

# 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)

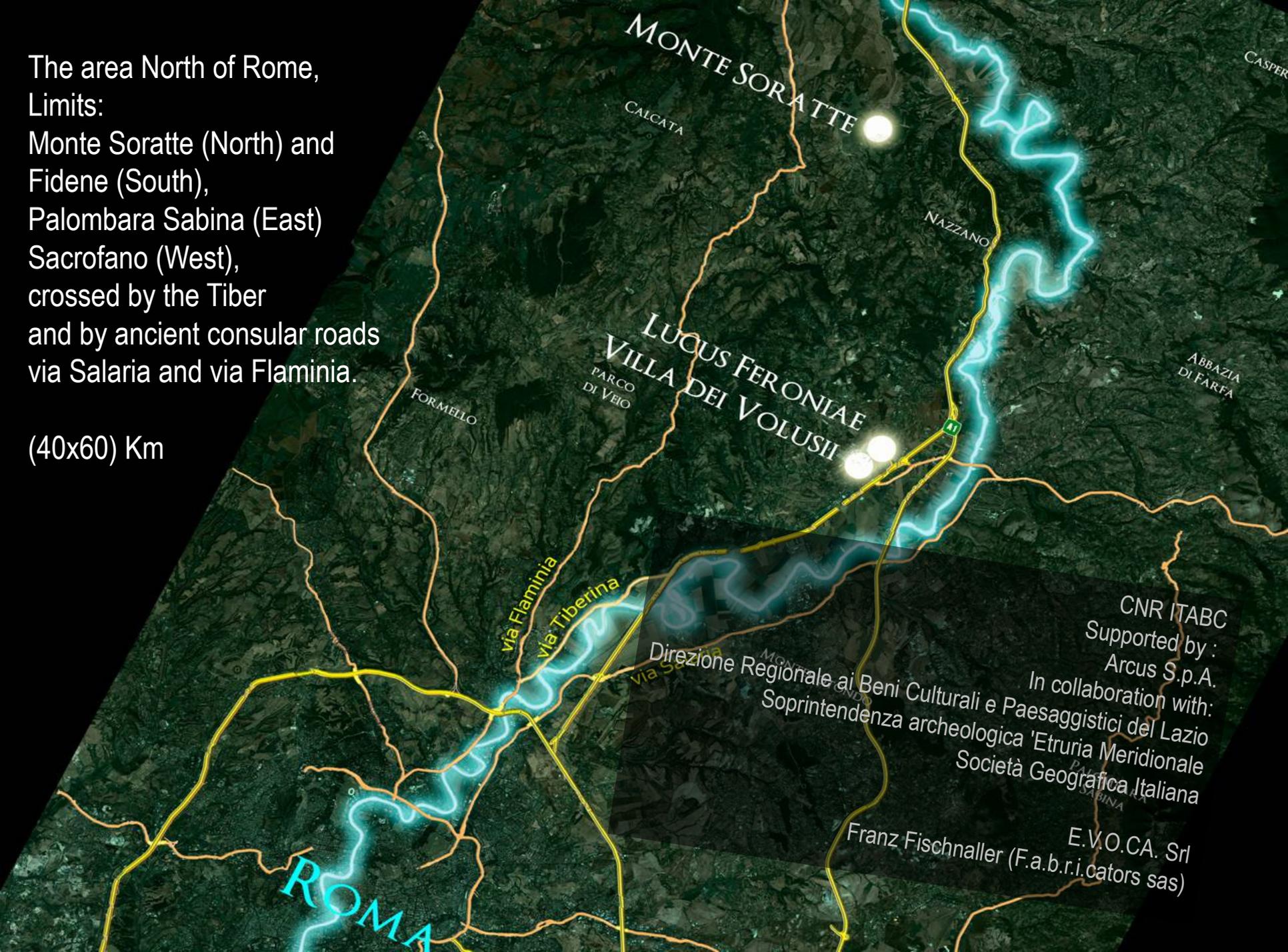
Sacrofano (West),

crossed by the Tiber

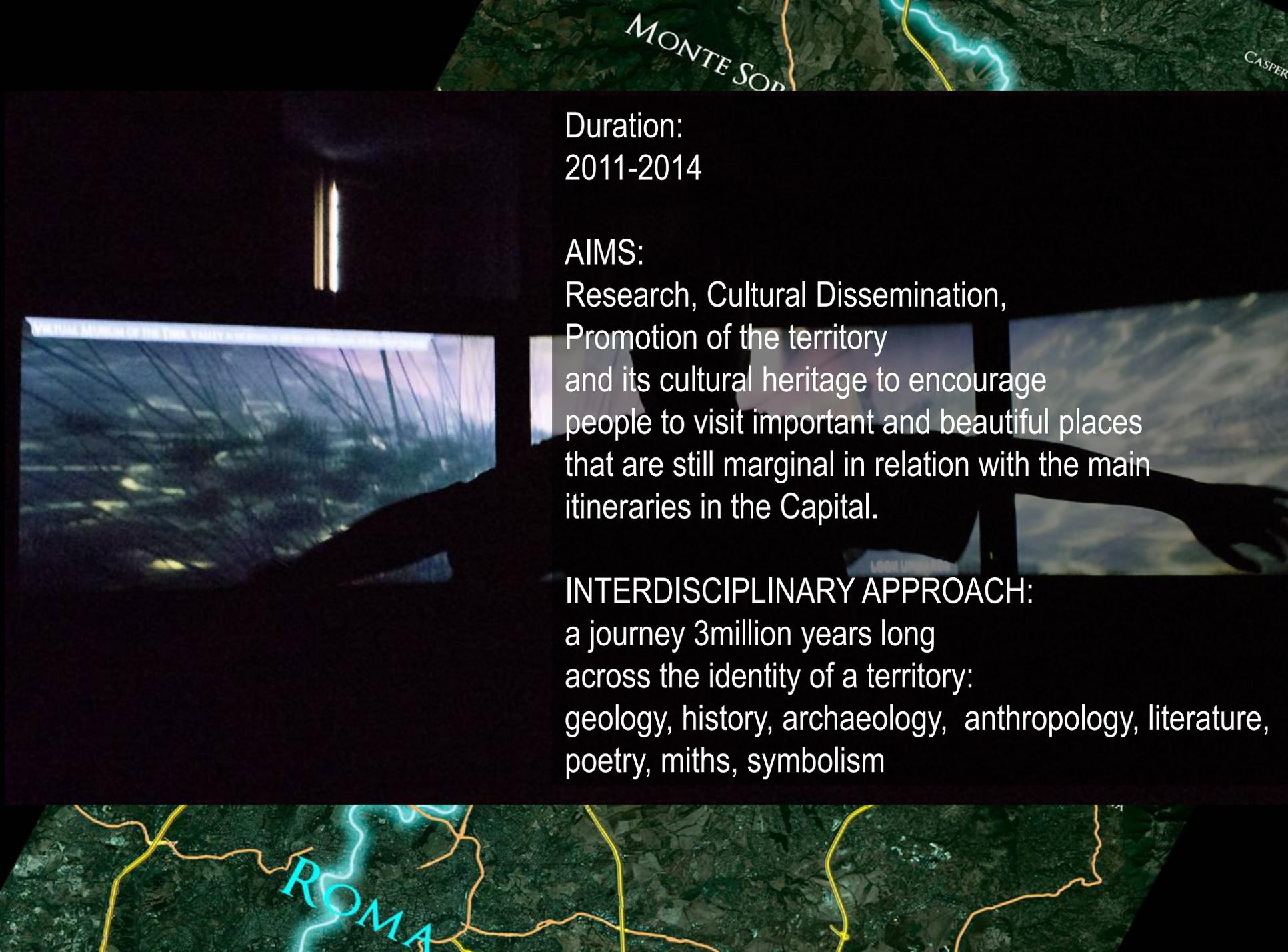
and by ancient consular roads

via Salaria and via Flaminia.

(40x60) Km



CNR ITABC  
Supported by :  
Arcus S.p.A.  
In collaboration with:  
Direzione Regionale ai Beni Culturali e Paesaggistici del Lazio  
Soprintendenza archeologica 'Etruria Meridionale  
Società Geografica Italiana  
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.

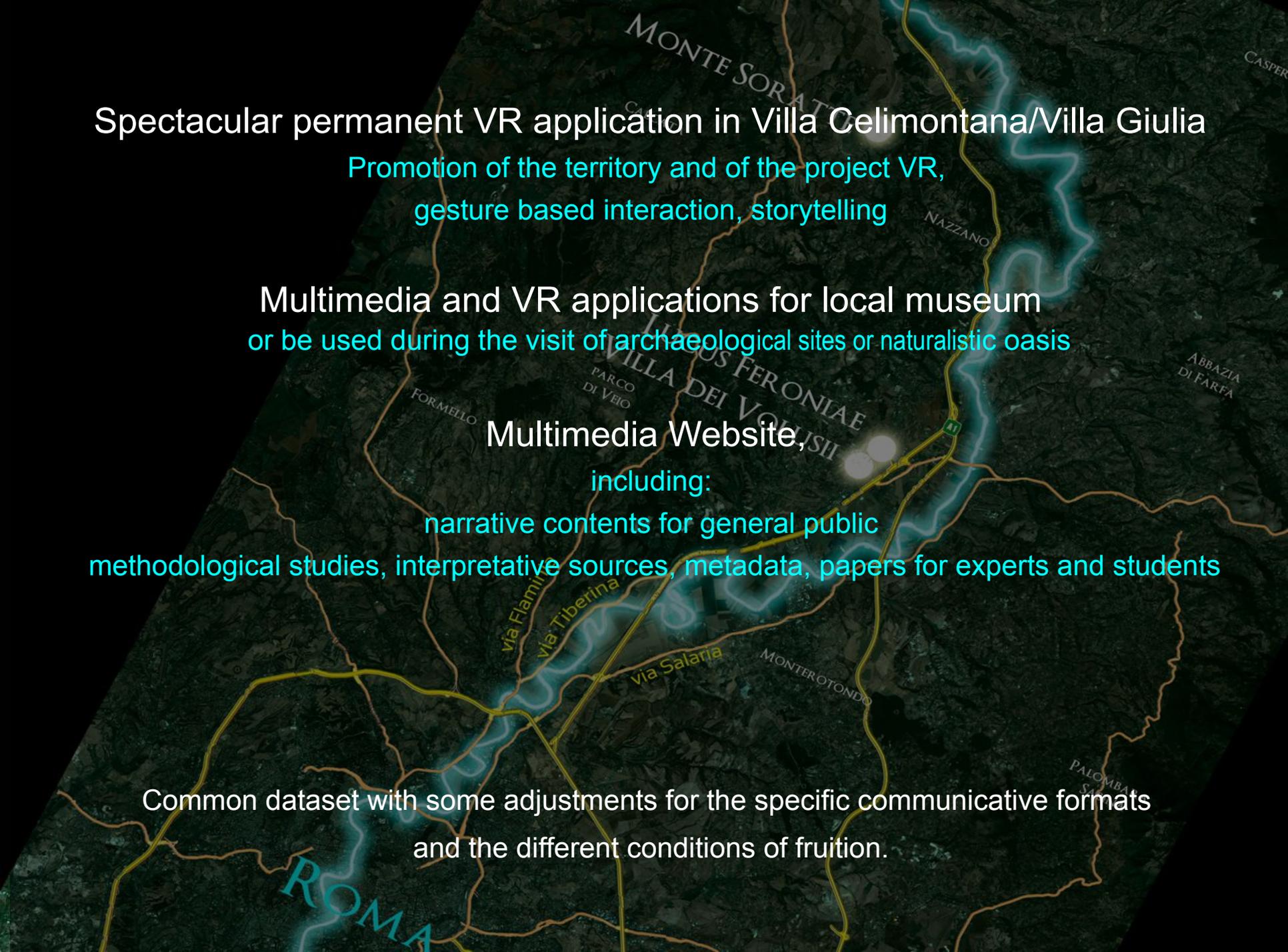
Duration:  
2011-2014

**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

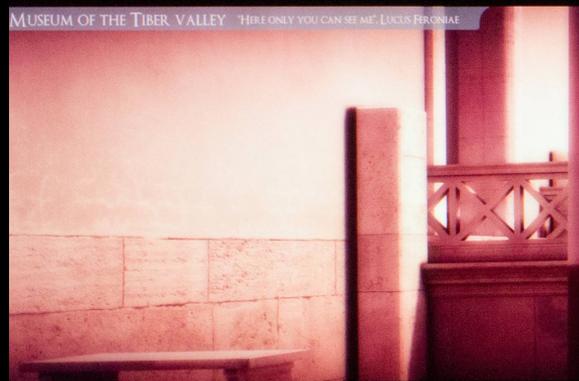


As a BIRD, flying over the territory  
and going back in time  
to the geological evolution and the birth of cities



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)

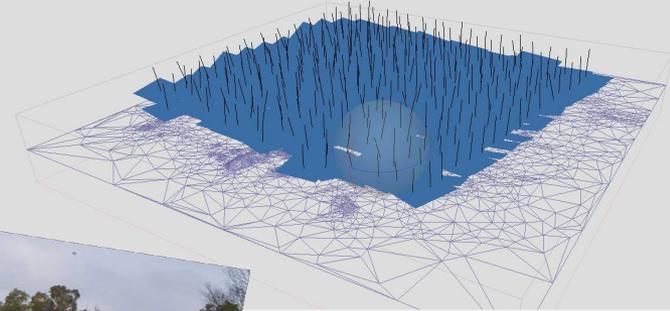
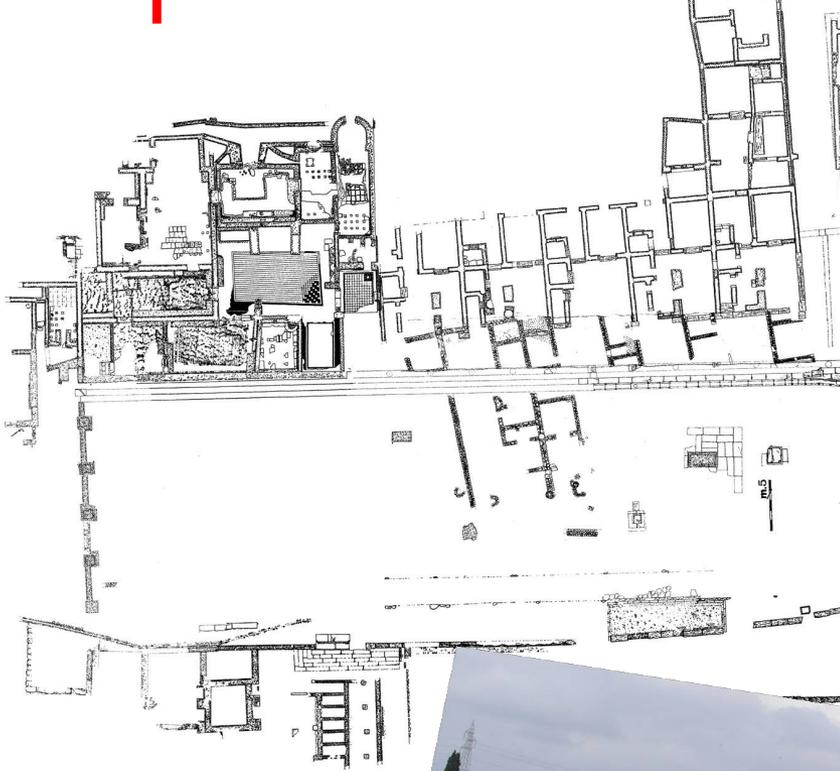
Orthophpto 1 Pixel = 5cm



Orthophoto sito  
1 Pixel = 5 cm



# Improvement of existing topographical data

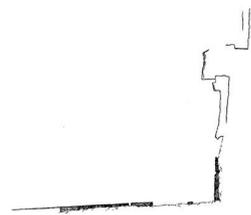
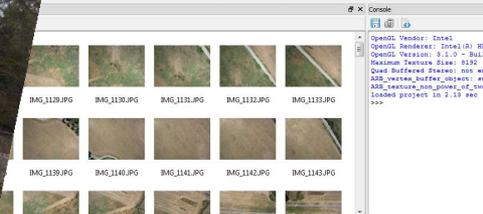


Total laser station

TOF Laser scanner

GPS

Drone Swinglet cam,  
Camera: Canon IXUS 220HS



A possible 3D reconstruction  
in Tiberian and Trajan phases



OMA

# I step: Resources

## Historical photos after restorations



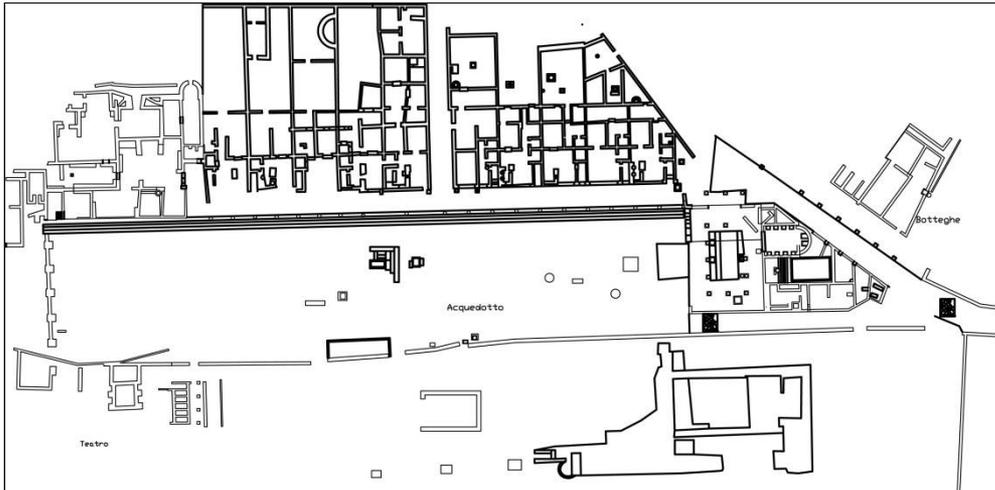
## Photographic survey



## Comparisons

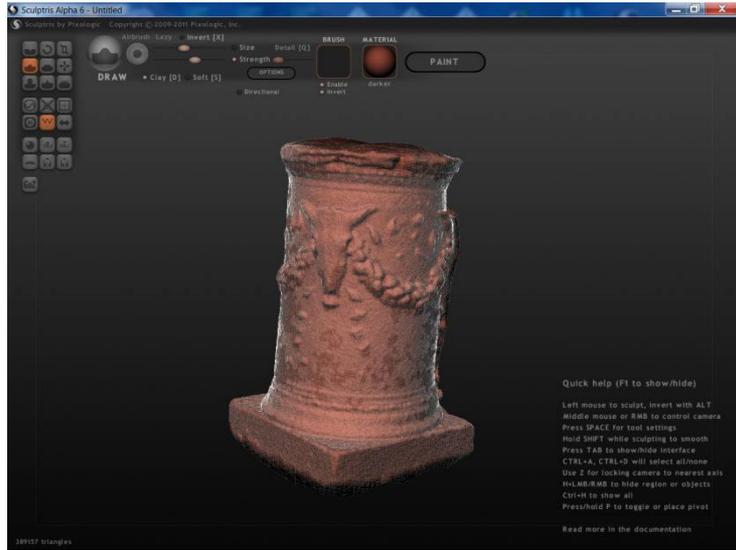


## Plans coming from excavation surveys

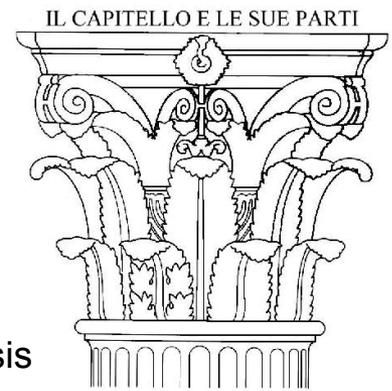


# 2 step: source elaborations

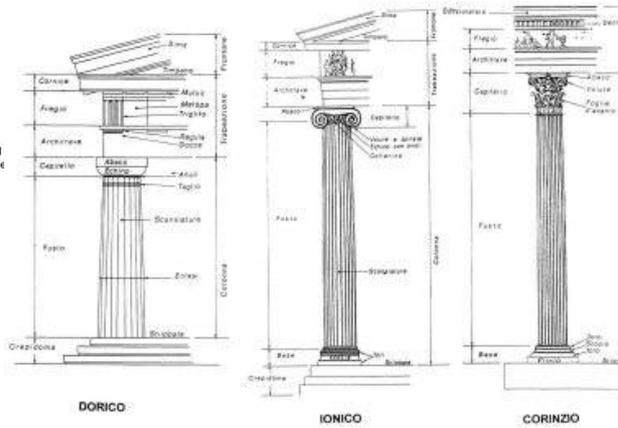
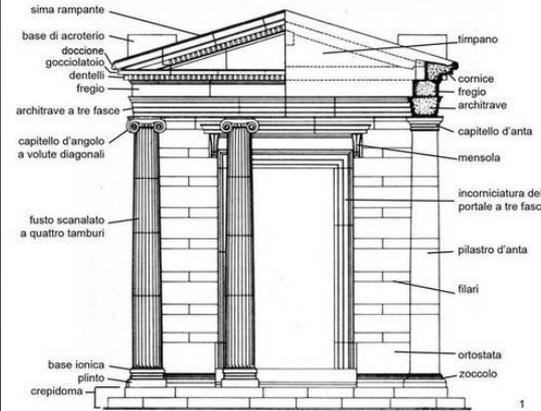
3D models reality-based  
Dense stereo matching from photos



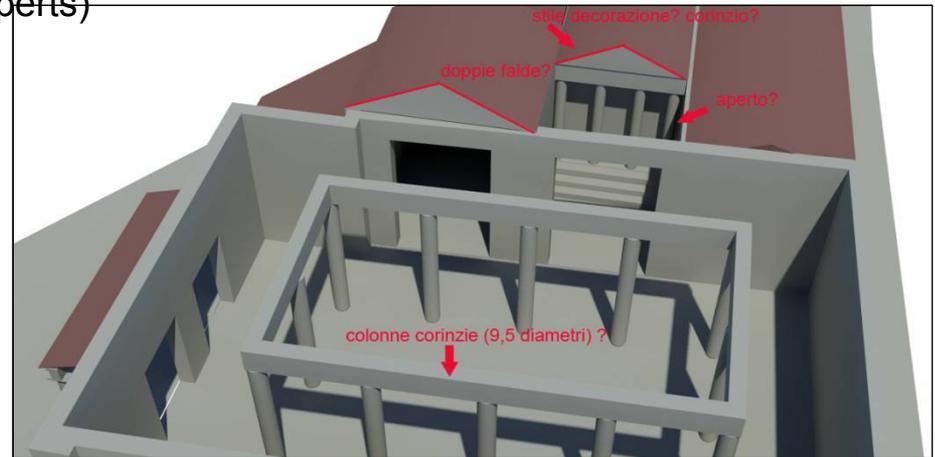
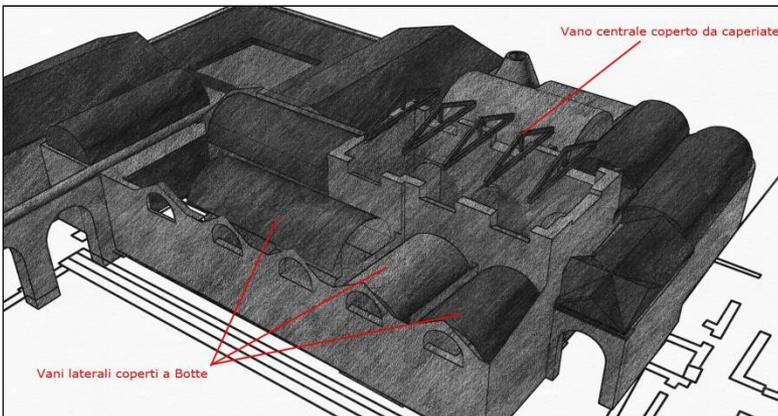
## Architectural analysis and hypothesis



GLI ORDINI ARCHITETTONICI



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



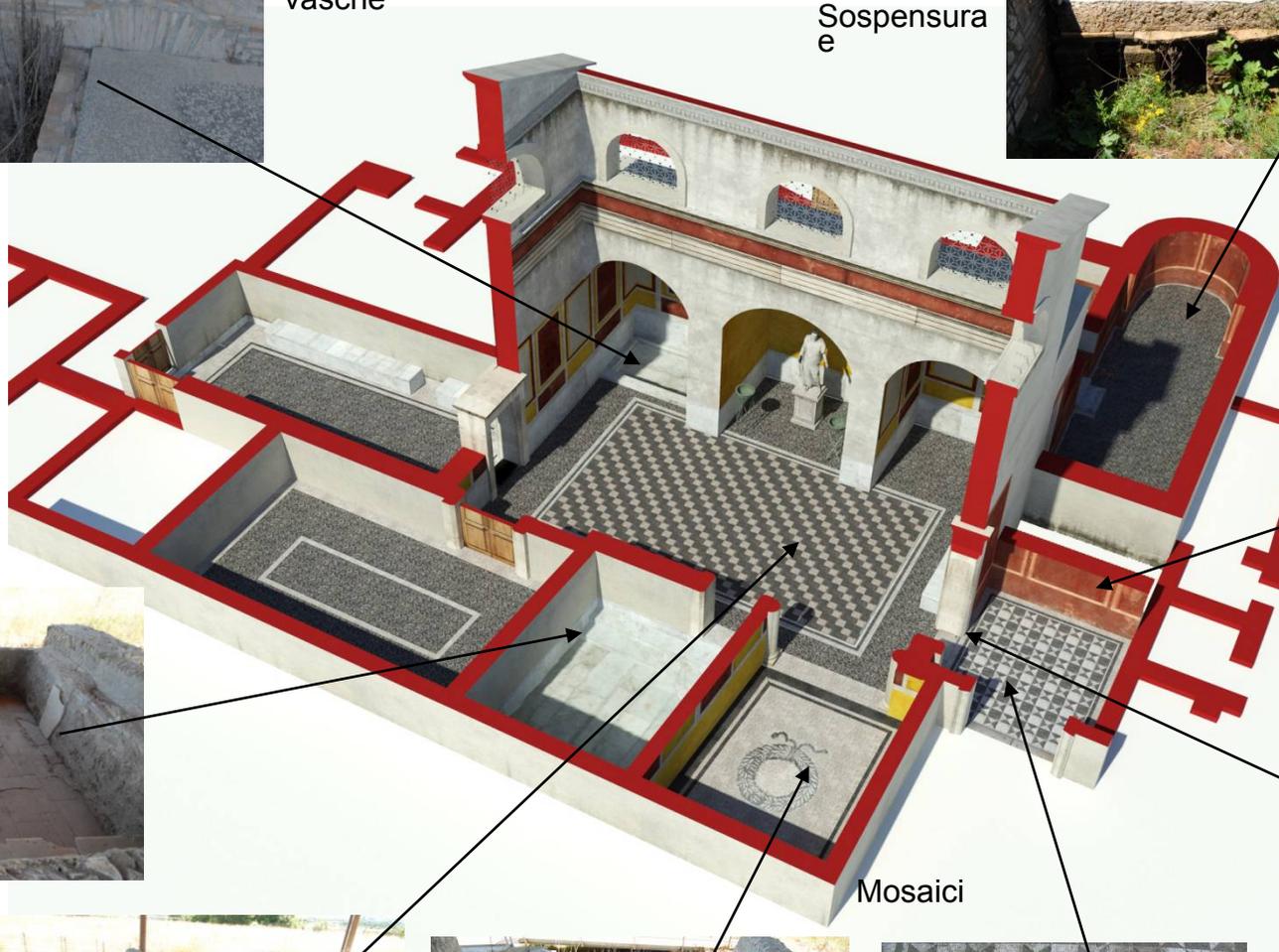
# RICOSTRUZIONE: CORRISPONDENZA AL RILIEVO



vasche



Sospensura e



Affreschi



Elementi architettonici



Mosaici



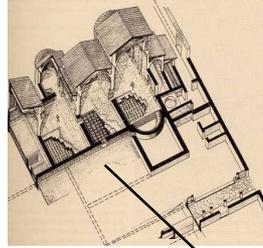
Marmi



**RICOSTRUZIONE: CONFRONTI E IPOTESI**



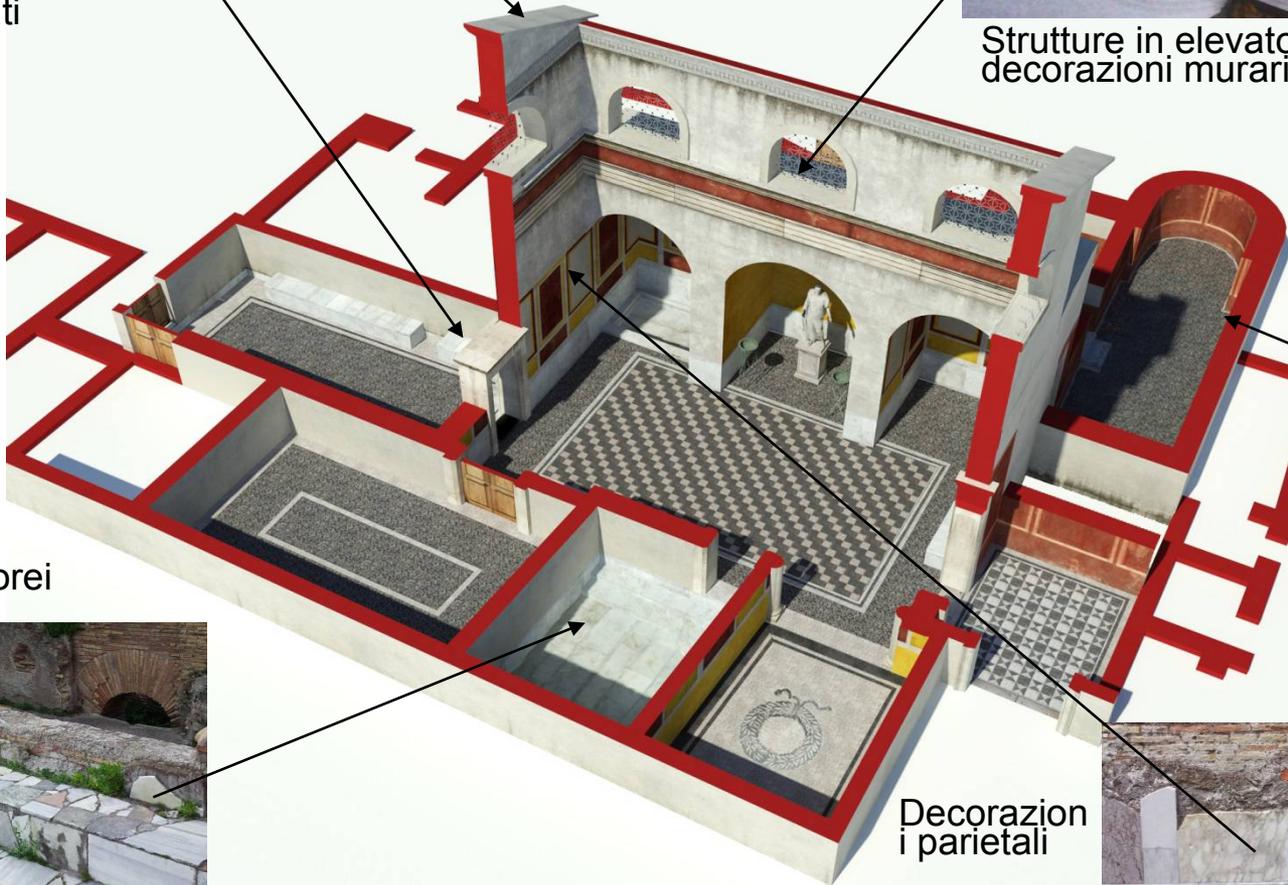
Portali elementi architettonici



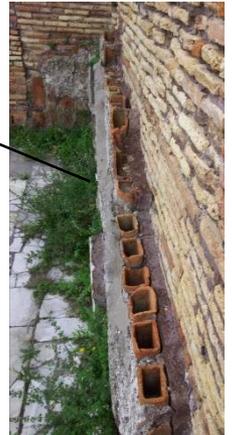
coperture



Strutture in elevato, aperture e decorazioni murarie



condotte



Elementi marmorei



Decorazioni i parietali

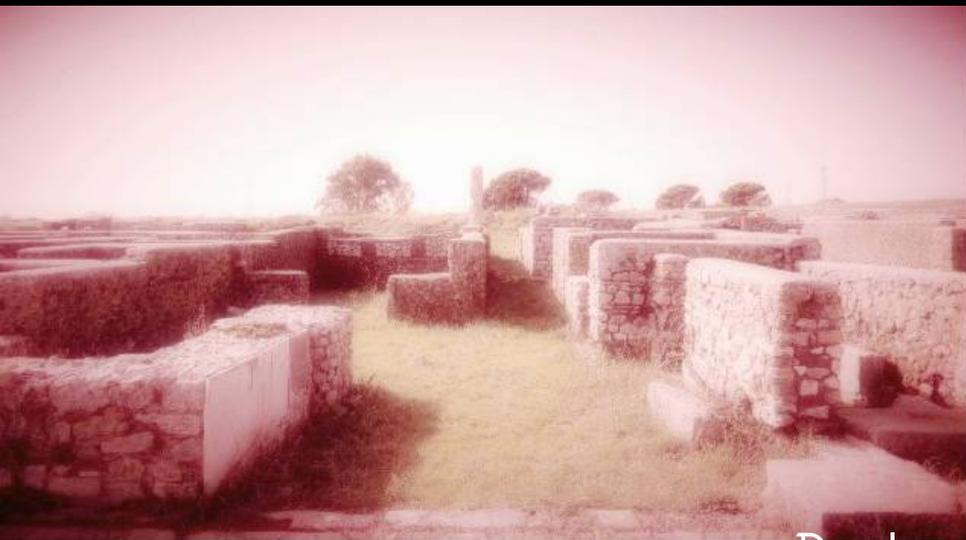


**MODELLI TERME IMPERIALI I-II SEC. D.C (Ostia, Roma)**



Real and Virtual

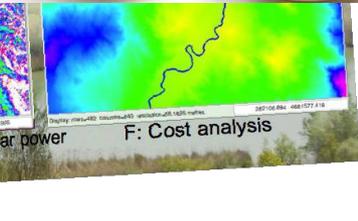
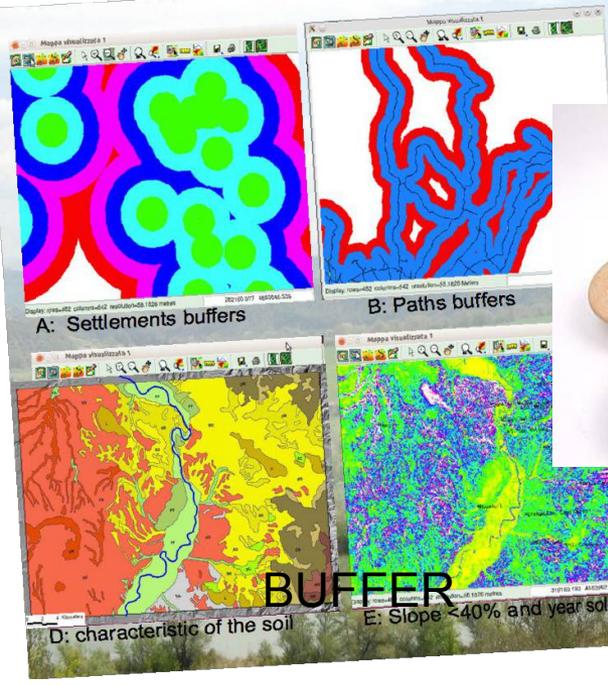
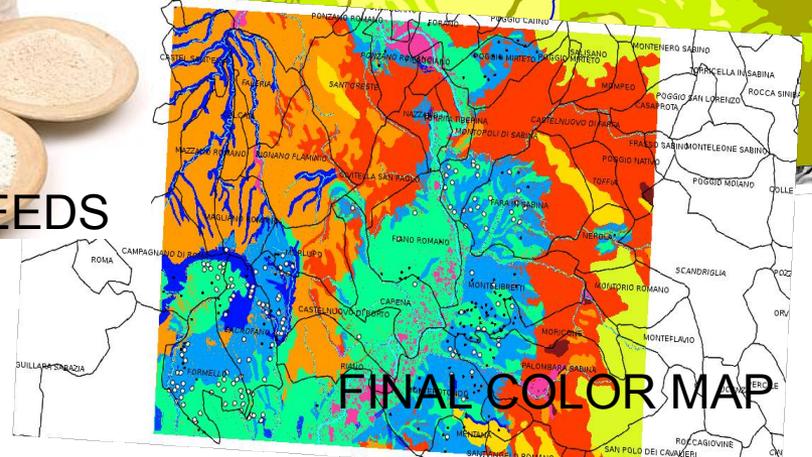
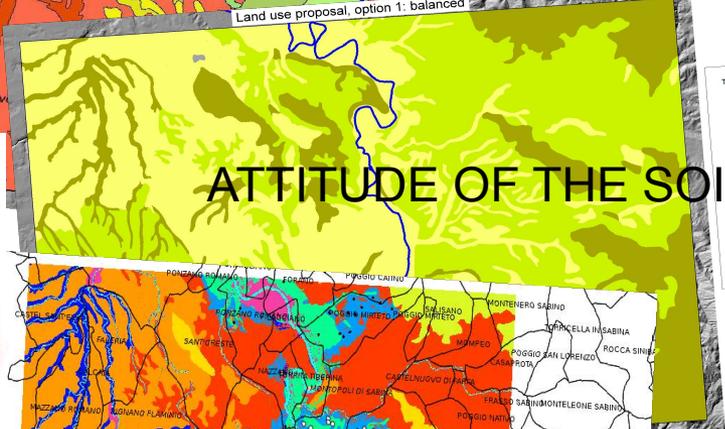
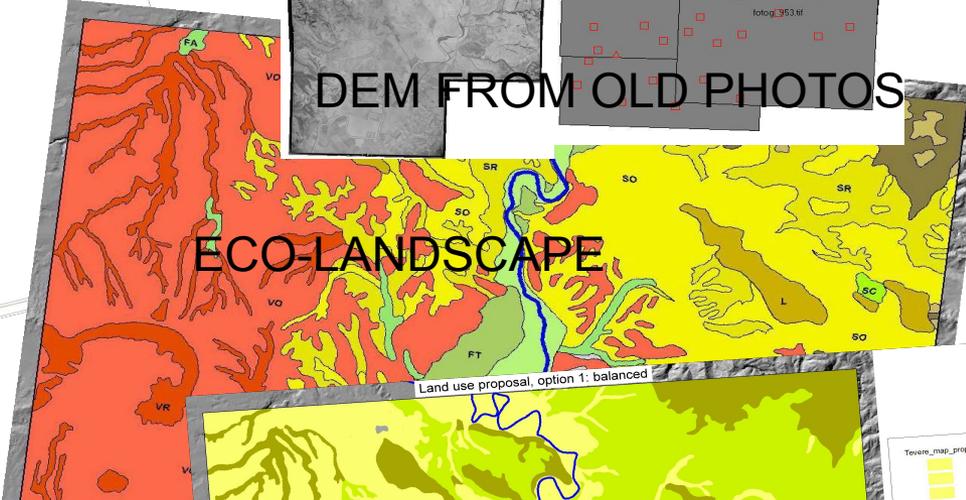
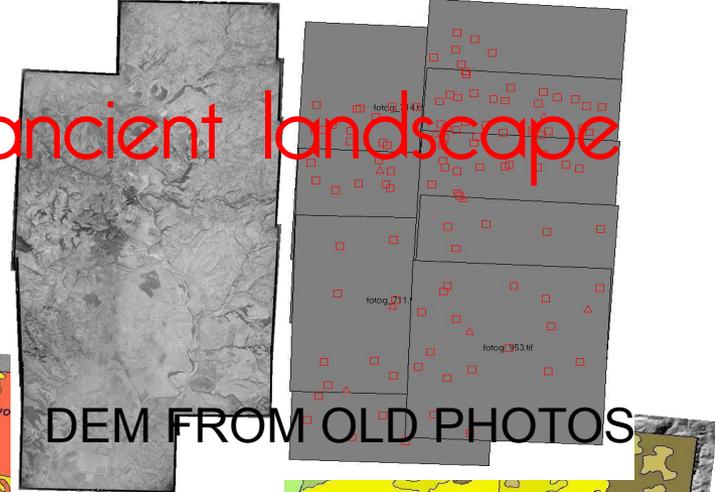
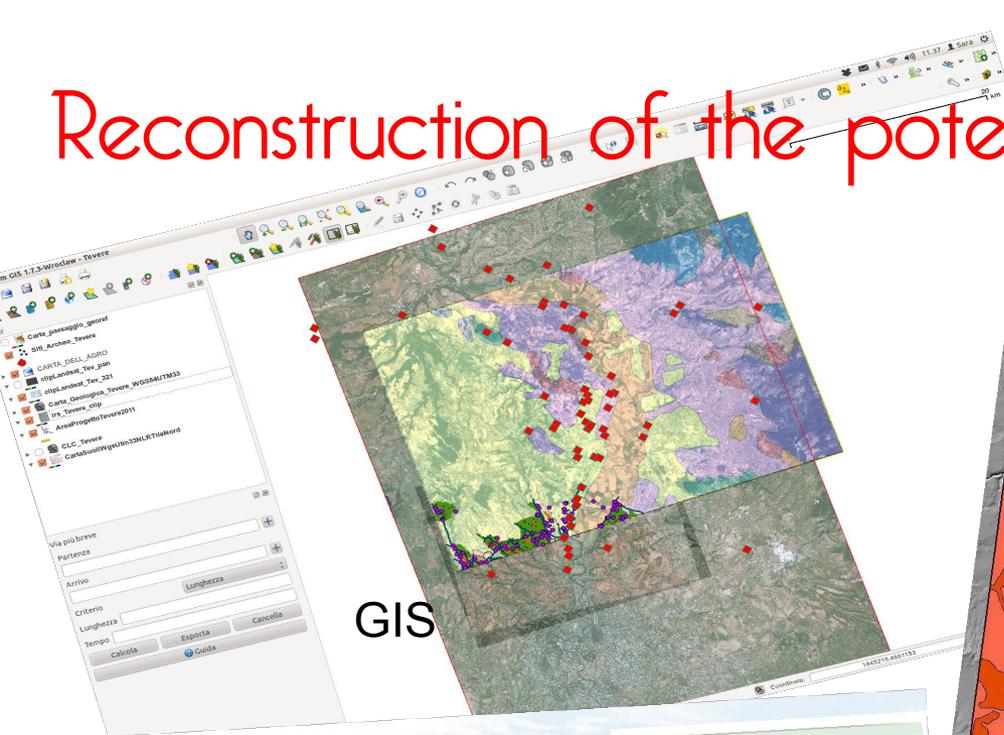




Real and Virtual



# Reconstruction of the potential ancient landscape





# Implementation

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



AN "AUGMENTED" PERCEPTION:

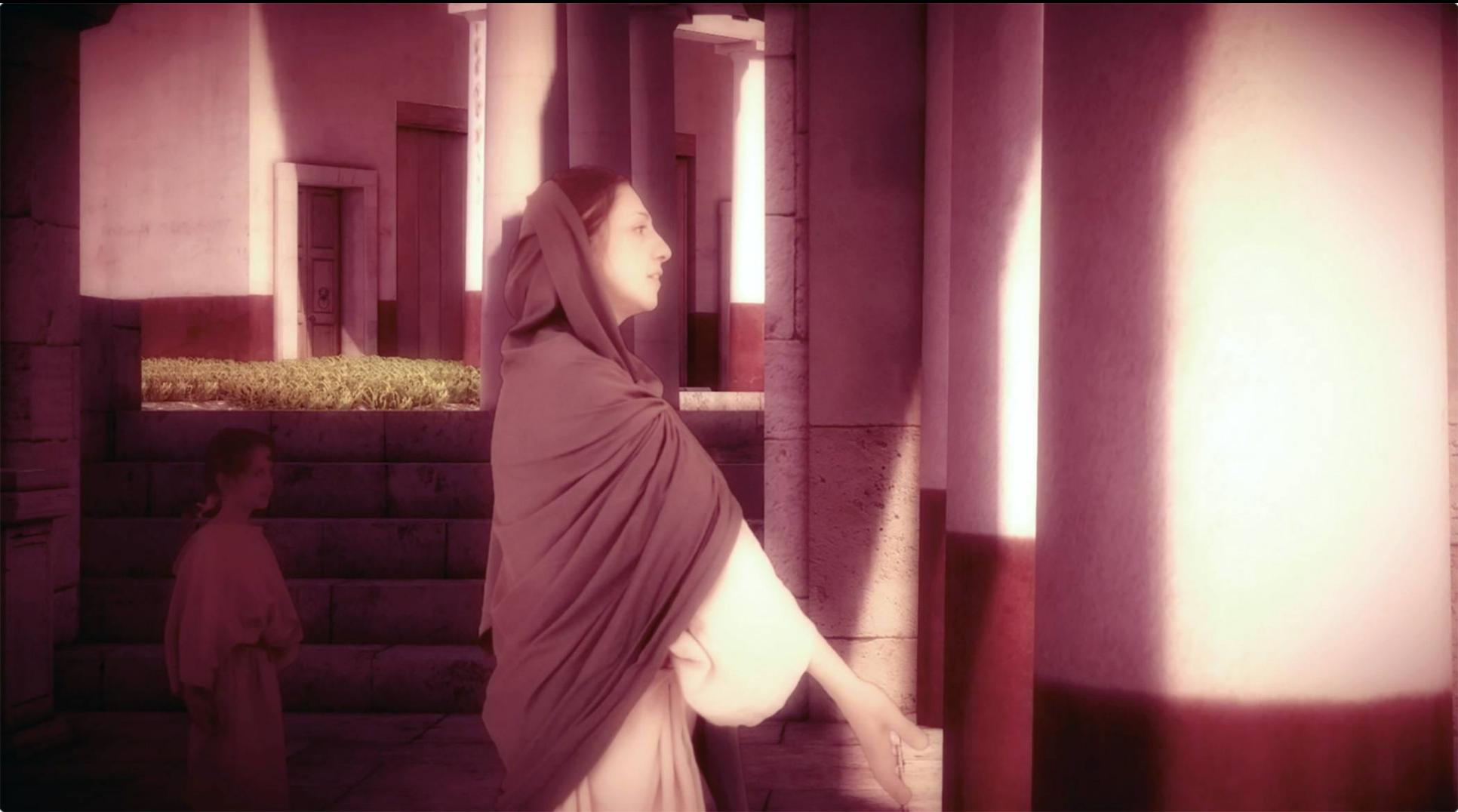
Present/real( left screen) and past/virtual (middle screen)  
are shown in parallel from the same point of view.

On the right the user's position



## AN "AUGMENTED" PERCEPTION

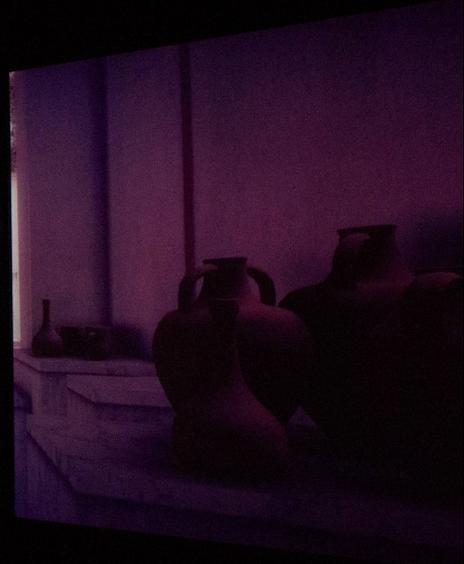
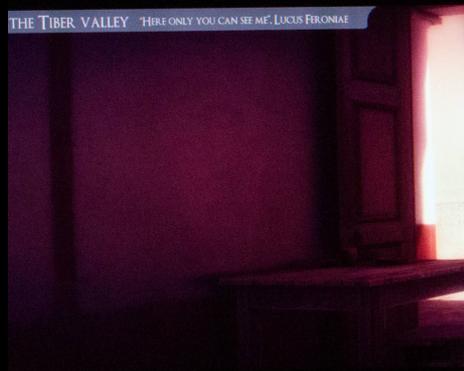
3 different views on the 3 screens



**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

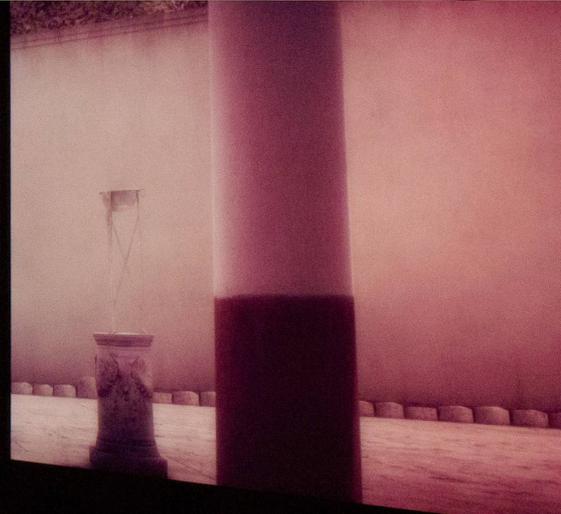


# STORYTELLING

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.

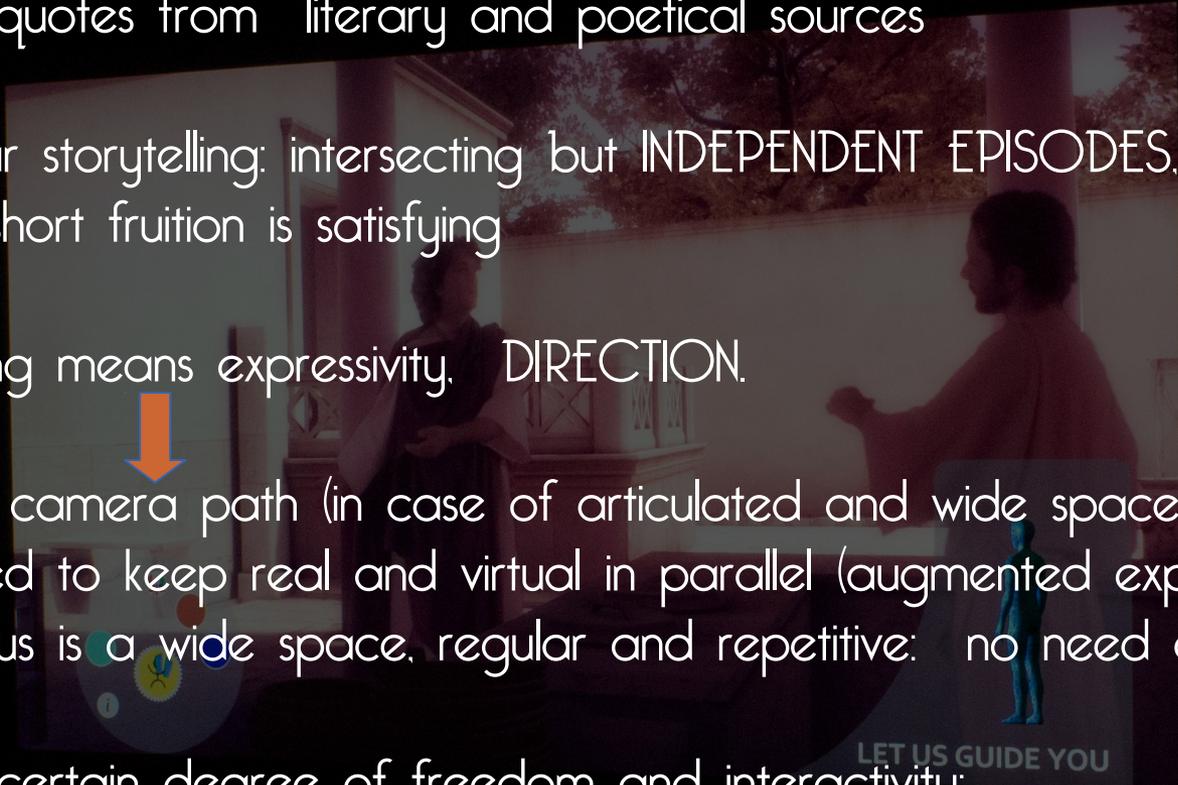


Obligated camera path (in case of articulated and wide spaces)  
Need to keep real and virtual in parallel (augmented experience)  
Lucus is a wide space, regular and repetitive: no need of exploration

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