Human Computer Interaction

@ the Department of Informatics and Telecommunications

Prof. Yannis Ioannidis

Dr. Maria Roussou

National and Kapodistrian
UNIVERSITY OF ATHENS

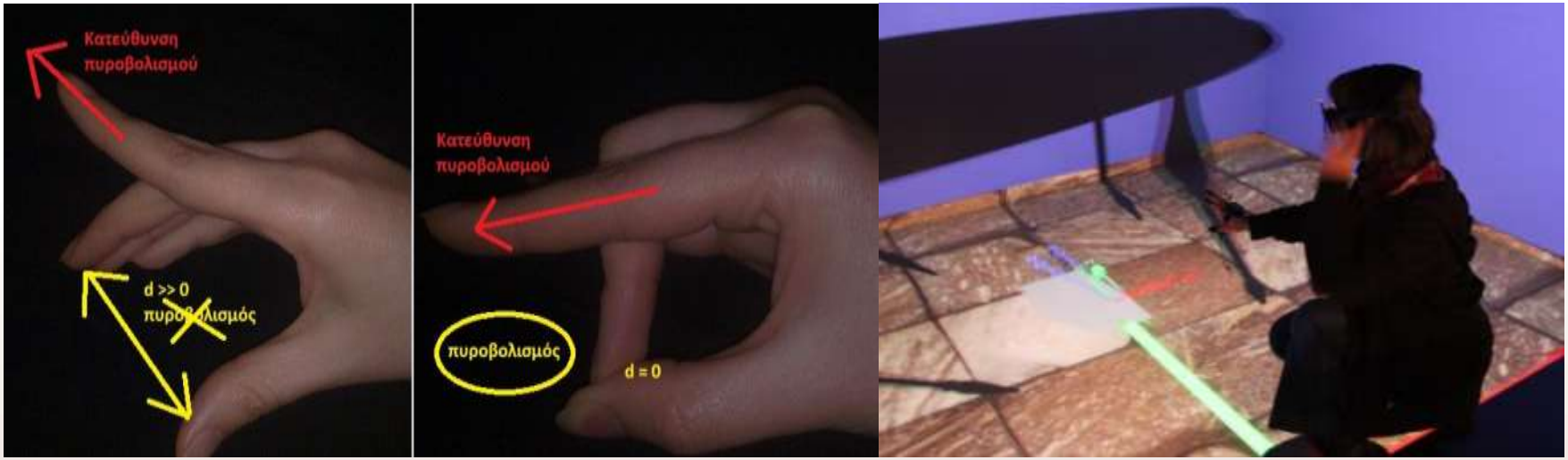
HCI themes

- Gesture-based interaction
- Games
- Augmented reality
- User-centred design methods, personalisation, interactive storytelling
- Information visualisation

Gesture-based interaction in immersive VR

Ms. Anthi Dimara

Supervisors:
Prof. Yannis Ioannidis
Dr. Maria Roussou
Dr. George Drettakis

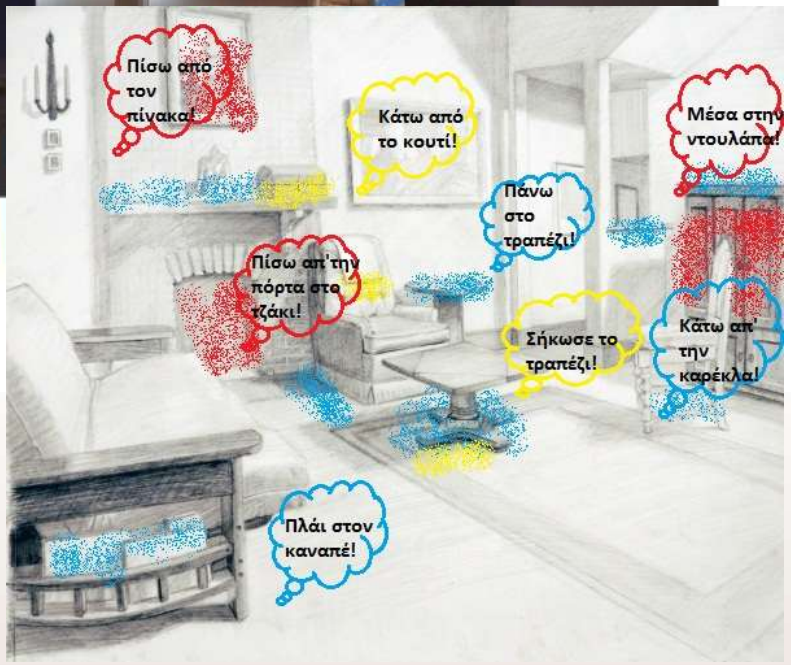


Gesture-based interaction in IVR

Tasks in the VE requiring:

- Push
- Pull
- Pick up
- Put down
- Rotate
- Grab
- Release

…using gesture and finger tracking



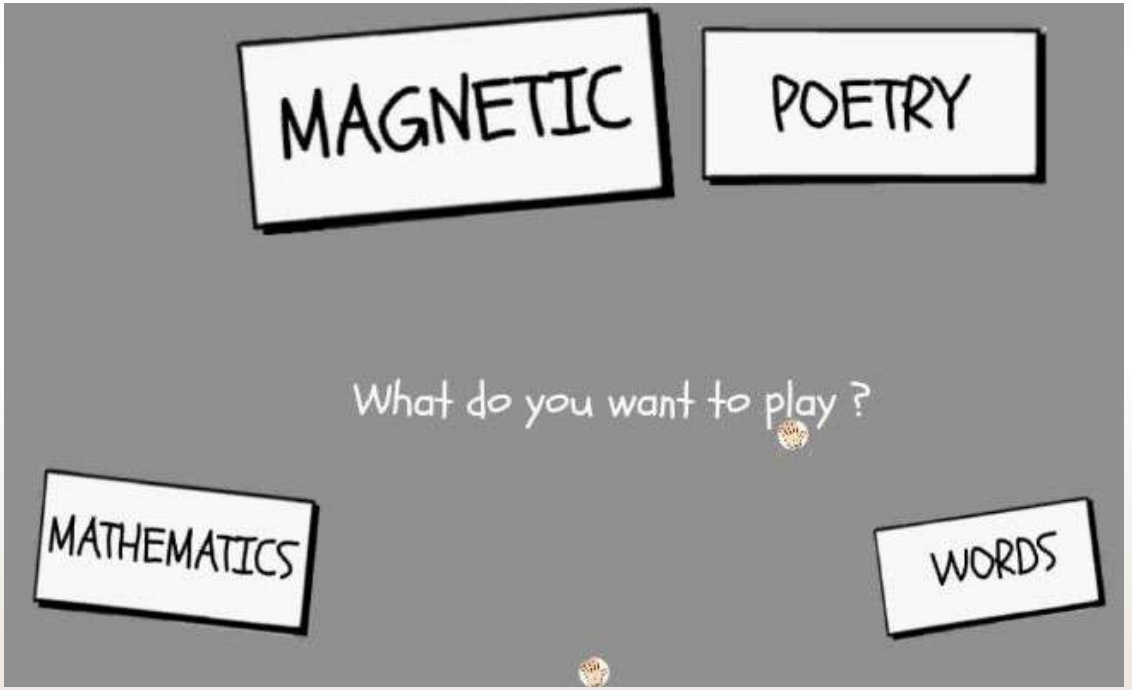
- An experiment to compare with wand:

Balance, Multi-Tasking, Speed, Accuracy

Magnetic Poetry: a full-body interactive game

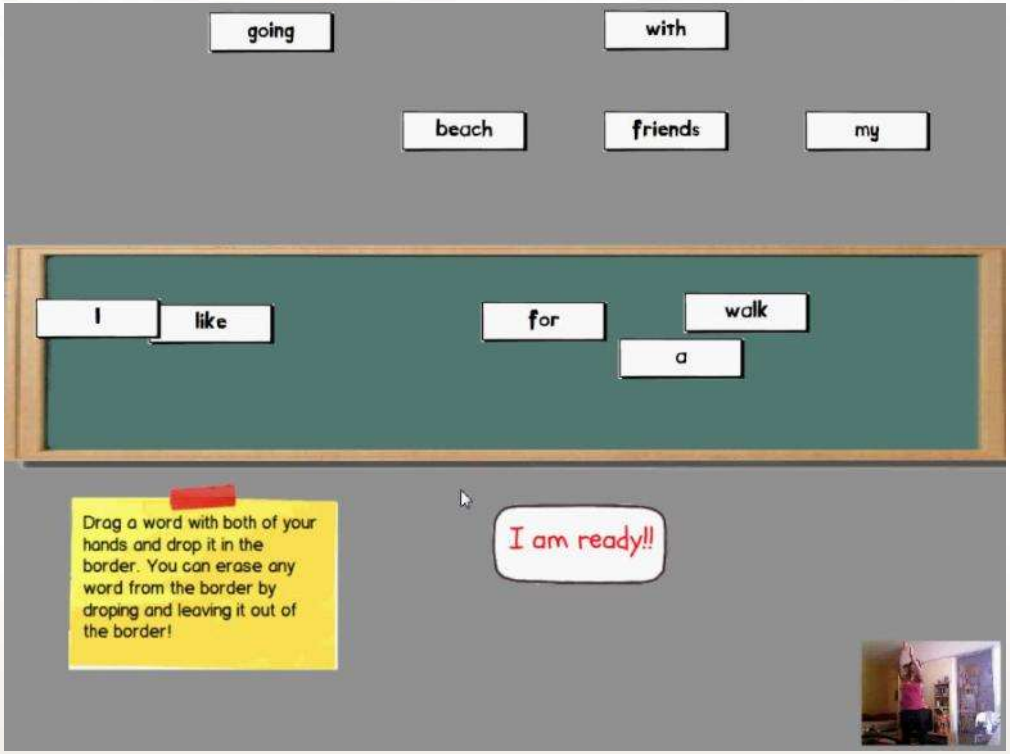
Ms. Marianthi Grizioti

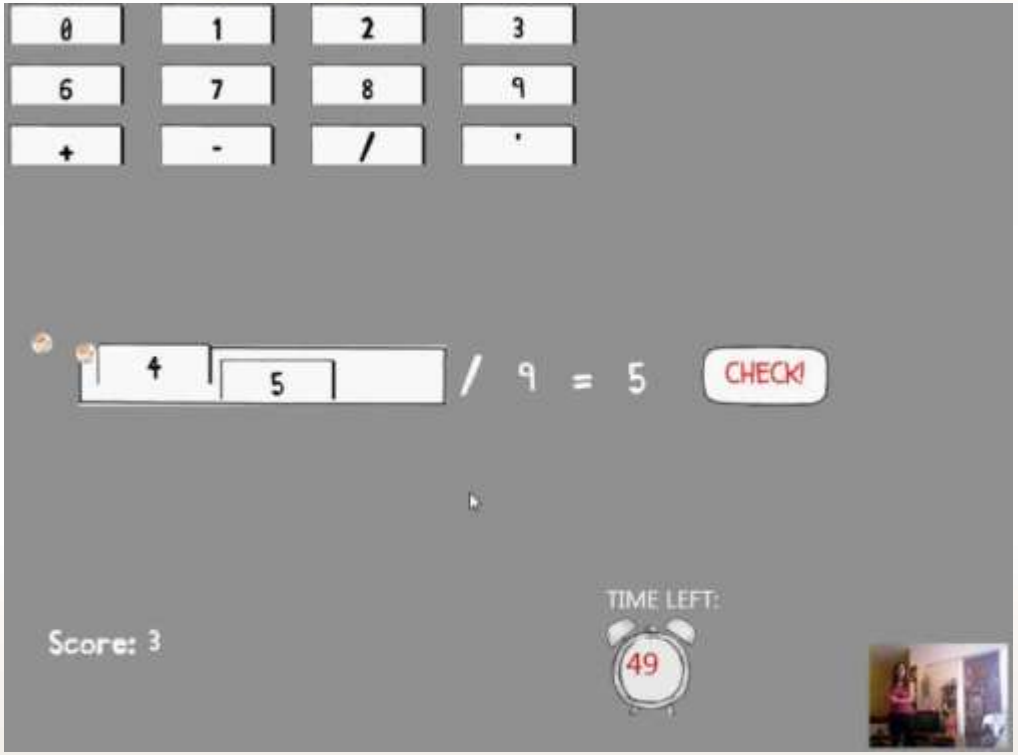
Supervisors:
Prof. Yannis Ioannidis
Dr. Maria Roussou



Magnetic poetry full body interaction

- A one or two-player game using the Kinect
- Players can solve arithmetic equations or co-create a sentence

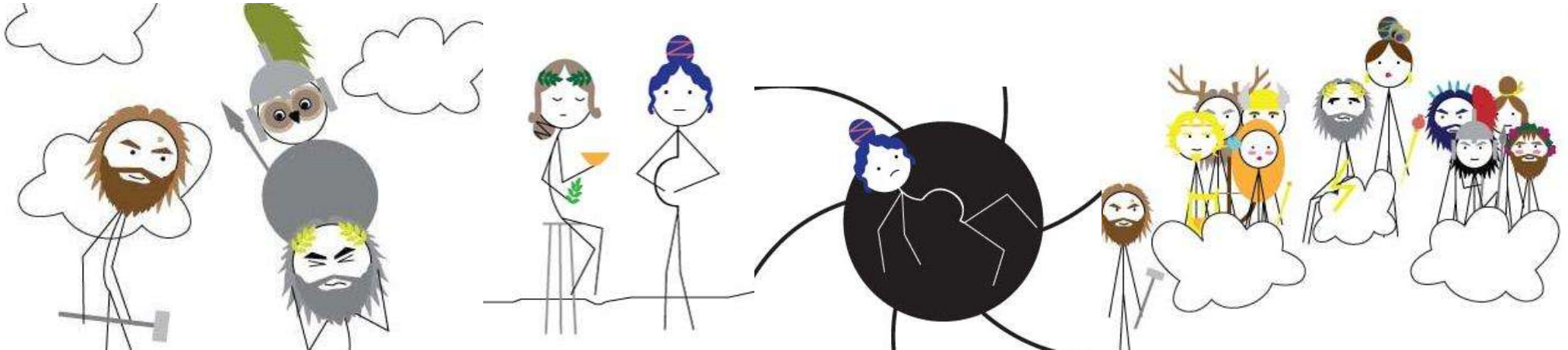




ARcropolis: Augmented Reality game for two players

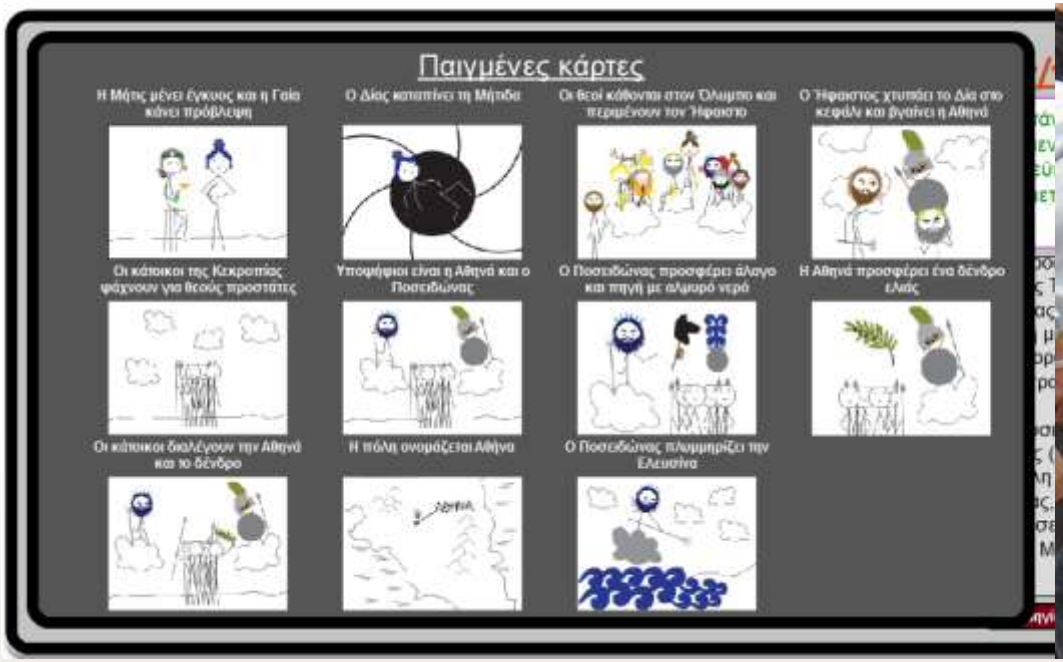
Mr. Manolis Giannisakis, Mr. Panagis Papadatos

Supervisors:
Prof Yannis Ioannidis
Dr Maria Roussou



ARcropolis

- A two-player serious game for primary school students
- Remotely located players use their webcam and 24 printed cards with patterns to co-construct a story about the Greek goddess Athena & the birth of Athens



CHESS: Cultural Heritage Experiences through Socio-personal interactions and Storytelling

Prof. Yannis Ioannidis

Vivi Katifori, Vassilis Kourtis, Marialena Kyriakidi, Natalia Manola, Maria Roussou, Manolis Synodinos, Manolis Tsangaris, Maria Vayanou

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Fact sheet

- Project acronym: **CHESS**
- Contract n°: 270198
- Project type: STREP
- Start date: 01.02.2011
- Duration: 36 months

- www.chessexperience.eu

DIGINEXT
Simulation & Virtual Reality Systems

National and Kapodistrian
UNIVERSITY OF ATHENS

Fraunhofer
IGD

Real
FUSIO

The University of
Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

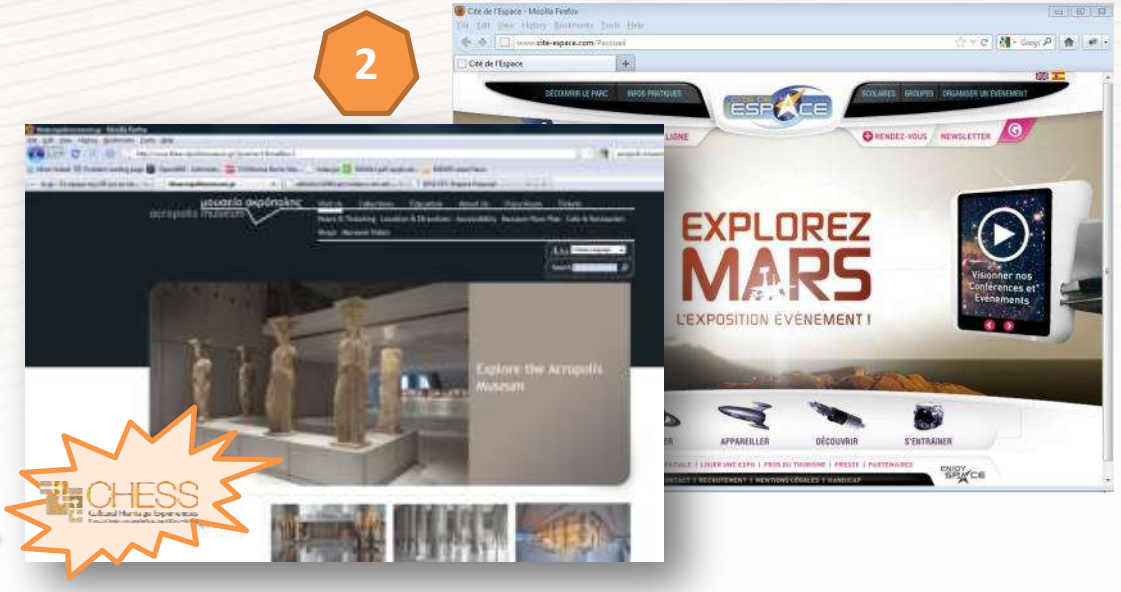
CITÉ DE L'ESPACE

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

The experience starts prior to the visit

1

2



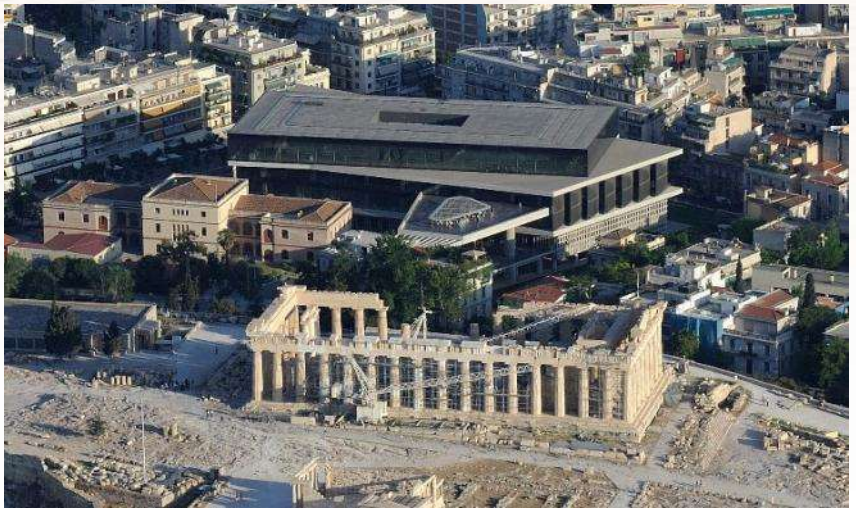
3

4

5

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

The Acropolis Museum

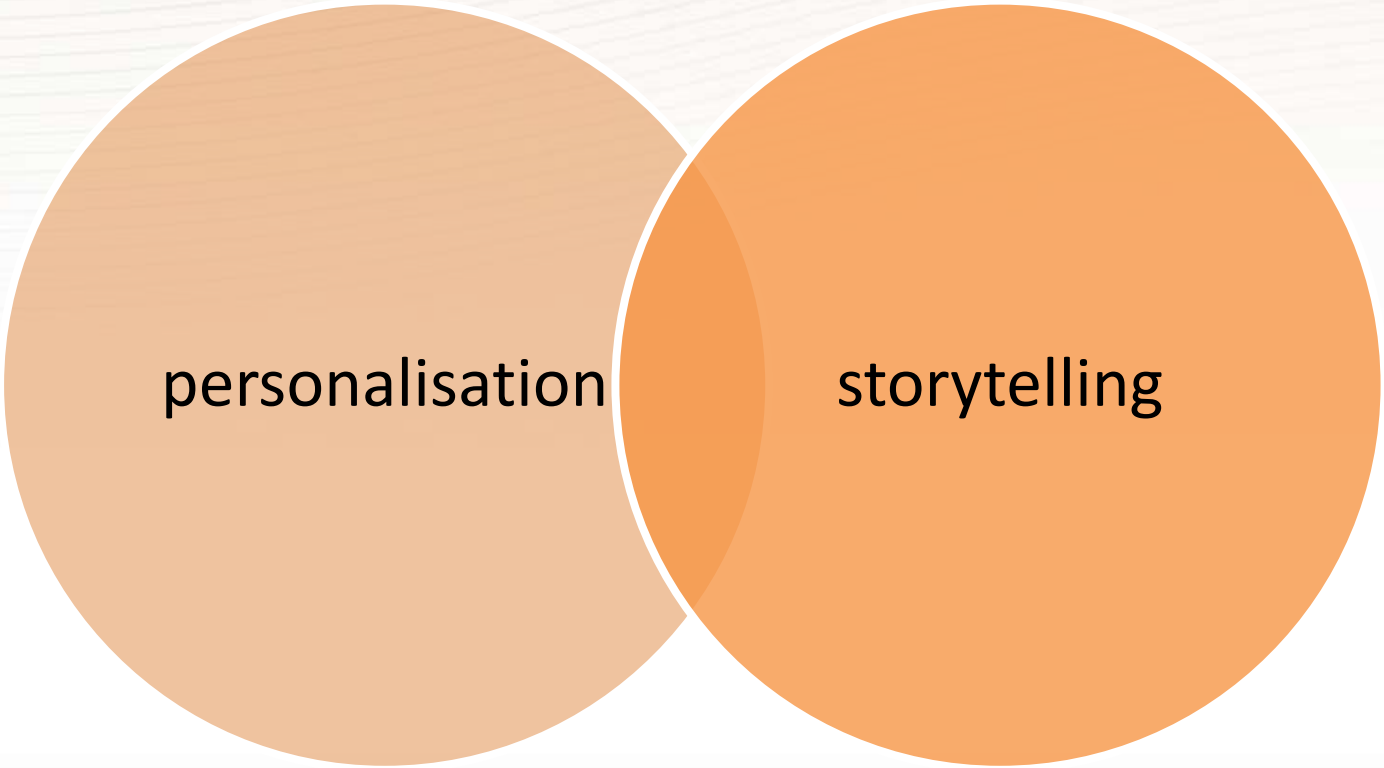


CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Cité de l'espace

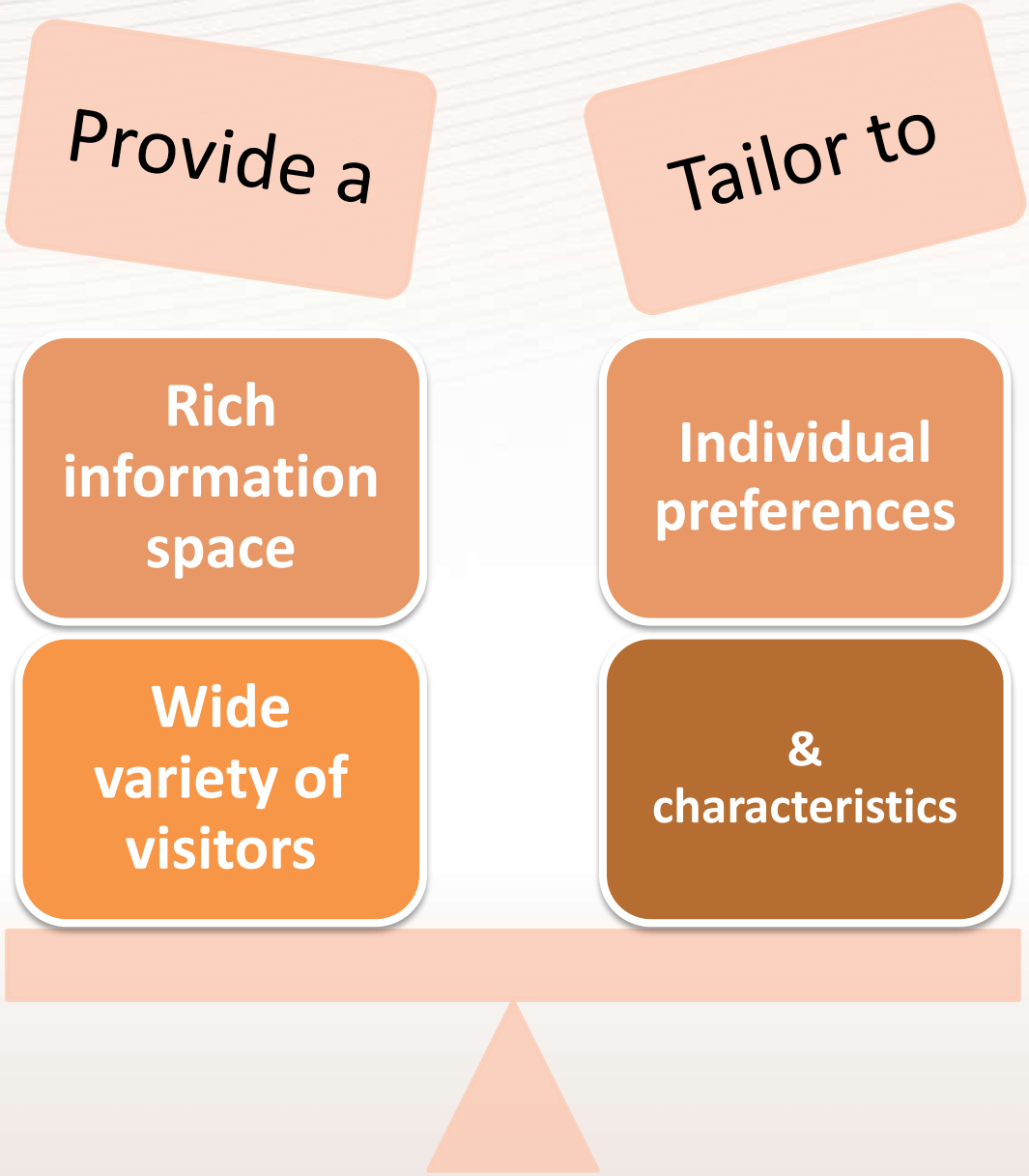
CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Two pillars of visitor experience



CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Personalisation challenge



CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

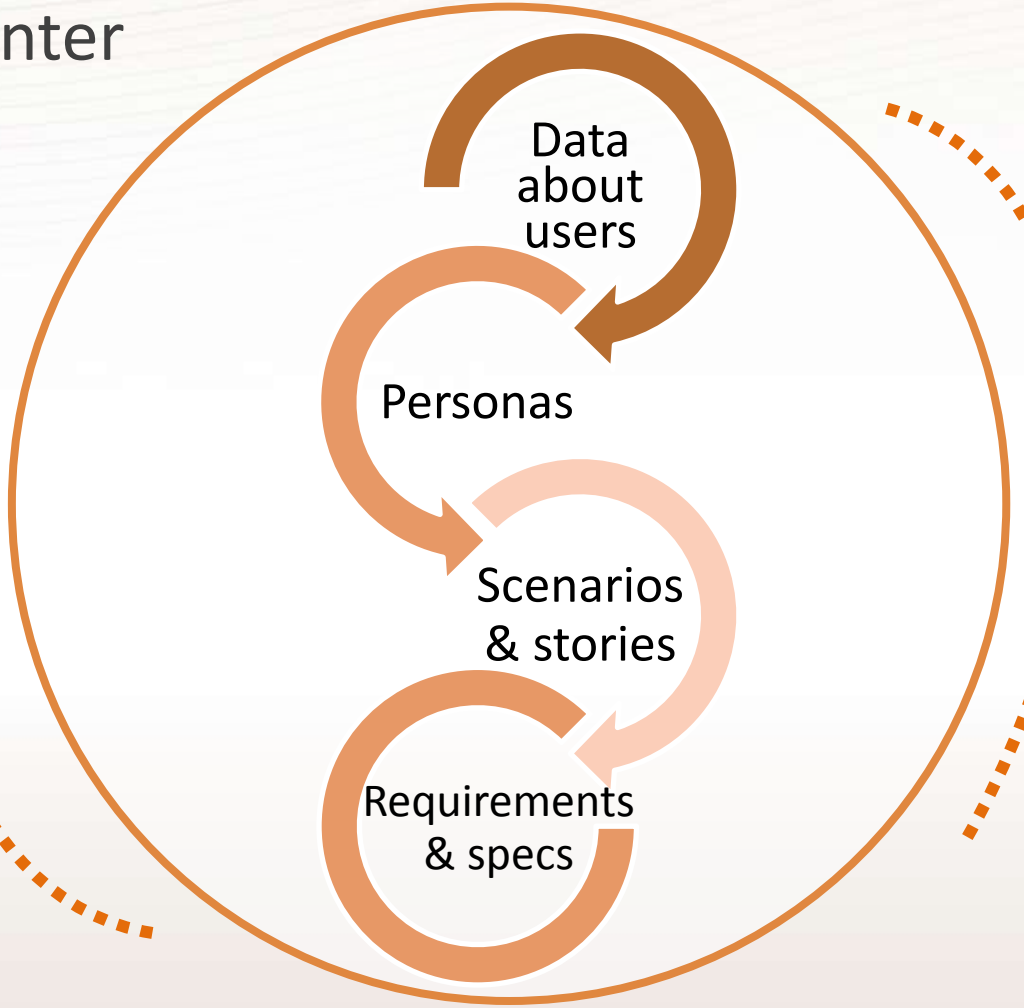
Storytelling challenge

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

UCD Methodology

An iterative design approach, which makes use of interaction design processes, such as **participatory design**, to keep the user at the center

A continuous design, test with users, measure, and re-design **cyclical** process



Closely linked to **evaluation**, especially formative evaluation

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Understanding our users

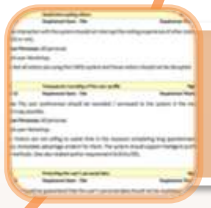
Data collection: quantitative & qualitative (ethnography)

Personas

Visitors & authors, individuals & groups

Scenarios

UX scenarios & stories



Requirements – Functional Specifications

On-site/in-museum, Off-site/on-line Visitor experience, Author reqs.

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Before- during – after, off-site/on-site

Explicit & implicit profiling

Match with Personas

Suggest stories

Before

Experience through adaptive storytelling

Create "souvenirs"

During

After

Revisit

Explicit elicitation of visitor profile: CVS

- Capture the visitor's profile through a very **brief** and **engaging** questionnaire, before the experience commences.
- An **iterative** and **complex** process, raising many design issues and challenges at different levels. E.g., :

the need for recording as much information as possible about the user to **support personalisation** ⟺ the need to **avoid** a **time-consuming** and complex questionnaire process

- Subset of **persona variables** considered important for the CITE, in the context of the CHESS personalisation objectives for the Beta version

Lucas → "Training to become an astronaut"

Céline → "A travel in space"

1-on-1 mapping

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

CHESS Visitor Survey for Cite de l'espace

A decision to create two "versions" of the CVS, one for visitors under 12 years old (age Group A) and one for teenagers and adults (age Group B)

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Personas

- Personas are a set of representative profiles ("archetypes") for a visitor base
- how a particular profile uses a particular application in a given context
- Effective personas are driven by data

As a **design** tool:
a powerful way to communicate behaviors, goals, wants, needs, and frustrations

As an **implementation** tool: for approaching the "cold start" problem by creating profiles (i.e., as a basis for personalisation)

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Persona variables

1 Age
2 Gender
3 Educational level
4 Educational background
5 General interests
6 Occupation
7 Country of origin
8 Language
9 Experience with the use of digital devices
10 Disabilities / Health issues
11 Visiting style
12 Visiting duration
13 Part of the collections to visit
14 Objective related to the museum collections
15 Visiting order preferences
16 Returning visit
17 Level of interest in the museum topics
18 Interests related to the museum topics
29 Purpose of visit
20 Social visiting habits
21 Social interaction style during the visit
22 Preferred way to obtain information before the visit
23 Preferred way to obtain information during the visit
24 Preferred way to use the CHESS system during the visit
25 Preferred narration style
26 Level of interactivity

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Acropolis Museum visitor personas

Nikos Athanasiou

10 years old

"The museum is boring"

Georgia Athanasiou

71 years old

"The museum makes me feel young"

Jack Harris

24 years old

"The museum would be much more interesting if the exhibits could tell me their stories…"

Natalie Schmidt

35 years old

"The museum is an excellent way to relax between meetings!"

Takis Karathanasis

53 years old

"The museum is really great but sometimes it is too much for me."

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Cité de l'espace groups

The Moreau family

- They live in Toulouse
- High level of education
- 2nd visit
- Period: weekend

father	*mother*	**children**
Nicolas, 43 engineer	**Céline**, 40 teacher	Julie, 10 Théo 7 Léopold 5

- They are interested in space and astronomy
- Parents organise the programme themselves, seeking for the most interesting activities for their children
- They demand high pedagogical quality from the exhibitions and pay attention to the content

The Durand family

- From Saint-Nazaire
- Middle level education
- 1st visit
- Period: Summer holidays

father	*mother*	**children**
Julien, 38 technician	Caroline, 36 admin. employee	Emma, 12 **Lucas** 10

- They need help to decide their programme.
- They have already visited Futuroscope in Poitiers and Eurodisney near Paris, and they are interested in experiencing exciting exhibits

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Cité de l'espace visitor personas

Lucas Durand

10 years old

"The museum is boring"

Céline Moreau

40 years old

"I want to discover space and astronomy with my children"

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Author personas

Ellie Petrou

51 years old

"New technologies are challenging for me but they're worth the effort"

Laurent Boulay

30 years old

"All new tools are exciting and useful for my work"

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Validating personas

Studies with (real) visitors






CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Workshops with end-users

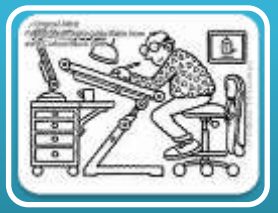
- Full day workshop in June 2011 @ Acropolis Museum
- Next week in Toulouse, at the Cite de l'espace (Ecsite conference)





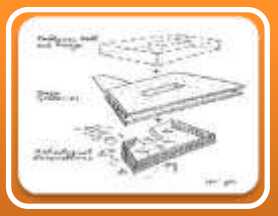

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Content and scenario design



Plot sketching

- Choose the story concept(s)
- Choose and arrange the main story pieces (i.e. , create the storyboard)



Staging

- Place the story into the physical world
- Link story to spaces and exhibits

Casting & Shooting

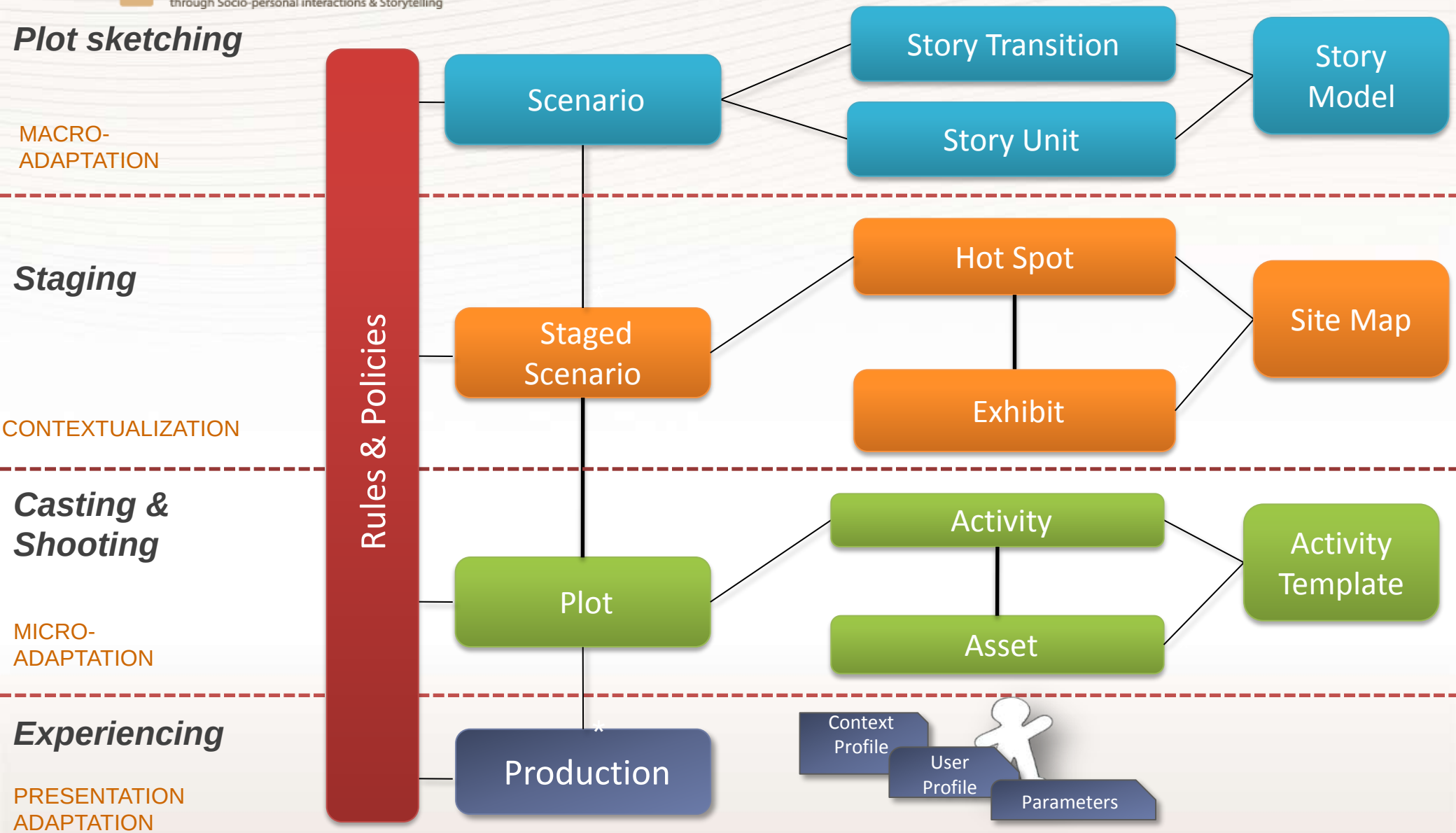
- Unfold the story with all the details
- Choose and arrange the digital content

Experiencing

- Make a *production* out of a story given user actions, profile and context

CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

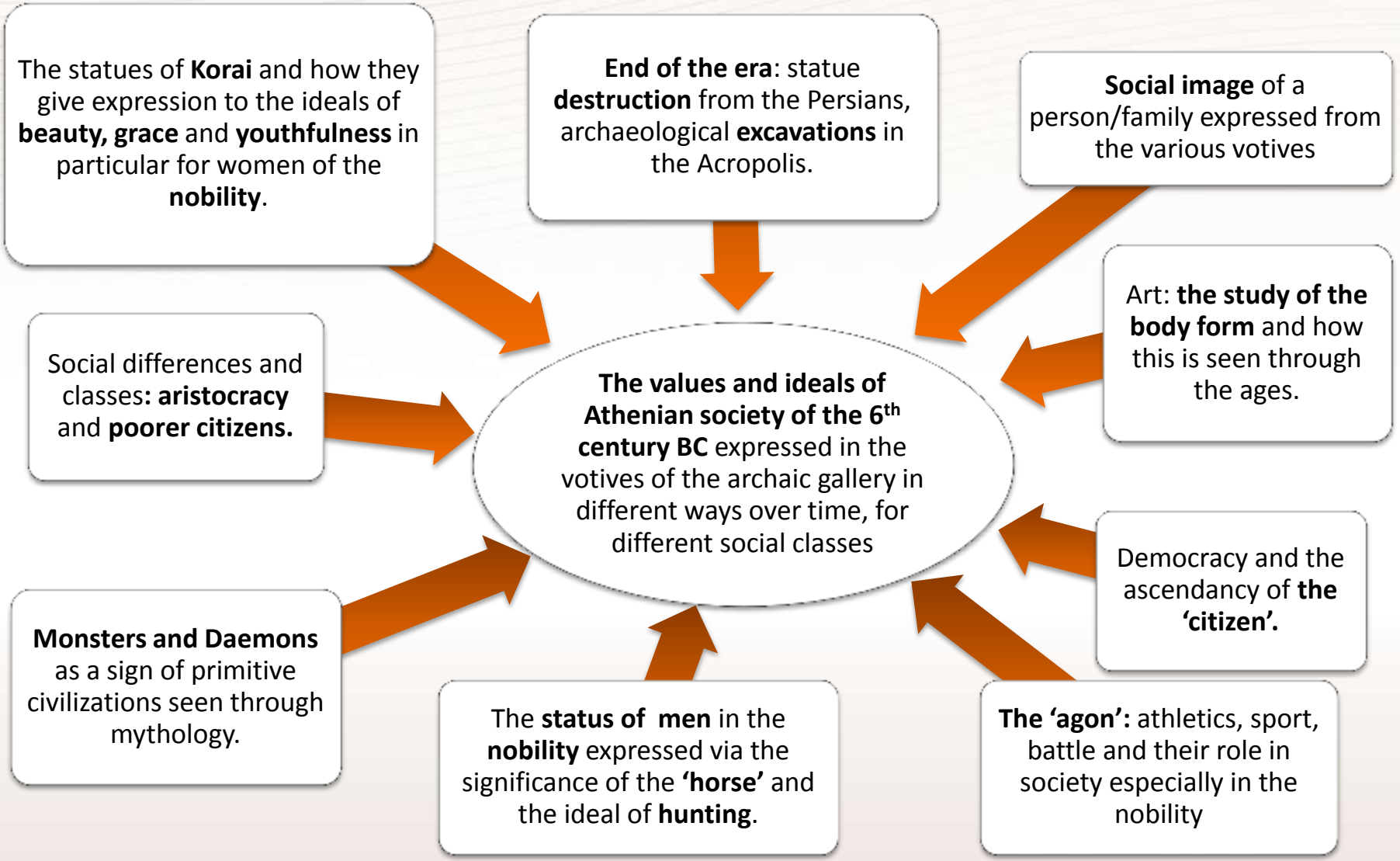
Storytelling Model



CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

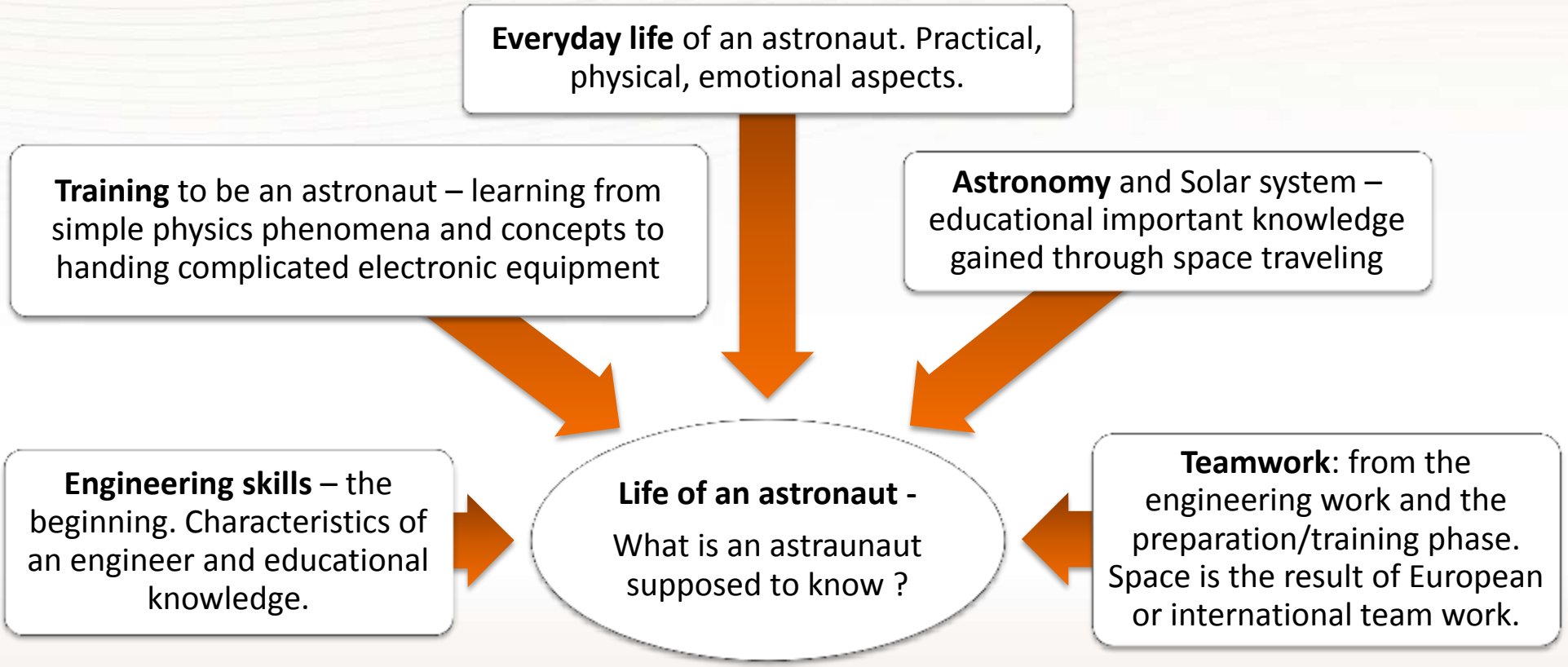
Acropolis Museum story themes

Main story concept / message to convey (specifically for the Archaic gallery)



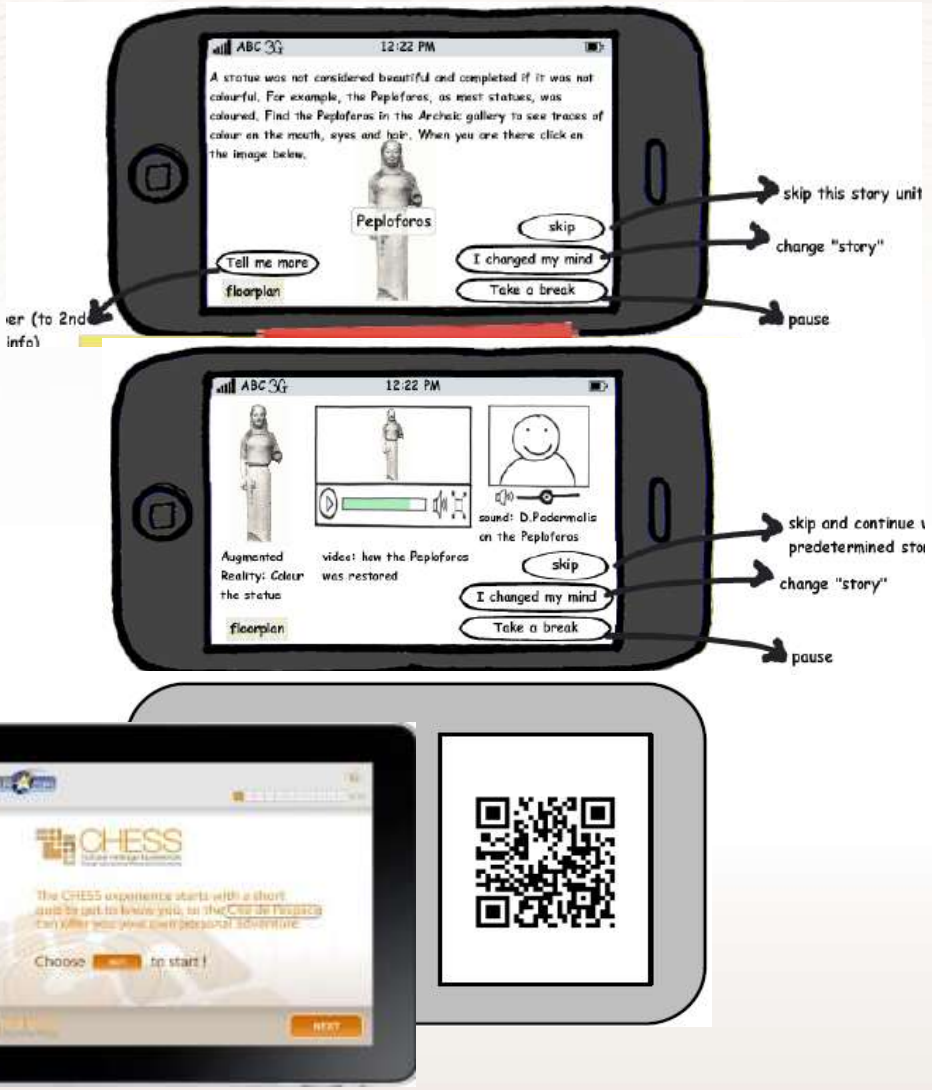
Cité de l'espace story themes

Main story concept/message to convey



CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Interactive stories and AR prototypes



CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

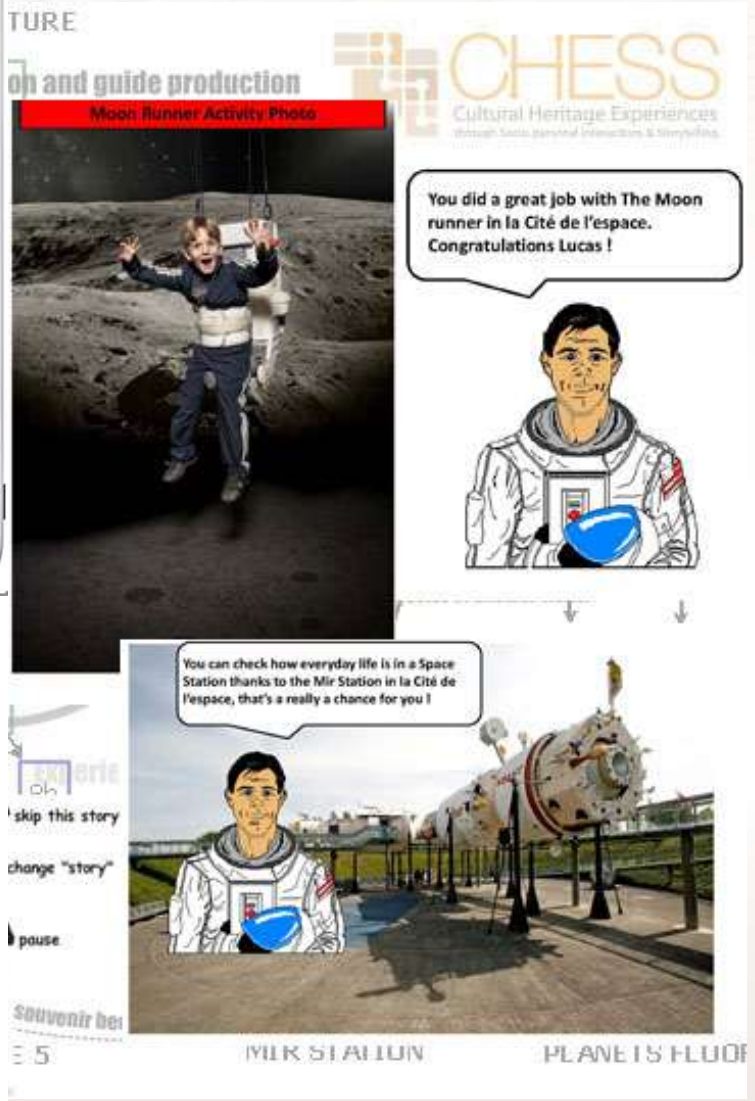
Prototyping sessions





CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

Examples of “souvenirs” for Cité de l’espace

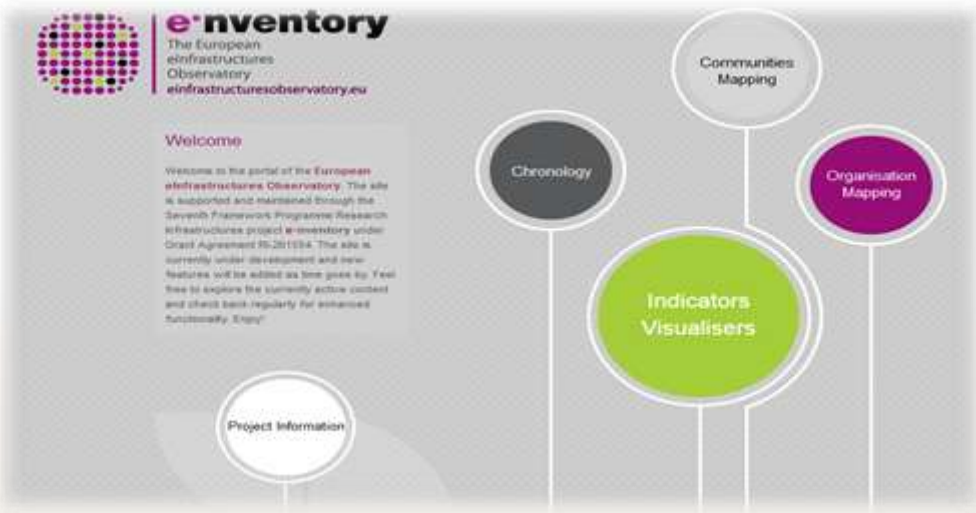


CHESS
Cultural Heritage Experiences
through Socio-personal interactions & Storytelling

e.nventory: the European eInfrastructures Observatory, www.enventory.eu

Prof. Yannis Ioannidis

Katerina ElRaheb, Dr. Vivi Katifori, Dimitra Keramida,
Antonis Lempesis, Dimitris Nastos, Dr. Maria Roussou



e·nventory
The European eInfrastructures Observatory
www.enventory.eu

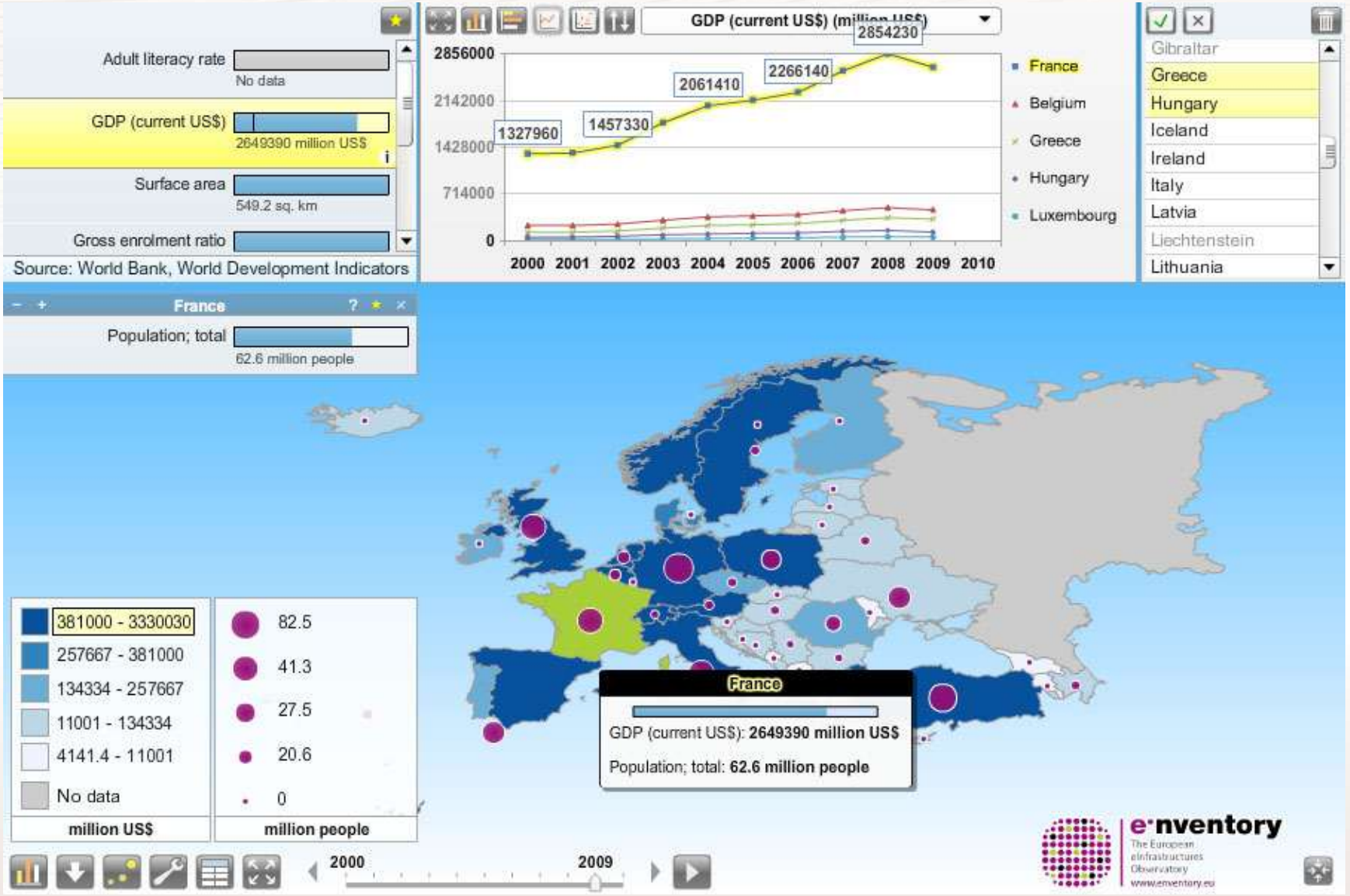
Fact sheet

- Project acronym: **e·nventory**
- Contract n°: RI-261554
- Project type: CSA-SA
- Start date: 01.09.2010
- Duration: 24 months
- Project partners: JNP, NKUA

- www.enventory.eu

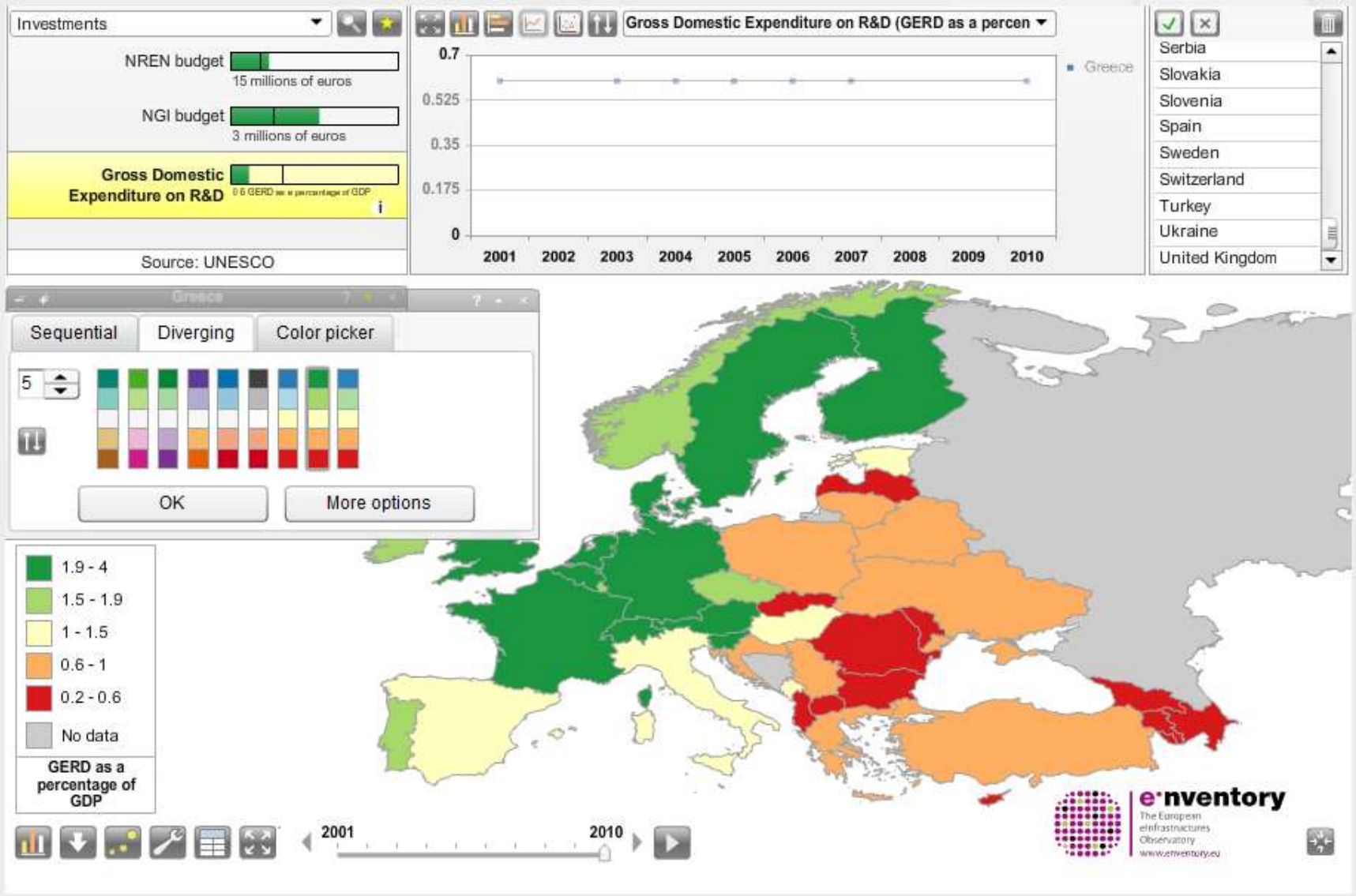
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Indicators on Maps service



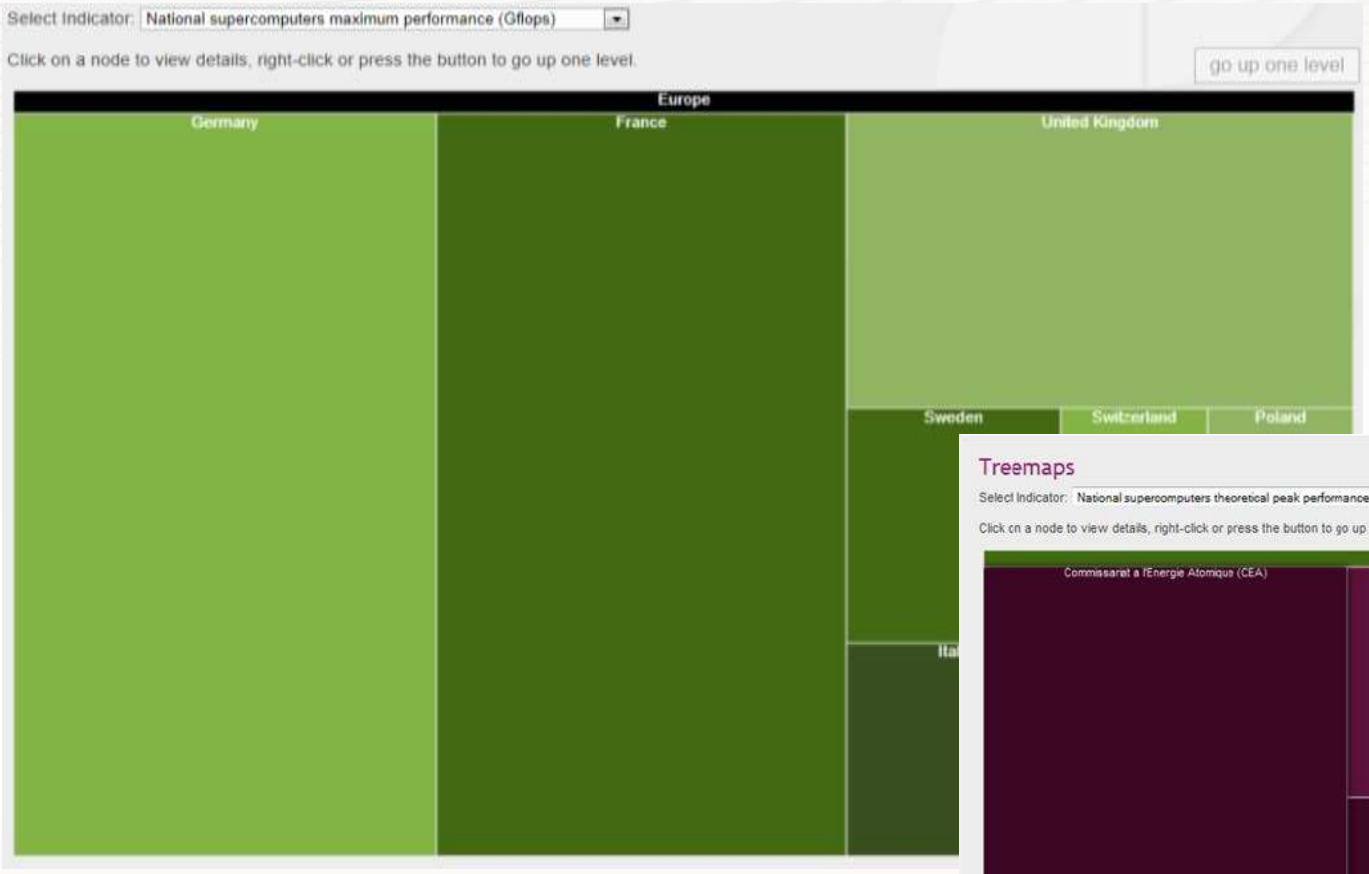
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

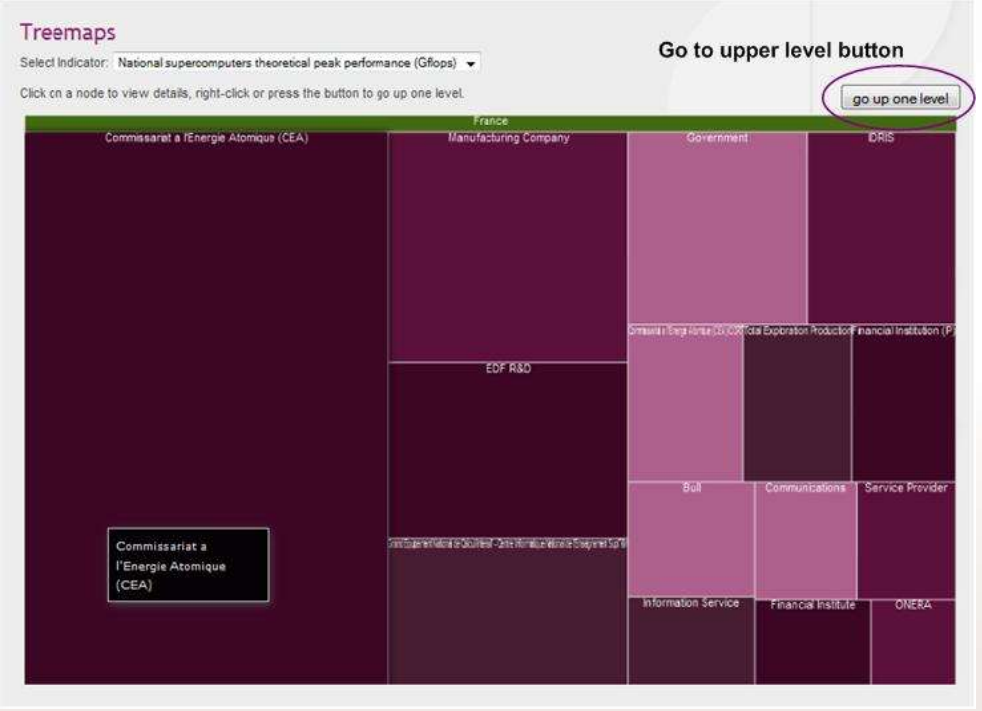
customisation possibilities



e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Treemaps service





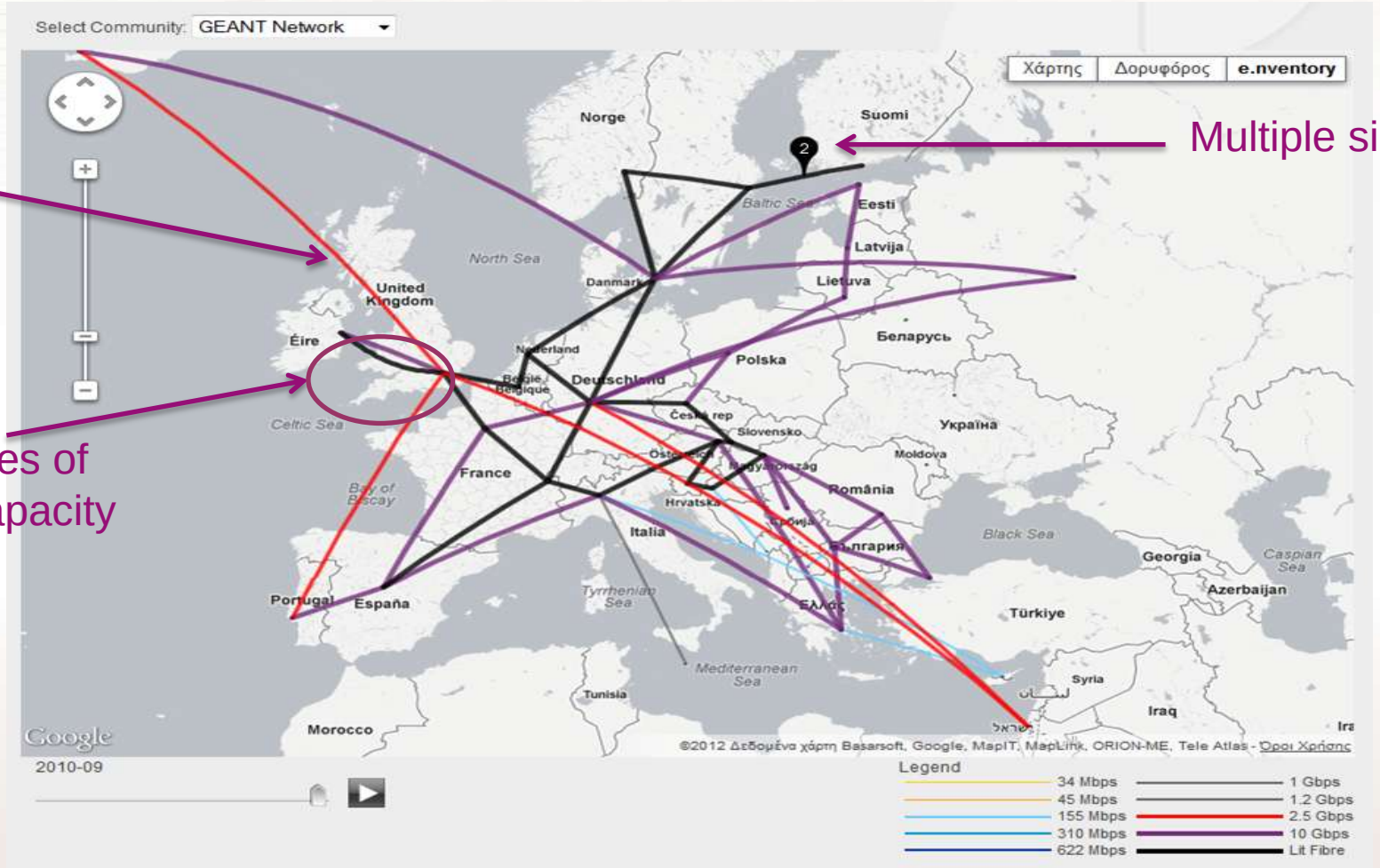
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Pan-European network connectivity

Geodesic line

Multiple similar lines

Multiple lines of different capacity



Thank you

Prof. Yannis Ioannidis

Dr. Maria Roussou

National and Kapodistrian
UNIVERSITY OF ATHENS