

# Lucus Feroniae and Tiber Valley Virtual Museum: from documentation and 3D reconstruction, up to a novel approach in storytelling, combining virtual reality, cinematographic rules, gesture-based interaction, "augmented" perception of the archaeological context.



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The area North of Rome,

Limits:

Monte Soratte (North) and

Fidene (South),

Palombara Sabina (East)

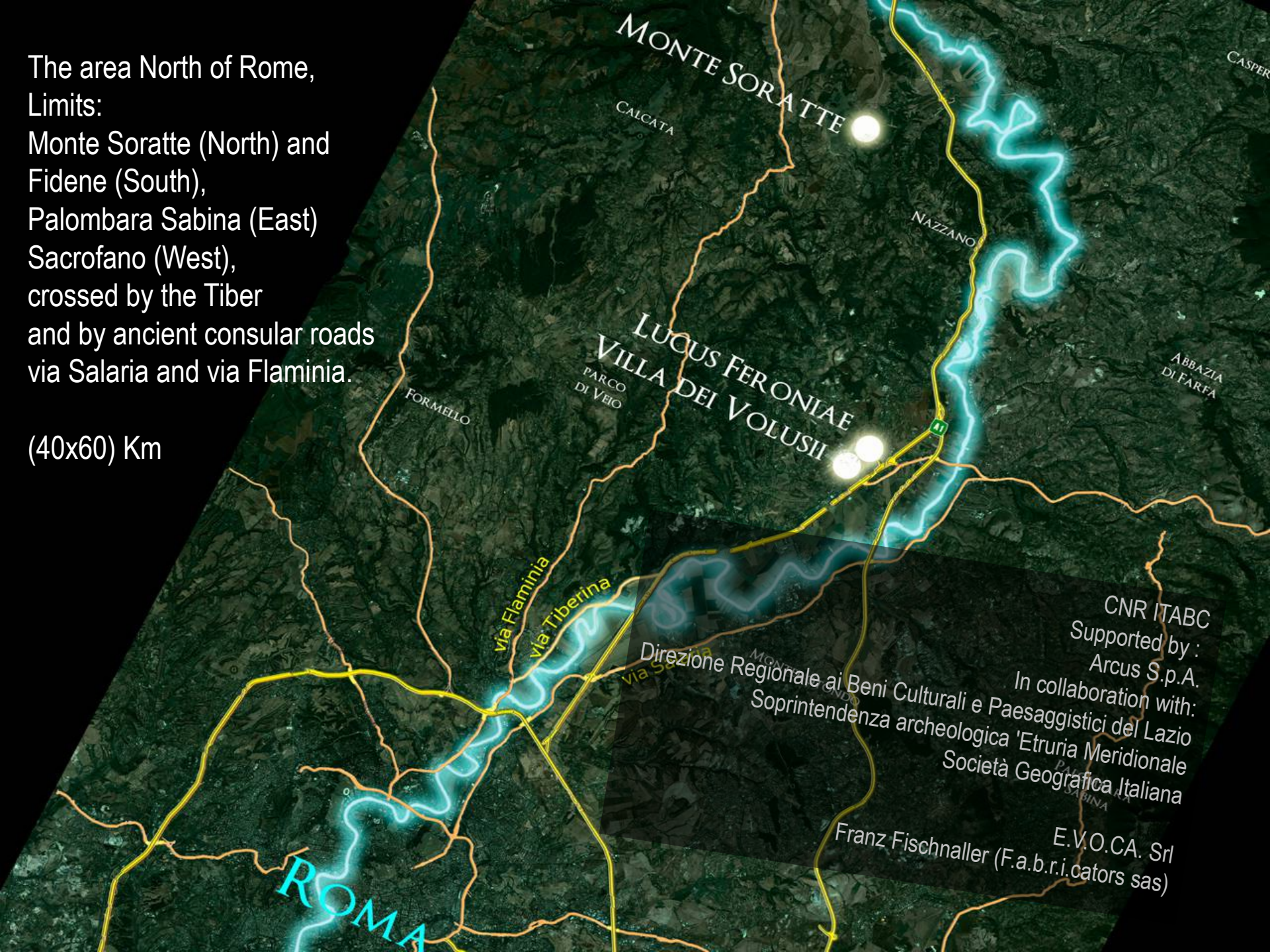
Sacrofano (West),

crossed by the Tiber

and by ancient consular roads

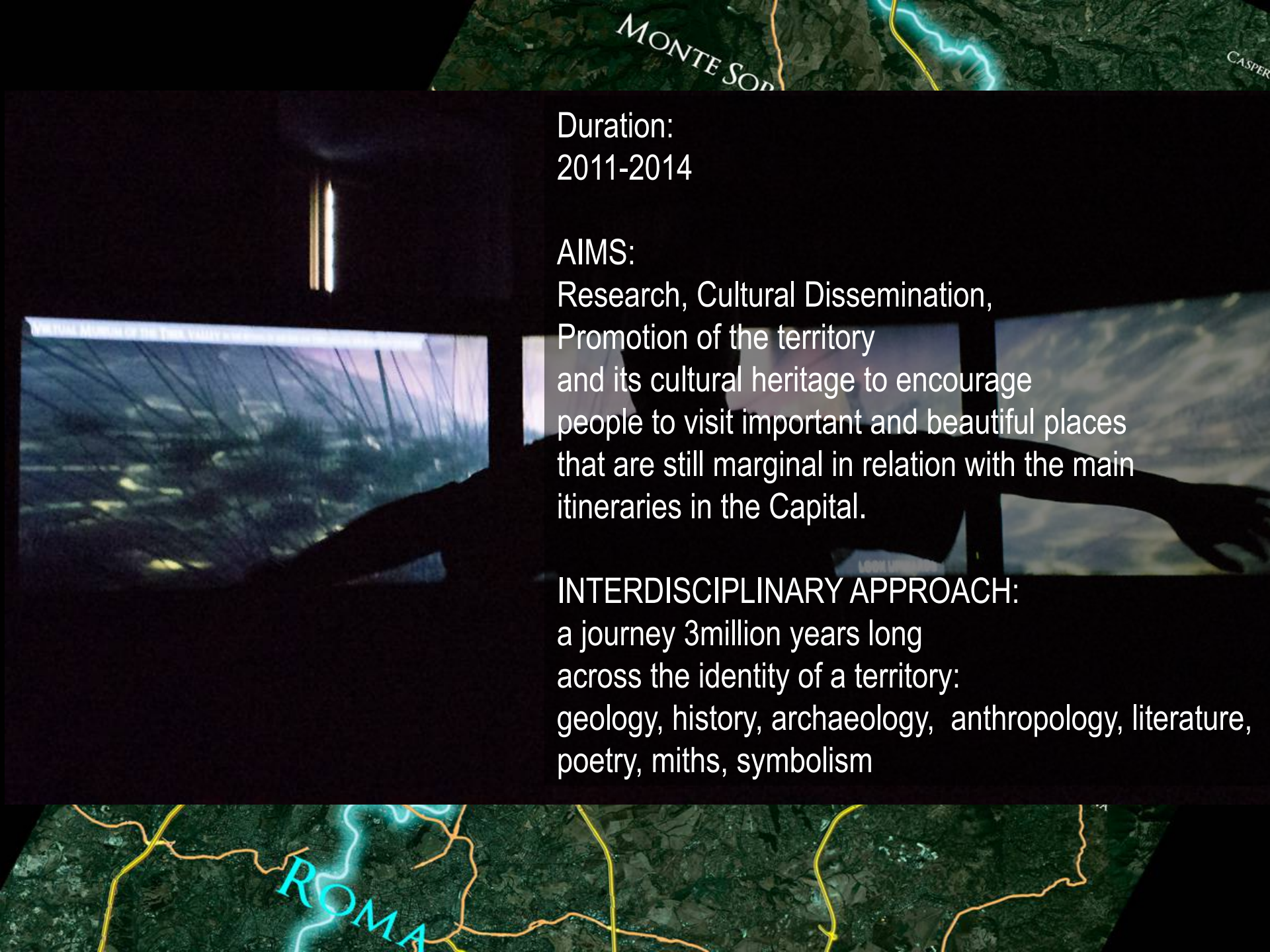
via Salaria and via Flaminia.

(40x60) Km



CNR ITABC  
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E.V.O.CA. Srl  
Franz Fischnaller (F.a.b.r.i.cators sas)



An aerial map of Rome, Italy, with glowing orange lines representing roads or paths and a blue lightning bolt striking the ground. The word 'ROMA' is written in large, glowing blue letters across the map. In the top right corner, the word 'CASPER' is visible. In the top left corner, the words 'MONTE SOP' are visible.

Duration:  
2011-2014

**AIMS:**

Research, Cultural Dissemination,  
Promotion of the territory  
and its cultural heritage to encourage  
people to visit important and beautiful places  
that are still marginal in relation with the main  
itineraries in the Capital.

**INTERDISCIPLINARY APPROACH:**

a journey 3million years long  
across the identity of a territory:  
geology, history, archaeology, anthropology, literature,  
poetry, myths, symbolism





# Spectacular permanent VR application in Villa Celimontana/Villa Giulia

Promotion of the territory and of the project VR,  
gesture based interaction, storytelling

Multimedia and VR applications for local museum  
or be used during the visit of archaeological sites or naturalistic oasis

Multimedia Website,

including:

narrative contents for general public

methodological studies, interpretative sources, metadata, papers for experts and students

Common dataset with some adjustments for the specific communicative formats  
and the different conditions of fruition.





Spectacular permanent VR application in  
National Etruscan Museum of Villa Giulia, Rome

Conceptual and emotional involvement

Affection= main vehicle of preservation and valorization towards this CH



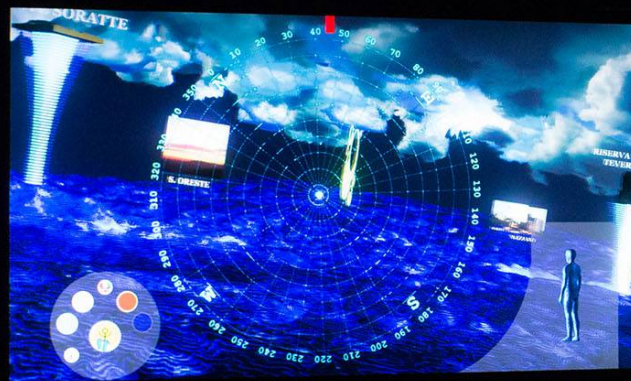


As a FISH, swimming among images and sounds  
belonging to the memory of the Tiber river

Preview and testing period

In Villa Celimontana, Rome, Sept- Dec 2014





As a BIRD, flying over the territory  
and going back in time  
to the geological evolution and the birth of cities

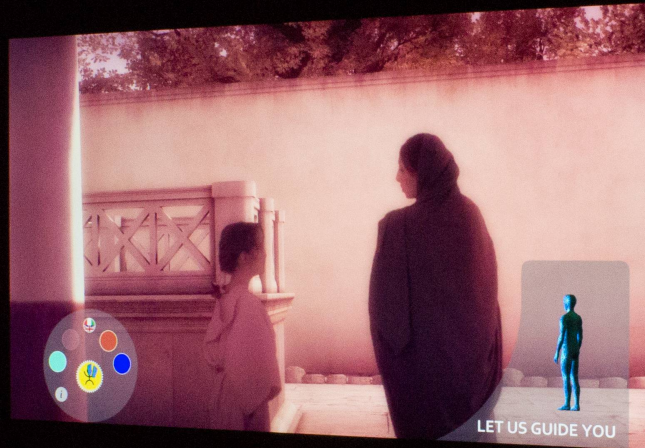




Leonardo Rescic © CNR - IT

As a MAN inside the Volusii's Villa rebuilt in augustan age  
and following the Individual drama of the freedman Mena





As a MAN walking through the city of Lucus Feroniae, rebuilt in the I - II century AD, where the memory of the ancient goddess Feronia survives



demo



# LUCUS FERONIAE

Entrance of the archaeological area and museum:  
Via Tiberina km 18,500 Capena (RM), Italy



1 Pixel = 5cm



# LUCUS FERONIAE

Sanctuary dedicated to the Italic goddess Feronia (before the Romans)

A place of convergence of many people:  
Faliscans, Capenates, Etruscans  
Sabines, Latin

A Roman republican settlement (Egnatii)

Roma colony (Feronia discarded)  
under Augusto (Volusii)

Orthophpto 1 Pixel = 5cm



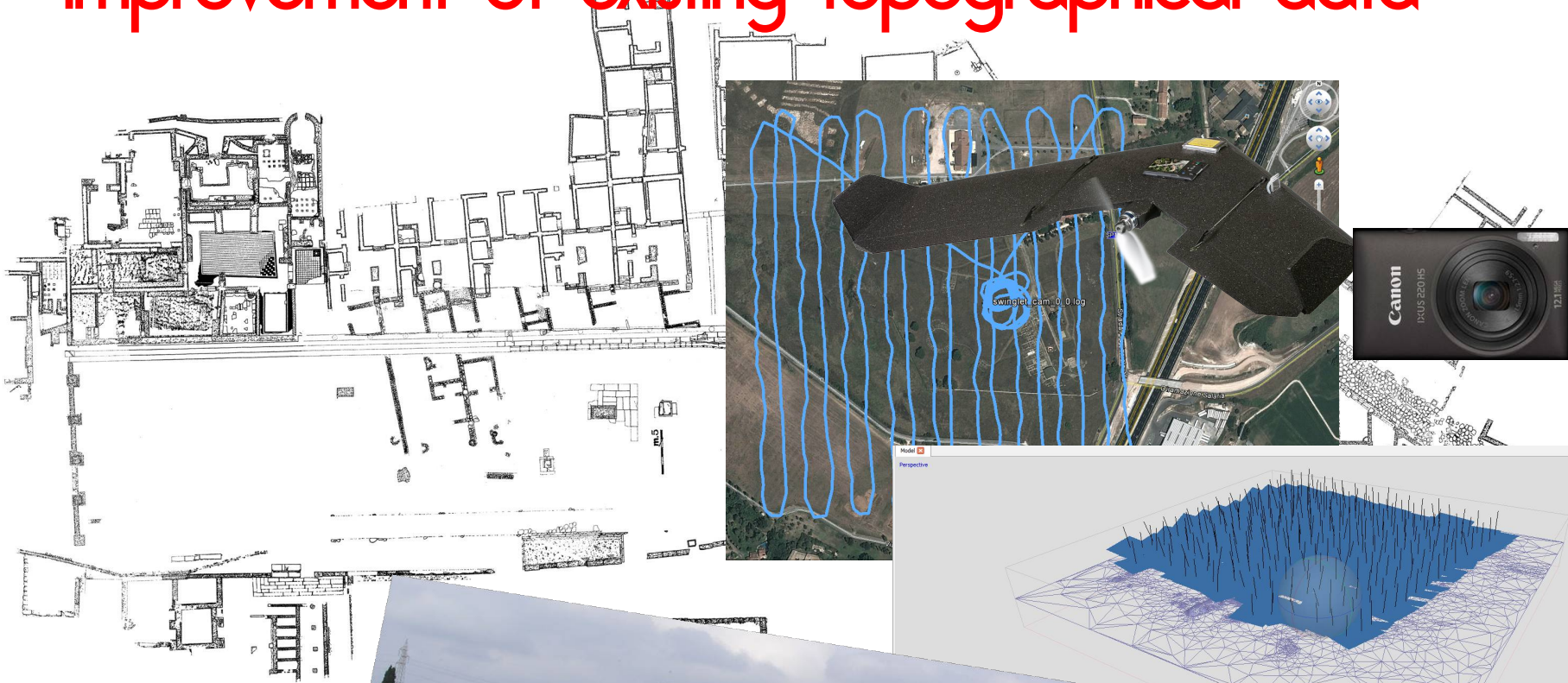


Orthophoto sito  
1 Pixel = 5 cm





# Improvement of existing topographical data

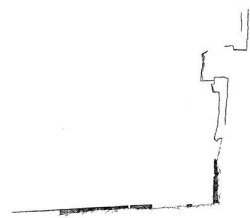
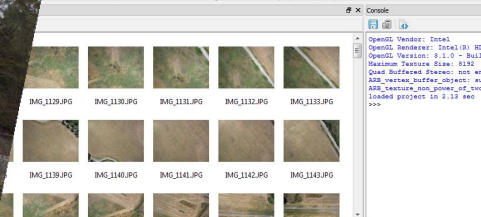
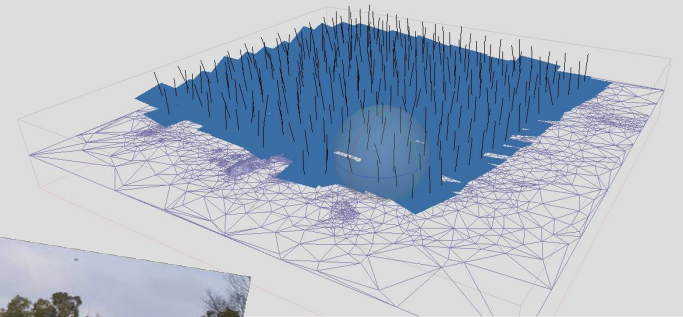


Total laser station

TOF Laser scanner

GPS

Drone Swinglet cam,  
Camera: Canon IXUS 220HS





A possible 3D reconstruction  
in Tiberian and Trajan phases





# I step: Resources

## Historical photos after restorations



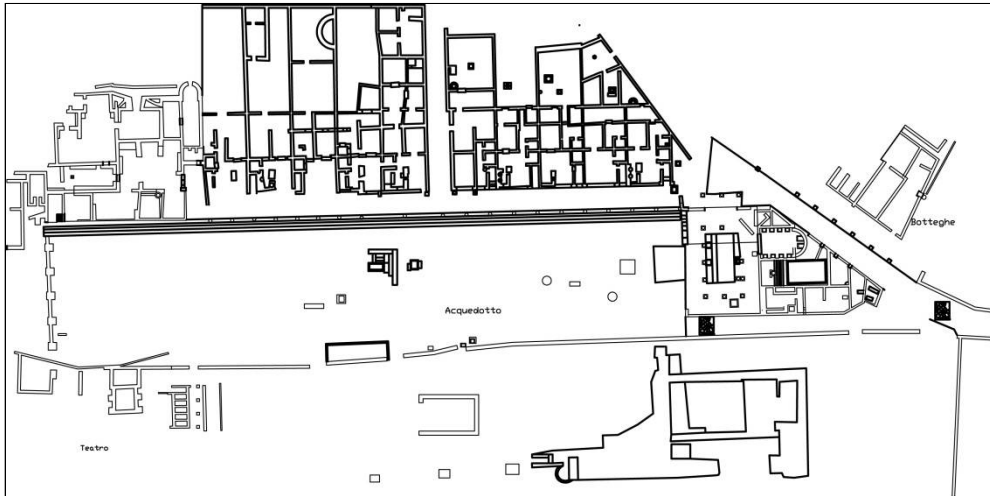
## Photographic survey



## Comparisons



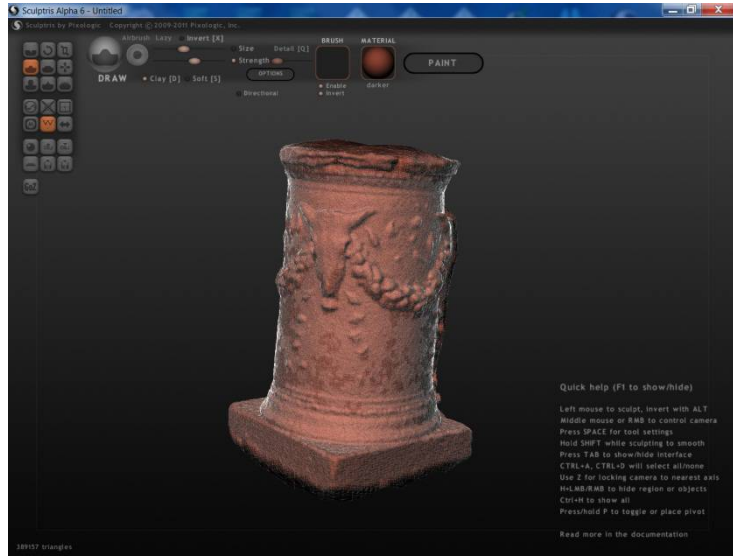
## Plans coming from excavation surveys



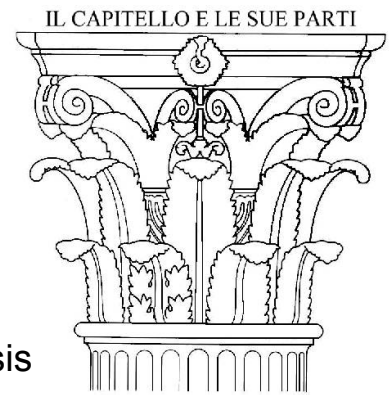


# 2 step: source elaborations

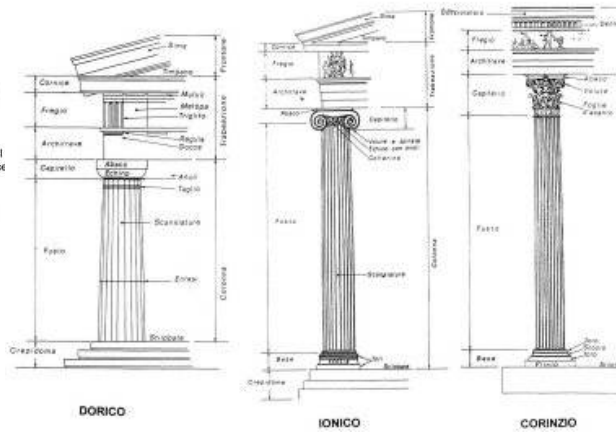
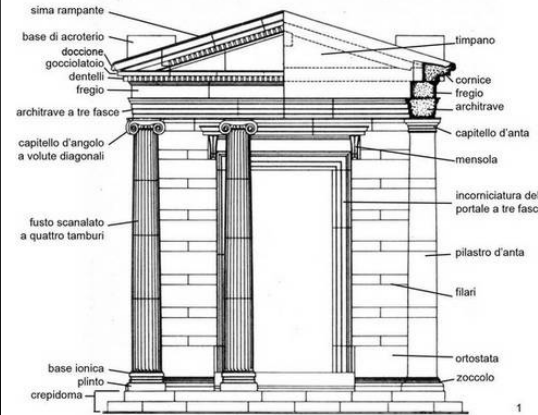
3D models reality-based  
Dense stereo matching from photos



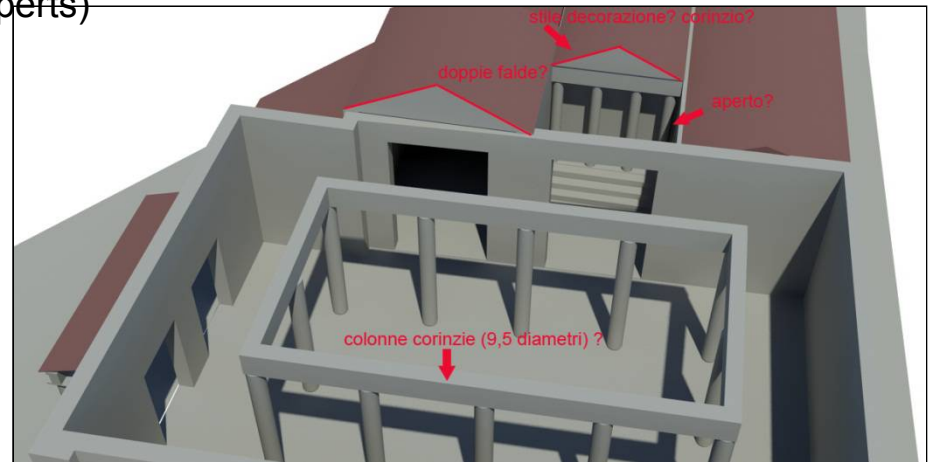
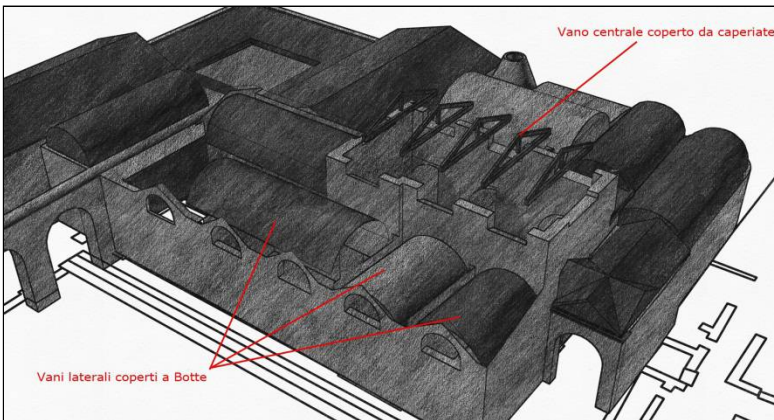
## Architectural analysis and hypothesis



GLI ORDINI ARCHITETTONICI



## Hypothesis, first Drafts, 2D, 3D (supervised by experts)





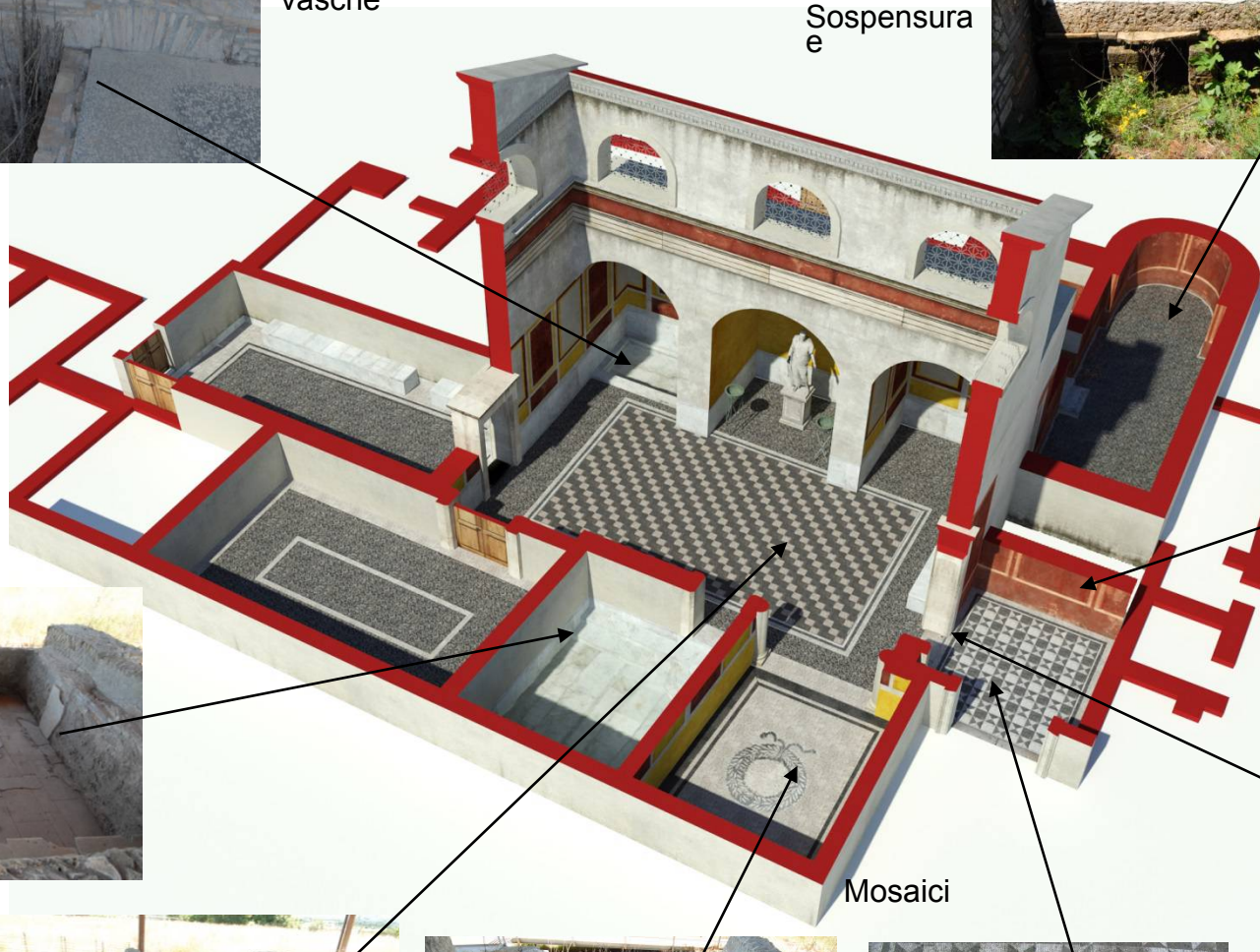
# RICOSTRUZIONE: CORRISPONDENZA AL RILIEVO



vasche



Sospensura e



Affreschi



Elementi architettonici



Mosaici



Marmi

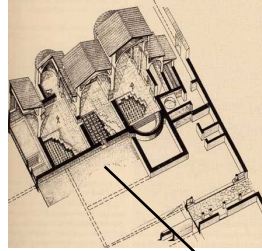




# RICOSTRUZIONE: CONFRONTI E IPOTESI



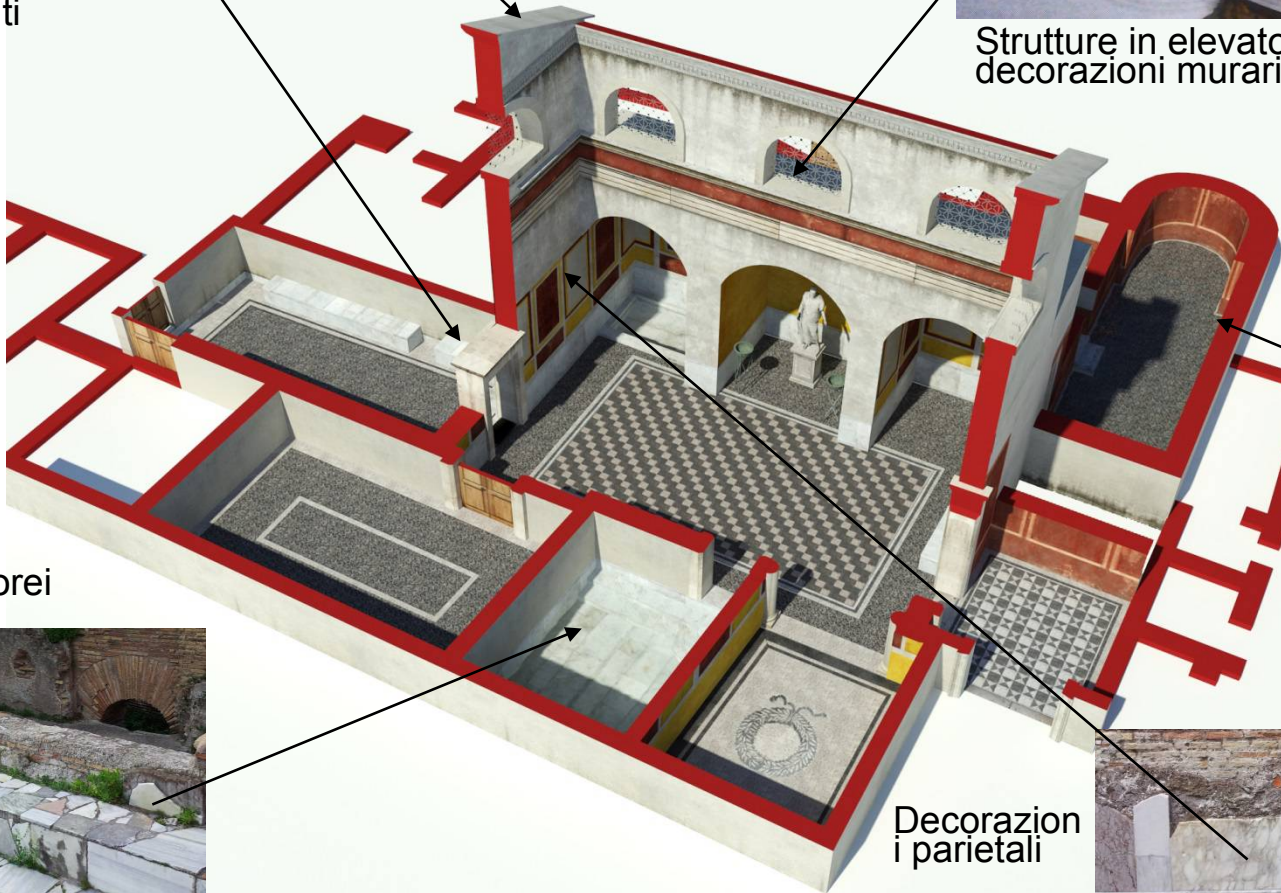
Portali elementi architettonici



coperture



Strutture in elevato, aperture e decorazioni murarie



condotte



Elementi marmorei



Decorazioni i parietali



MODELLI TERME IMPERIALI I-II SEC. D.C (Ostia, Roma)

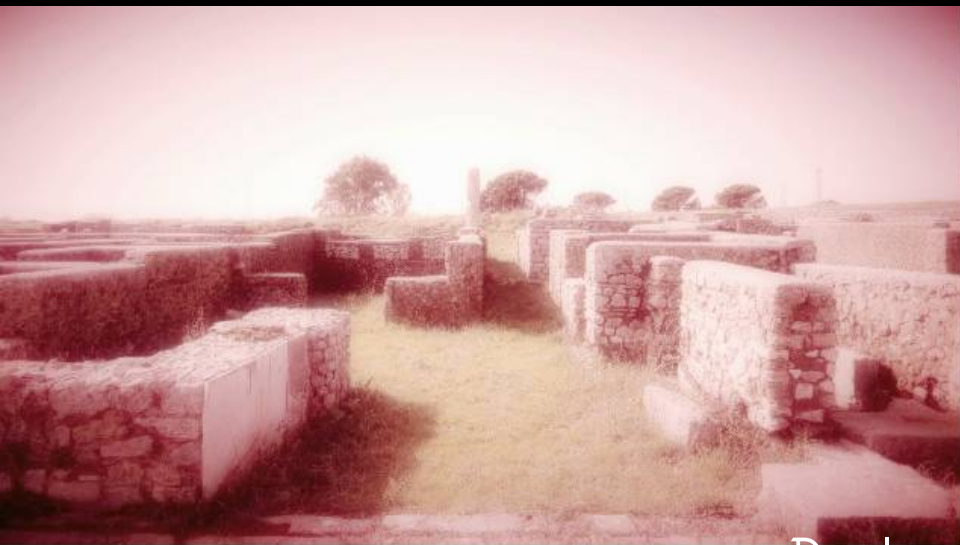




Real and Virtual





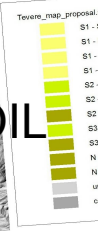
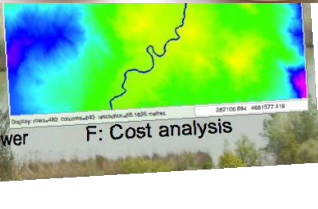
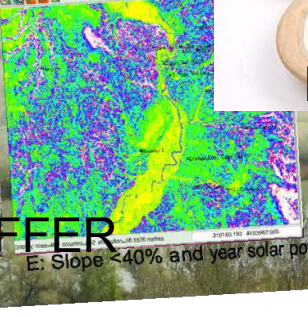
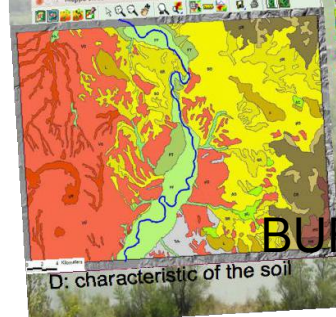
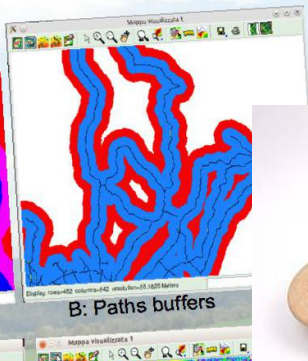
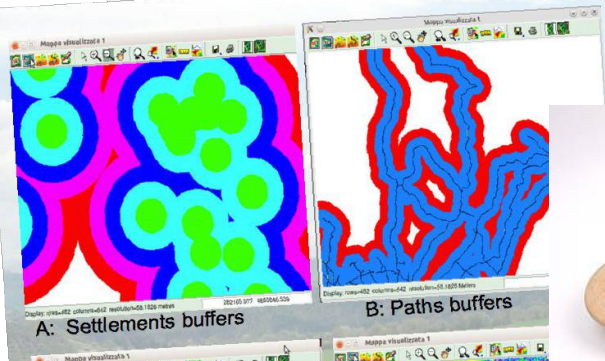
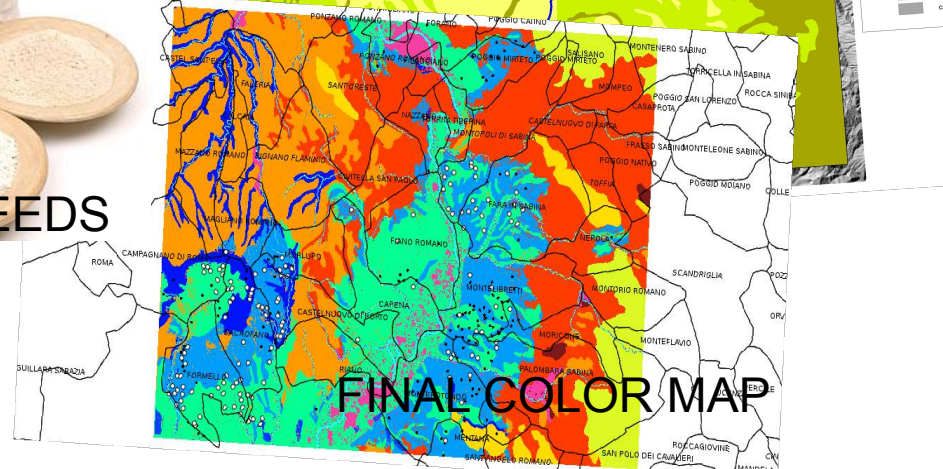
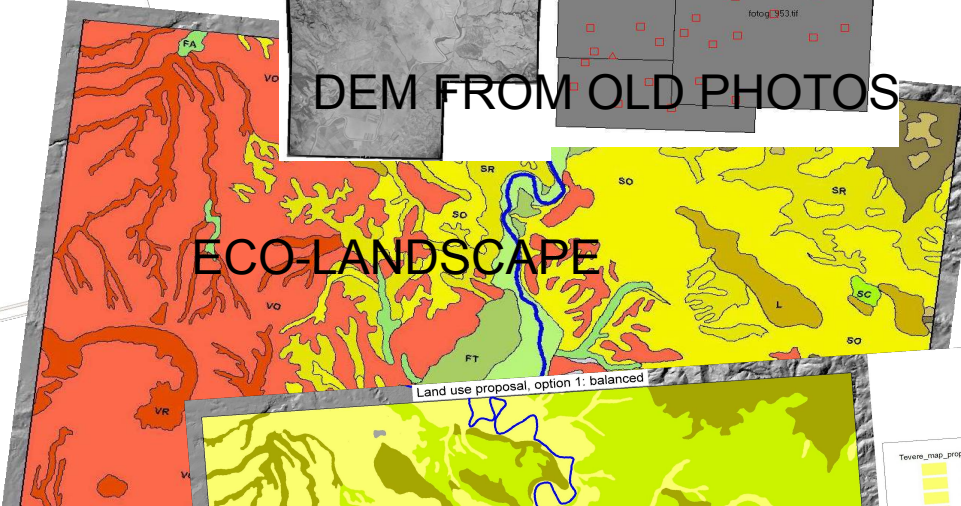
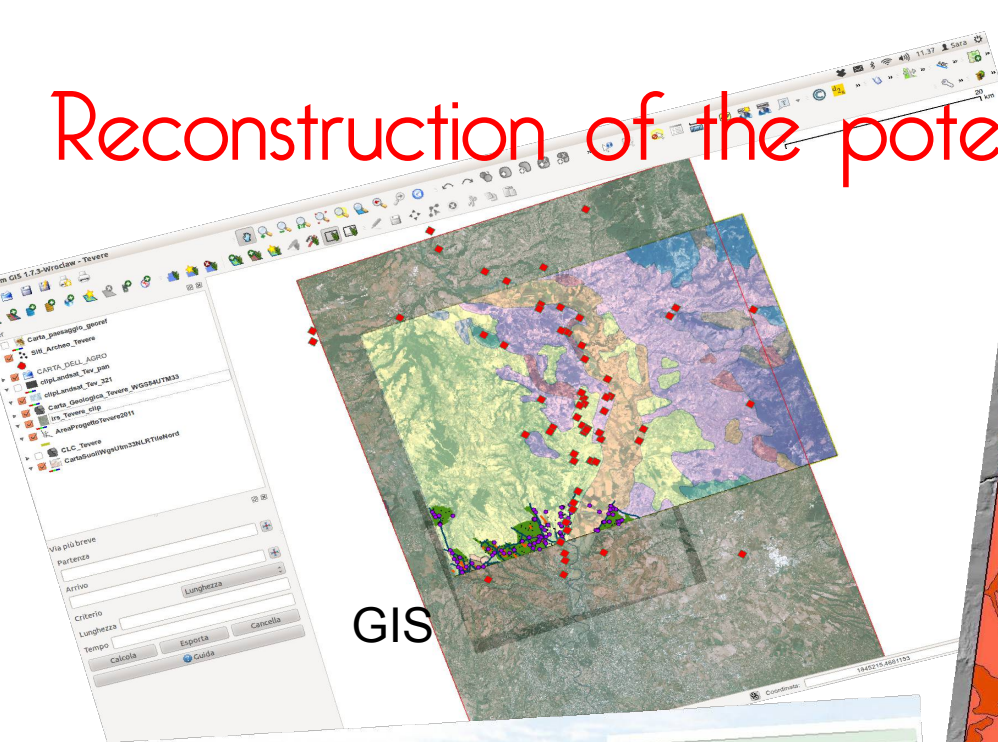


Real and Virtual





# Reconstruction of the potential ancient landscape









# Implementation

VIRTUAL MUSEUM OF THE TIBER VALLEY "HERE ONLY YOU CAN SEE ME", LUCUS FERONIAE



AN "AUGMENTED" PERCEPTION:

Present/real( left screen) and past/virtual (middle screen)  
are shown in parallel from the same point of view.

On the right the user's position





## AN "AUGMENTED" PERCEPTION

3 different views on the 3 screens



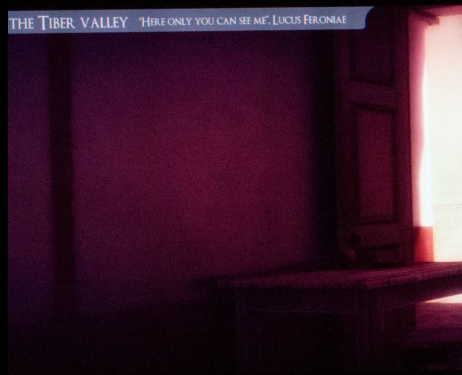


**STORYTELLING:** real actors are the ancient inhabitants

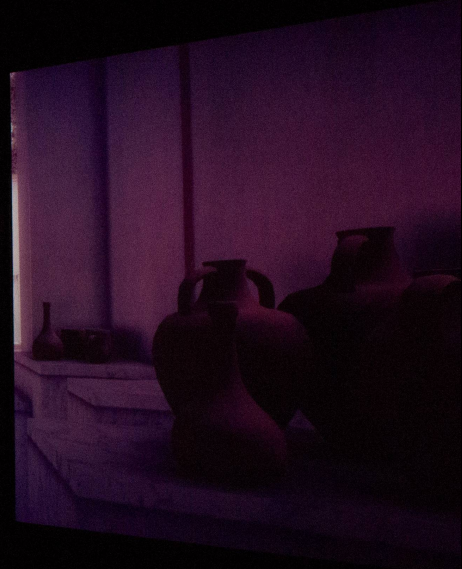
- Goddess Feronia appears to little Cesia and shows how the city will be in 100 years - ,



THE TIBER VALLEY "HERE ONLY YOU CAN SEE ME", LUCIUS FERONIAE



LET US GUIDE YOU



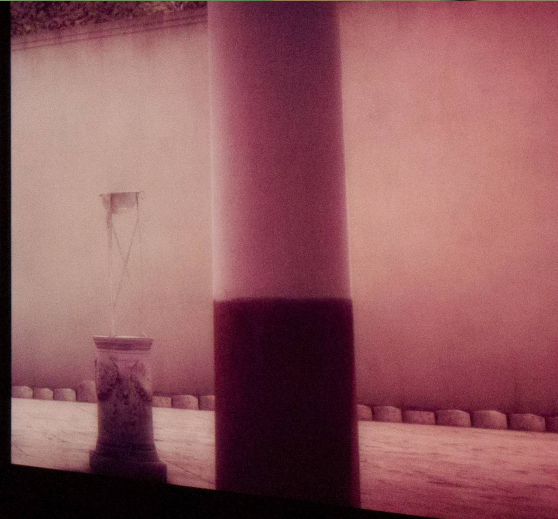
# STORYTELLING

One unique view on the 3 screens





# Virtual set / green screen - BlackMagic Cinema Camera, RAW format





Average DURATION of each scenario: 5-15 minutes

STORYTELLING is not description. Conveyed in 2 ways:

Characters with their own point of view,  
or quotes from literary and poetical sources

Non linear storytelling: intersecting but INDEPENDENT EPISODES.  
Even a short fruition is satisfying

Storytelling means expressivity, DIRECTION.



Obliged camera path (in case of articulated and wide spaces)  
Need to keep real and virtual in parallel (augmented experience)  
Lucus is a wide space, regular and repetitive: no need of exploration

Keep a certain degree of freedom and interactivity:

Interactive 360° panoramas

Crossroads: the user can decide in which direction to move



# Test of the application - User experience evaluation in progress



Villa Celimontana, Rome, November 2014