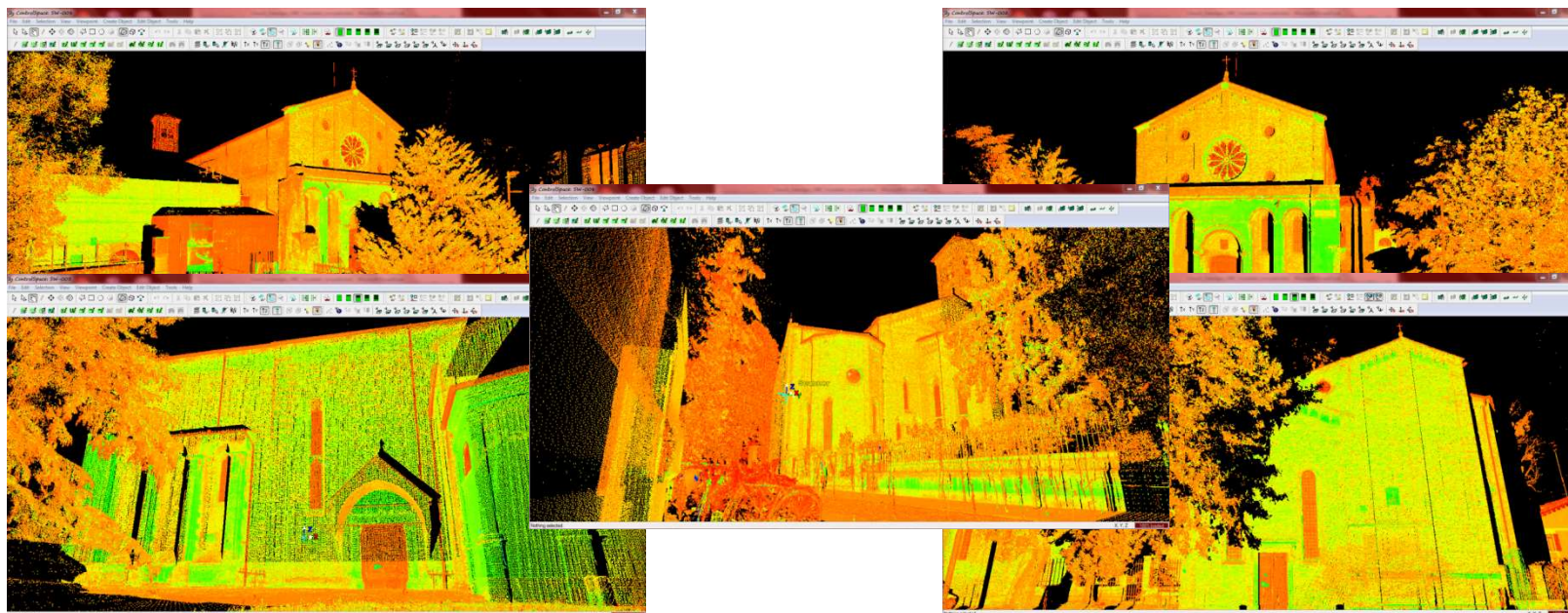
Timeline

Each item is marked with a precise
historical date.

Methodology

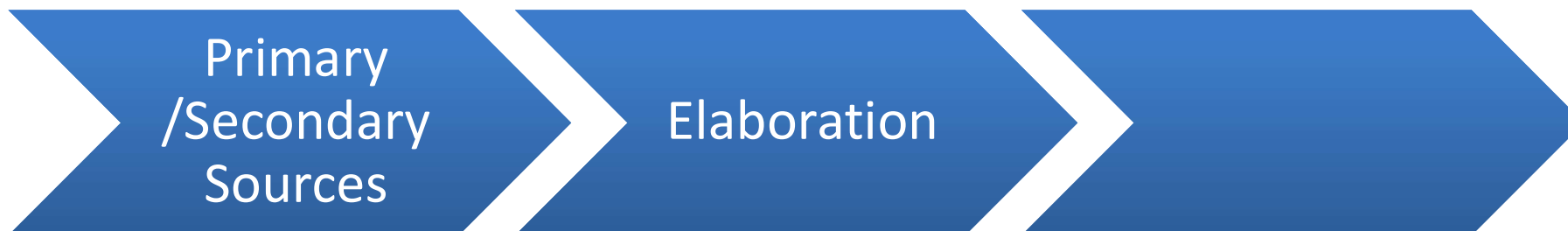
Primary
/Secondary
Sources

Survey/Scan



Traditional survey techniques, new photographic processes (photogrammetry), and 3D laser scanning (Eremitani Church Elaborations by M. R. Cundari, P. Borin, F. Panarotto)

Methodology



GIS

A selected part of the city, (in this case the insula of Accademia in Venice) was isolated from the maps, redrawn in CAD, and aligned with GIS superimposed over a modern map.

All buildings, canals, streets and the insula were identified and marked on each map.

When possible, links between different maps were created to outline the urban transformations.

A database of historical documents (drawings, paintings, engravings, primary & secondary sources) was built and linked to GIS data.

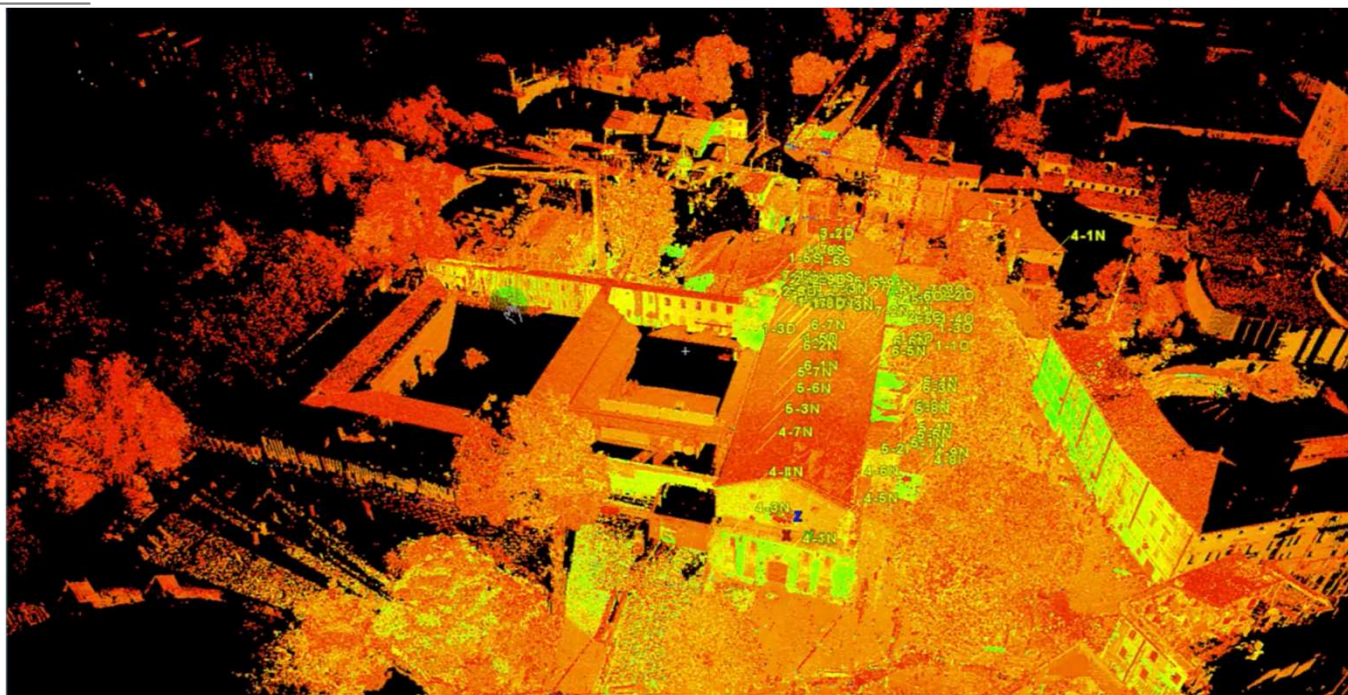
The documents and maps were stored in a relational database. All collected data and the digital versions of each historical document have been placed in a timeline view.

Methodology

Primary
/Secondary
Sources

Elaboration

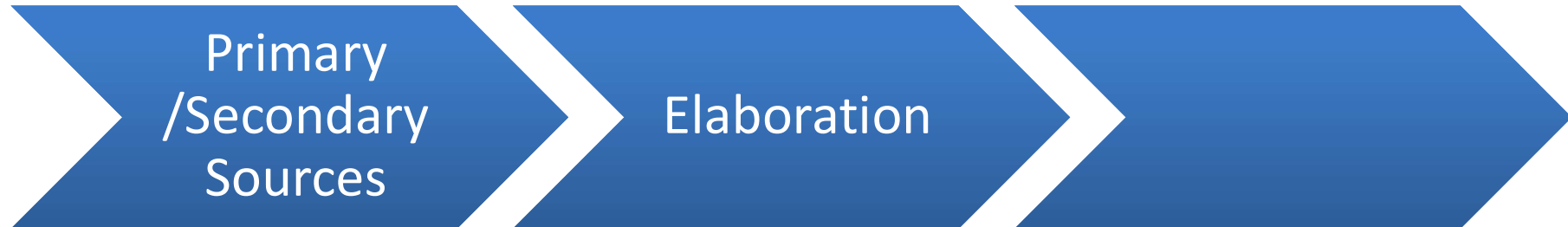
SCAN to BIM



Methodology



Methodology



Additional layers and data browsing

All the geolocalized data can represent a strong foundation for further layers of information to be used in the [virtual city museum](#)

A flexible and scalable platform could become the data source for the development of innovative applications.

Examples of layers:

Humanities (art, literature and music): Paintings, pictures, photos, statues, music, novels...

Religion: Charities, Orders, hospitals...

City administration: Public buildings, political decisions, demography...

Everyday life: People, shops, crafts, entertainment, myths & legends...

Thematic examples:

_____ Evolution of urbanization.

_____ Popular myths & legends.

_____ Water: lagoon and sea.

_____ Wars.

_____ History of the buildings.

_____ Consequences of historical events.

Exploring and visualizing data:

-Main issue: how to manage a huge amount of visual and historical data?

-*Divide et impera*: **time** and **space** filters can be the first “easy” way to group and split information in smaller and more manageable data sets.

-All data must be tagged and filtered.

Methodology

Primary
/Secondary
Sources

Elaboration

Output



Interactive models



Prototypes



Images and Videos

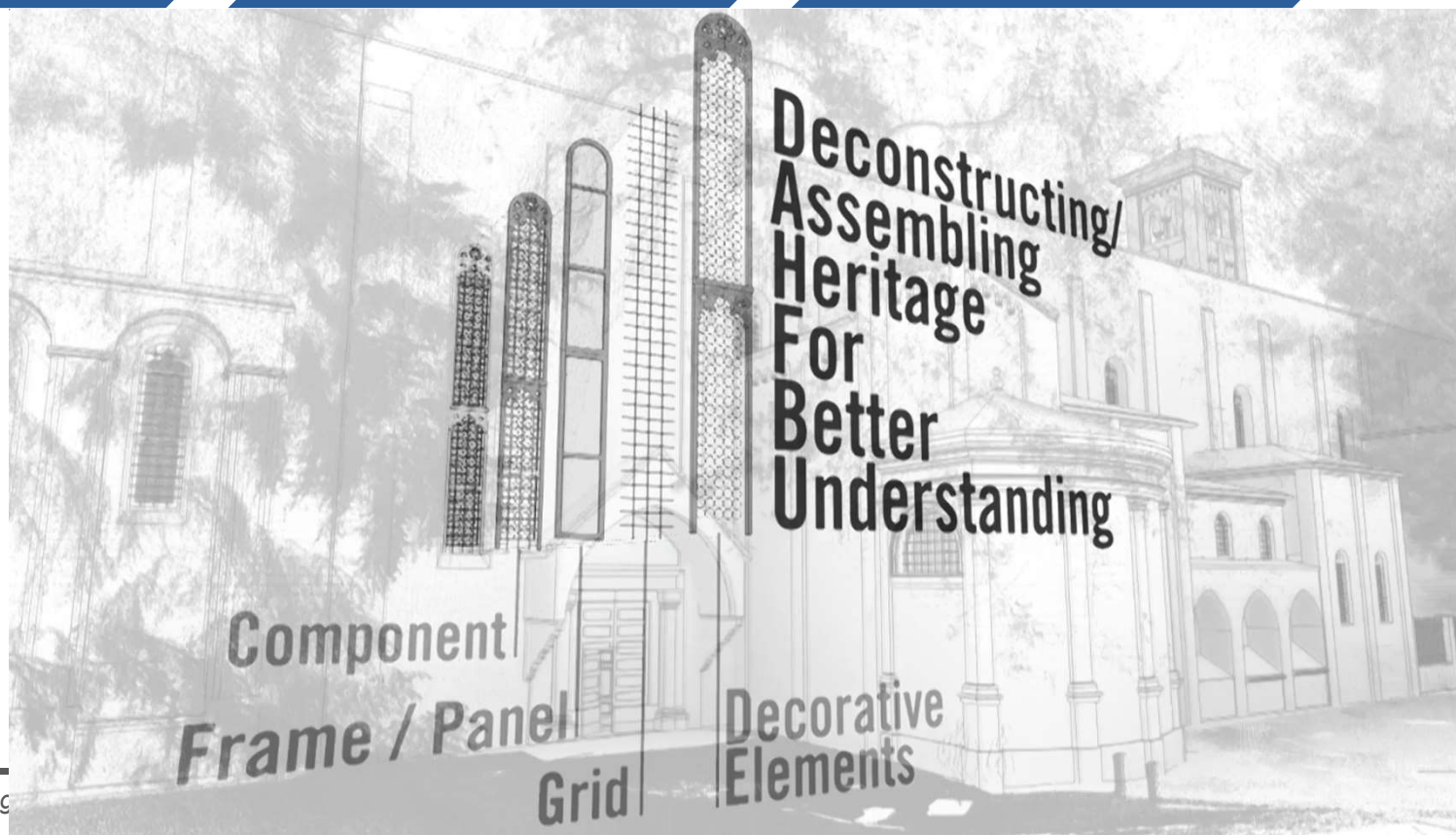
Methodology

Primary
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Sources

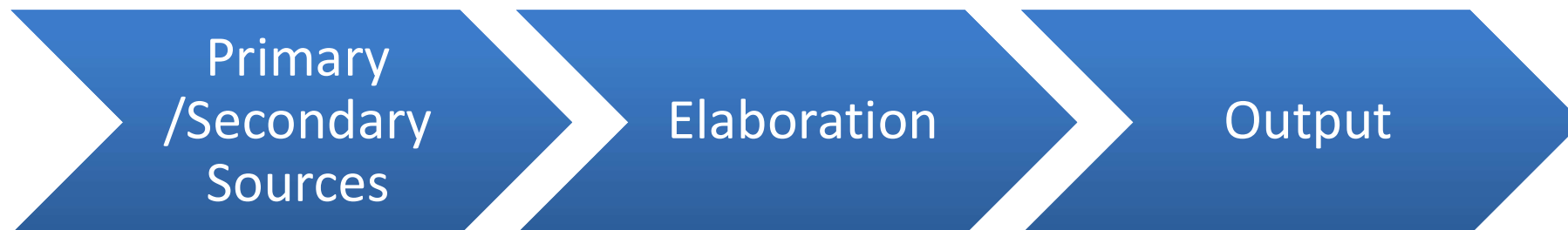
Elaboration

Output

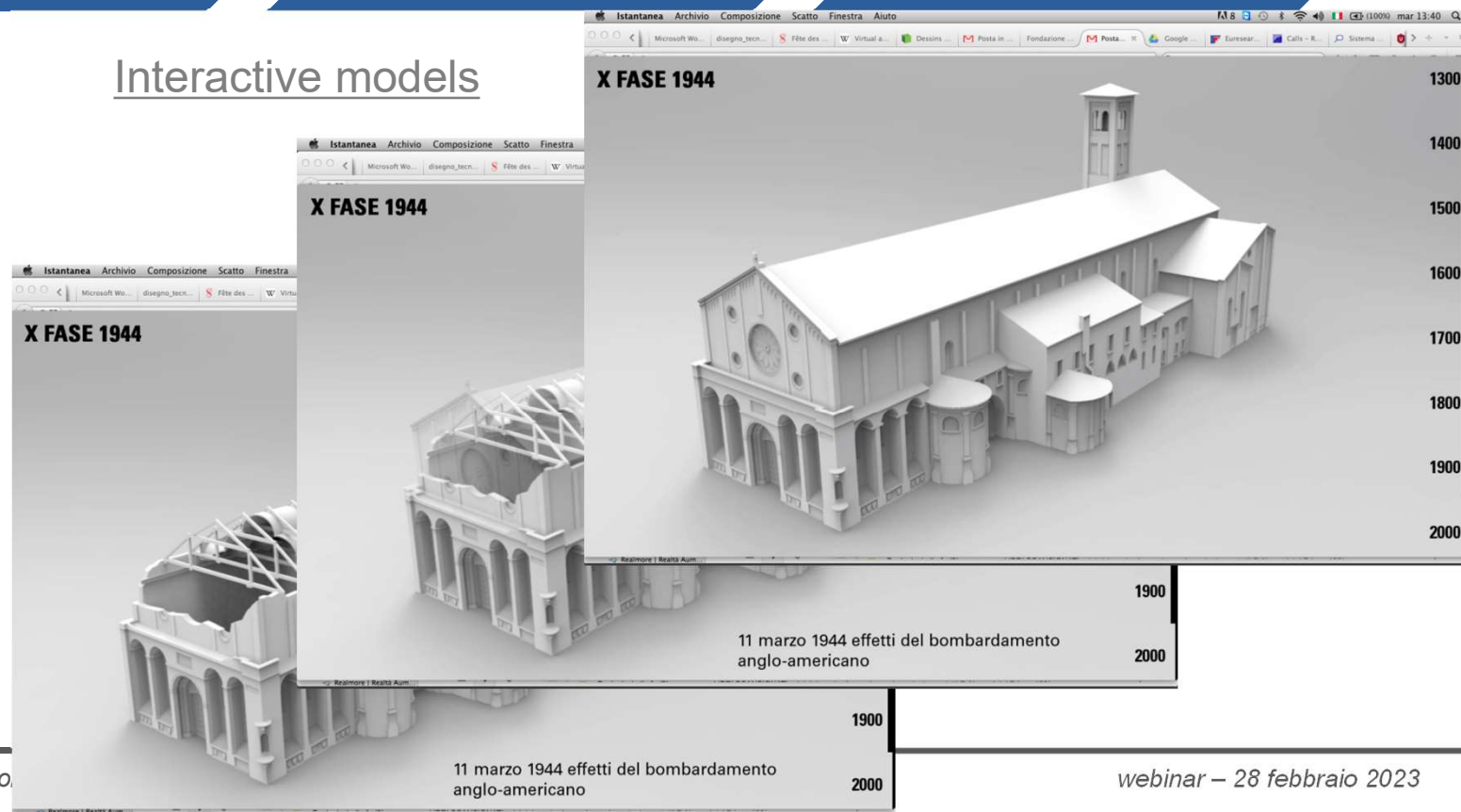
Architectural elements
"Families"



Methodology



Interactive models

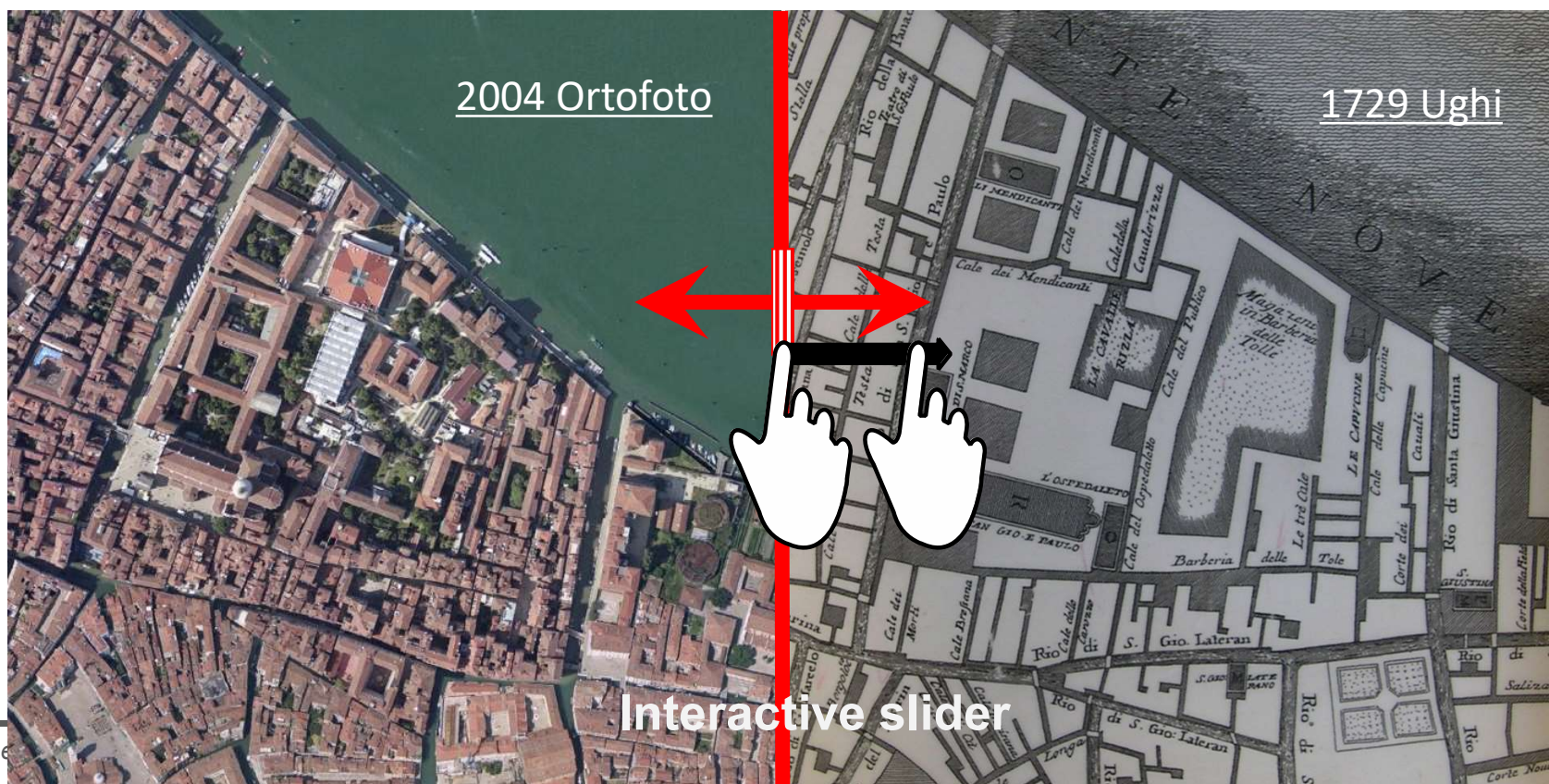


Methodology

Primary
/Secondary
Sources

Elaboration

Output



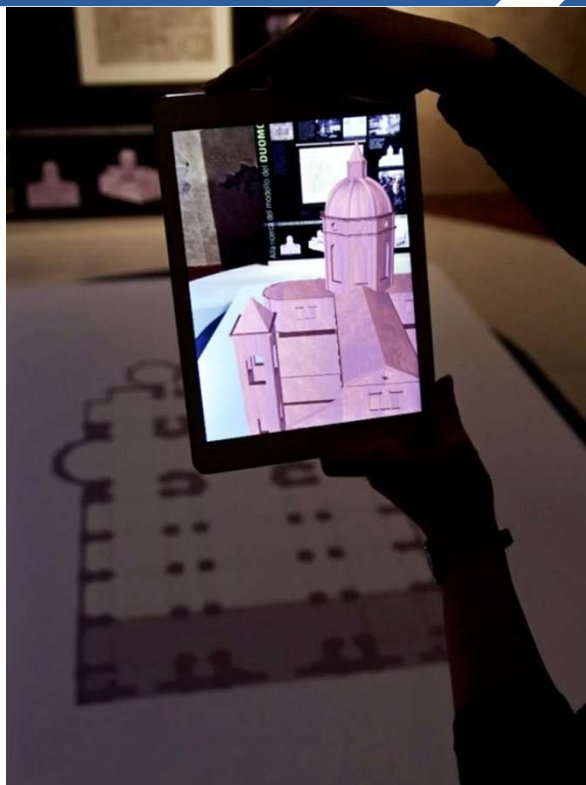
Methodology

Primary
/Secondary
Sources

Elaboration

Output

Augmented reality (AR)



Cathedral of Carpi by Peruzzi
Elaboration C. Monteleone, I Friso, T. Panarotto

Methodology

