

6th-8th May 2013 // National Museum Czech Republic

Participants (25 in total):

- Partners of institutions with natural history content
- Learning/teaching professionals and end-users
- Developers/programmers of applications
- Representatives of other eCreative partners

Index:

Interesting applications for inspiring the pilots	.	.	.	.	page 2
What to do next.	.	.	.	.	page 4
Scenario forecast of potential developments .	.	.	.	.	page 5
What to do next	.	.	.	.	page 8
Prototyped design of screens and interactions	.	.	.	.	page 9
What to do next	.	.	.	.	page 11
Backlogs of tasks to do in each case .	.	.	.	.	page 12
What to do next	.	.	.	.	page 14

The main objective of the workshop was to to inspire, guide and help the development of eCreative pilots in the area of Natural History content, via discussions and co-design activities around teaching/learning objectives, in connection with examples and collections of content and ways to digitally interact with it.

Interesting applications for inspiring the pilots

Objectives:

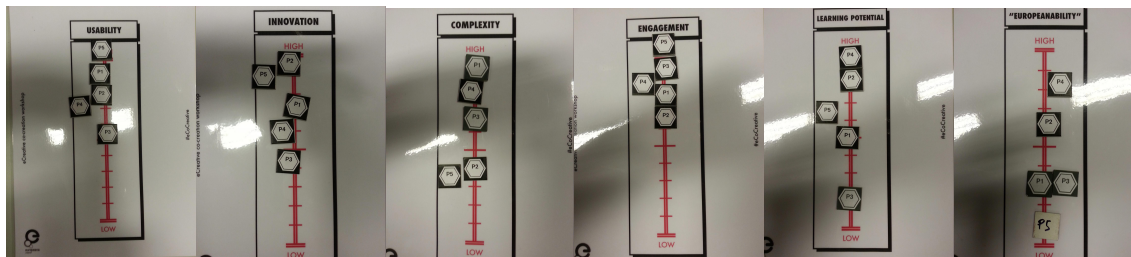
- Ice-breaker previous to other activities
- Inspiration for developments
- Initial agreement on indicators for evaluation

Participants: 13 people



After forming small groups participants show each other their favorite digital apps and comment why they like it, also thinking about how to use it in a learning/cultural environment, which open data content could be applied to it and how could it connect/mashup with Europeana.

From an initial discussion there were different tools and applications identified, one selected in each group for sharing with the rest of participants and then each discussed according to 6 key indicators: Usability // Innovation // Complexity (related to technical development) // Engagement // Learning Potential // “Europeanability” (related to initial ideas about potential for similar things to connect to Europeana content)



Among the discussed apps for different devices, there were these ones: History of the world, IAcademy, Flipboard, Photosynth, Bryozoa.net, Muse app, Small Fish, Drawn, Wappzapp, Burgershale (Fossil Gallery), Facebook Messenger, Angry birds.

Group 1: Flipboard (<http://flipboard.com/>)

Positive characteristics:

- Lets you dive in to different topics and find a variety of information
- Appealing content
- Good adaptability as a reason for the choice

- Huge choice of channels

Usability: high // *Innovation*: high // *Complexity*: very high / really complex to realize because of a high number of websites / works really fast / automatically column adaption / a lot of time to design it // *Engagement*: medium-high, since it has limited engagement because of lacking more personalizing options // *Learning Potential*: medium // *Europeanability*: rather medium / Europeana is based more on Metadata actually / content is restricted.

Group 2: Muse (www.museapp.org/)

Positive characteristics:

- Winner of open data competition
- Open license for code
- Lets you create your own painting collage by using images, backgrounds, animals etc.
- High variety of features
- Possibility to add title and frame, and to share it

Usability: rather high and easy to handle // *Innovation*: very high // *Complexity*: medium / less complexity (two month development time) / difficult to get the content collected // *Engagement*: rather high / high for kids, based on fun // *Learning Potential*: high / option for learning, depends on presence of additional information // *Europeanability*: medium-high (needs content in high/good resolution)

Group 3: Drawn (<https://itunes.apple.com/us/app/drawn-painted-tower-hd-full/id384464800?mt=8>)

Positive characteristics:

- First person game with a dark surrounding
- Mission to save the kings' daughter, find missing things and unlock items by solving riddles
- Nice atmosphere based in music and sound effects

Usability: medium / users have to get used to the control // *Innovation*: medium (other similar games) // *Complexity*: rather high / creating the game logic is not a problem; providing and searching for content can be a big problem // *Engagement*: high / reason is the gaming factor // *Learning Potential*: rather low / in the actual game it is low, the ambition is to increase it in similar apps // *Europeanability*: rather medium / challenge will be the recreation of the designs based on natural history content

Group 4: iAcademy (<http://www.iacademy.mobi/en/>)

Positive characteristics:

- Tool for creating your own educational app
- More aimed on technological issues
- Quiz from where you can create your own app
- Offers for every age (students, pupils, etc.)

Usability: rather high // Innovation: medium / possibility of creating // Complexity: high / hard to handle the content, number of servers is a challenge // Engagement: depends on the quality of the created app / engagement for teacher possibly high // Learning Potential: very high // Europeanability: rather high

Group 5: Angry Birds (<http://www.angrybirds.com/>)

Positive characteristics:

- High level of engagement by gaming for all ages
- User connection to a specific objective (e.g. education) could be fun and require skills
- It has been used in some educational contexts for teaching and learning physics

Usability: very high // Innovation: high / improved an existing logic of a game // Complexity: rather medium / physic engines exist already // Engagement: very high / game factor // Learning Potential: medium / users are learning physical principles and can adapt them // Europeanability: low

What to do next

- **WP6**: Although there was an agreement around the indicators, each one of them must be confirmed and maybe some more developed or new ones established.
- **WP6**: We need an online tool or questionnaire for keep on working with the indicators in order to measure and evaluate the development of the pilots by a focus group or distributed number of people.
- **WP6**: The “Complexity” indicator should be more around “Feasibility” and clearly refer to technical issues such as programming, but also content curation or preparation.

Scenario forecast of potential developments

Objectives:

- Eliciting areas of interest
- Exploring possibilities for development
- Identifying opportunities

Participants: 16 people

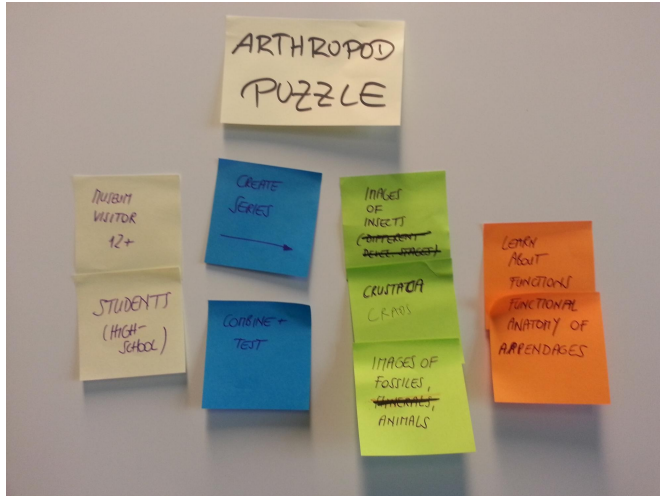


The main objective of the activity was to have a common visualization of areas of potential interest, as well as a shared language of which could be the development of the pilot in different versions and/or its main features. Participants focused on basic actions, content and learning opportunities in the near future related to an application using (open) natural history content. Initially in small groups they wrote scenarios in one sentence, with the following structure:

"[What if as a <role>], [I could <desired action>] [<with this content>] [so <benefit>]"

They must use at least one verb, describing an action, and a type of content, writing it down modularly on post-its with this colour coding: yellow: users // blue: actions // green: content // orange: teaching/learning objectives.

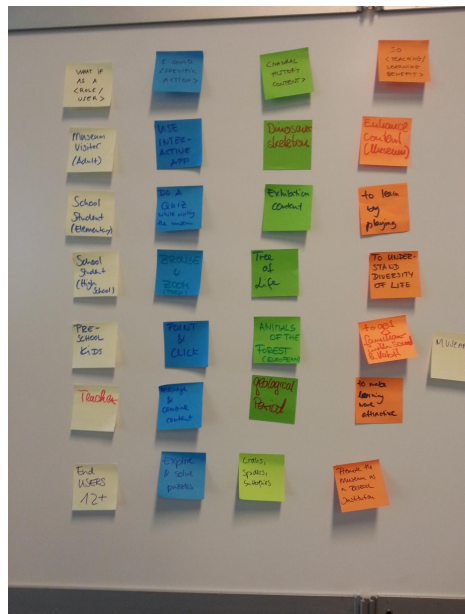
Afterwards, in order to narrow down possibilities and continue with the development of more visual brainstormings and specifications, each group of scenarios was summarized and compared in relation to a double axis: technical feasibility and learning potential.



Group 1: Insects and crabs puzzle

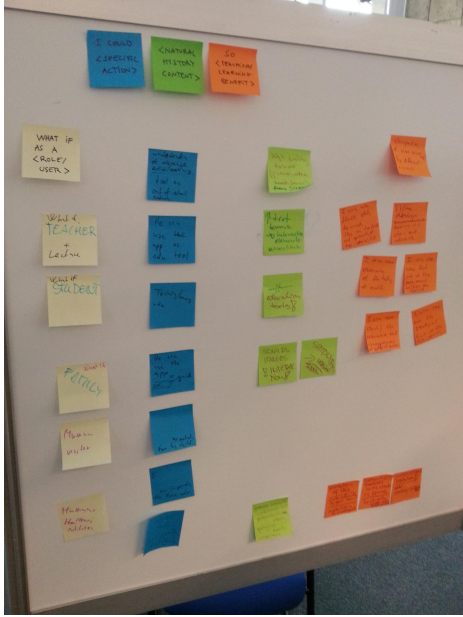
Main scenario: "What if as a student I could compare by playing like a puzzle specific insects or crabs with extinct species from Europeana, so I can learn about functional anatomy of appendages." The idea after recombining other scenarios in this group was to have the possibility of comparing via image-similarity different graphic content. For its learning potential, there was a problem around the lacking of knowledge regarding function of morphology in species, by many students at initial stages. About its feasibility, we discussed among other things the

complexity for checking back in Europeana what matches your own object, and to slice and dice the image (change legs of crabs for example, wont be that easy). Main pictures with scenarios [here](#) and a narrowed down one [here](#).



Group 2: Game in the museum

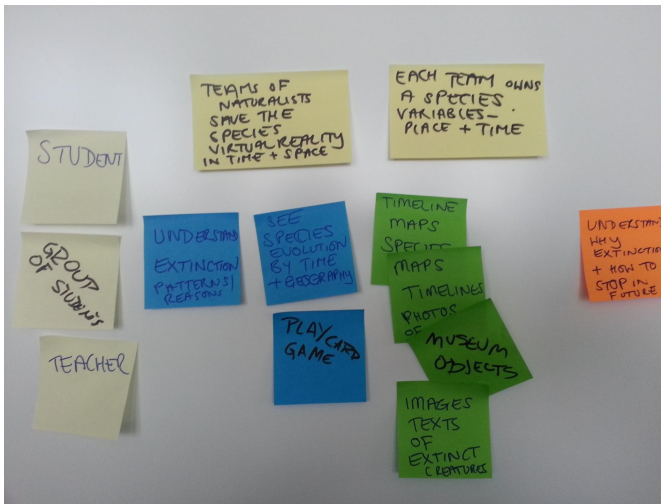
Different scenarios related to end-users as kids or high-school students, as well as museum visitors, which can play and learn from a serious game with discovering actions, quizzes, zoom-in animations, tests, matching activities, etc. in order to learn about animal species, evolution, diversity of life and other aspects related to natural history. There was a mixture of criteria when evaluating the scenarios, where they describe the game but its learning potential will depend on the content of interactions (such as discovering contents related to natural history or doing puzzles, answering a quiz, etc) and also to what extent "learning" don't affect the fun (and the importance of a good balance there). For its feasibility, technical issues didn't seem to be complicated but some problems could arise regarding adjusting Europeana content. This group of scenarios can be seen [here](#).



Group 3: Virtual timeline/exhibition

Different scenarios defining end-users (students, teachers, and families as potential visitors of a museum) of diverse backgrounds, ages and interests who can navigate via a visual, spiral-shape timeline, different layers of information about natural species through time, in order to learn about it but also encourage visits to existing exhibitions. For this it would be necessary to provide an environment where a main overview is given, focus the development to reach different audiences and create different information levels and graphic overviews. The timeline as a concept will also require high quality pictures in relation to the real collection and content to Europeana, and preparation/curation work in order to extend the information, even if it's based strongly on visualization (20 animals was defined as the minimum set of preselected content). Its learning potential will be based on different ways and details for showing information,

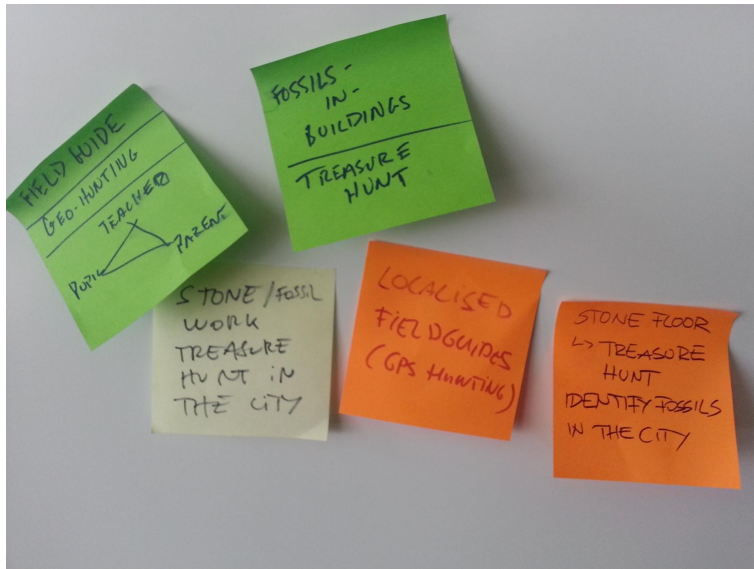
for example in the context of a geological period or to a critical mass of additional content or data. This group of scenarios can be seen [here](#).



Group 4: 'Save the species' card game

The main scenario could be summarized around (with different end-users in mind) this concept: "what if I could play cards with samples of content showing animals or fossils and its different metadata, so I can learn about the evolution and variety of animal species". It was generated from 6 different scenarios around the core concept of "saving the species" with the aim of understanding the extension of evolution, re-use by students as much as possible, and where game success could increase with levels/layers of knowledge. Also as

something which could be used for group activities, where content can vary (museum content reflected in cards) and somehow relate to virtual reality (save your species by changing the environment, or at least by the number and type of cards you hold). We identified the learning potential of the idea as very high, as well as its feasibility (where is doable to add more content as samples, just creating additional cards). There should be in this case a high effort for taking care of interdependencies between species. Main pictures with scenarios [here](#) and a narrowed down one [here](#).



Group 5: Fossil hunting

After narrowing down options here the scenario was expressed as “What if as a student (or group of students) I could explore and share discoveries of fossils hidden in buildings or the city so I understand about the species and the changes in time periods.” This pilot should gather information about local environment, as well as enable searching for items and share them with the community. As its main content or via comparisons with Europeana content it should help to verify the findings.

Users also could provide geo data and how it was found, increasing its learning potential which would be based in discovering, comparing and some type of social game. In relation to its feasibility, it would need specialist and experts to work with the platform content (which fossils in order to be discovered where), and also have a high need of input from the community. If they identify real areas of fossils that can be reached, it can also represent a problem in relation to law restrictions regarding nature protection. Main pictures with scenarios [here](#) and a narrowed down one [here](#).

Group 6: Geolocated sounds

The main scenario was “What if I could use sounds and maps via geolocation related to different animal species to describe the history of a specific place”. Its learning potential concentrated around the possibility of understanding natural events that influenced the present, and the potential of dive forward and back in natural history, with high accessibility for external visitors.

What to do next

- **WP5:** Consider the possibility of re-using some of these scenarios for areas or ready-to-adopt concepts for the challenge related to natural history education.

Prototyped design of screens and interactions

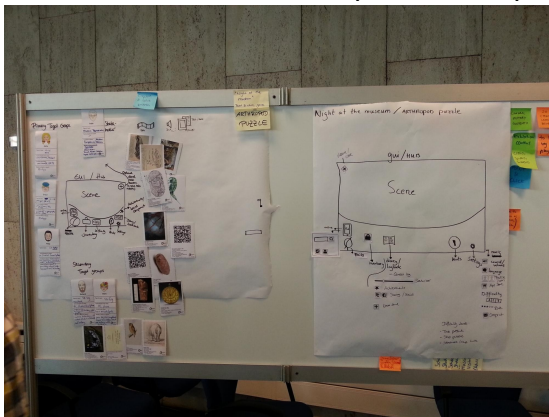
After the group discussion about which scenarios to develop further, based on its feasibility and learning potential, there were 3 groups of interest developing a rapid diagram and wireframing of each.

The initial activity was oriented to match content with personas, drawing a first version of basic interactions, after providing a description of end-users and, selecting cards with samples of content. Connections had to reflect the most relevant relationships or interactions for teaching/learning.

As a second activity right after this, participants should refine the design adding possibilities screen by screen, defining in 2D some details of screens the pilot should have. For this they should think in chronological order, from the user's perspective, where does the interaction start, how does the interface look like, which are the Europeana contents involved and how and try to get as deep as possible in layers of the application/website.

Design 1: Night at the museum

A “point and click” adventure game, which target audience is people between age 12-35 used to using tablets and smartphones, interested in general knowledge. Also teachers and parents interested in increasing their kids' knowledge in natural history. It should be heavily based in Europeana content (sound, text, video and picture), although also in original settings and atmospheres recreated via visits to the real museums presented in each screen (as well as secondary characters inspired by them). The storyline is based in the father of the main character getting lost in a city, where he/she has to find a hint how to find his father by entering the museums. The two chapters developed would be based in the Berlin and Prague museums.



User interface and initial design: detailed images [here](#), [here](#) and [here](#). Video presentation [here](#).

Feedback concentrated around questions for how do the design relate (technically and conceptually) to the Europeana content, especially considering the actual situation where it only holds metadata. Also regarding the fact that there are existing models of games that focus on the same metatopic. In relation to its learning potential, it will depend on what do we want to reach, where questions for the type of “exercises” or questions should be well prepared and curated from an educational and field specialist or team.

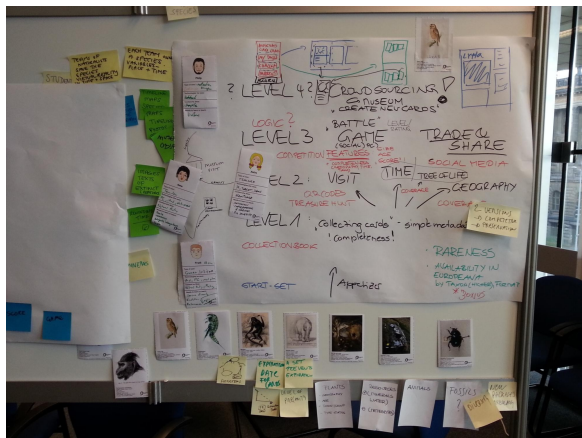
Another issue was around the accessibility of the code developed, where some some libraries or modules will be not original. Finally there was the question of having a “freemium” version or

the possibility of paying for next levels, something further discussed in the context of the business model workshop afterwards.

Design 2: Card game “Save the species”

The concept is to have an initial set of cards with Europeana content (mainly animal species and fossils) where you have to structure and work with your cards to save the ecosystems (like having a hard copy of them). Initially you play with a given minimum set of cards, having various ways to use and organize your cards. You can also battle with someone else as a more competition approach, where values of cards (date, size, format, groups, alimentation, etc.) allow for winning or not some others.

Another option explored was to visit a museum so you can add more cards to your collection, special or very rare ones. The main interaction and also learning potential would be based on figuring out what role your cards play in relation to each other, having a sustainable ecosystem as an objective for each user’s collection. For this the idea is to have the possibility of grouping the cards in a complementary way, activating some engagement for collection and organization. Another powerful concept was to provide a timeline as another layer of visually recognizing and gathering cards, specially for its learning potential.



User interface and initial design: detailed images [here](#), [here](#) and [here](#). Video presentation [here](#).

The feedback for this design concentrated around the competitive element, where one interesting feature would be to work in groups to group resources, strategizing as a group and not only as a single player, but the whole idea needs a clear concept for which values to play with when cards compete. In relation to its connection to Europeana, again the main question was around the complexity of gathering the needed content (a

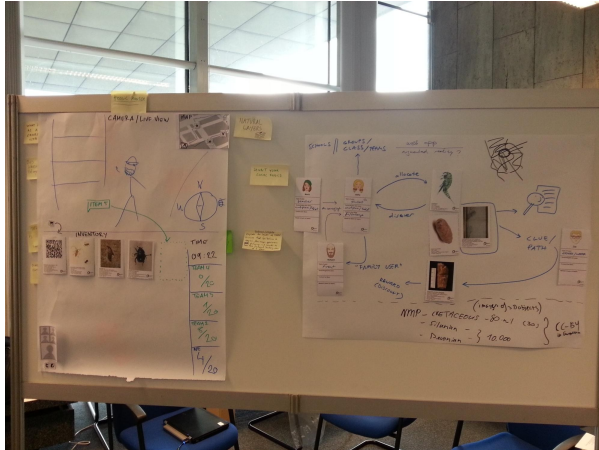
matter of content preparation) and also enough metadata or new as needed for the pilot basic interactions.

Design 3: Fossil Hunters

Targeted to groups of 12+, it will consist in an augmented reality application where users can find “hidden” virtual objects in the city (initially in Prague), mainly fossils “placed” in its related real areas but under the floor where they should be, at shopping malls, cinemas, libraries, parks, etc. Students have to figure out why the object is at this place, with maybe a virtual or real reward according to the findings.

User interface and initial design: detailed images [here](#) and [here](#). Video presentation [here](#).

Some feedback questions were: there should be also the possibility to engage your family or a class group too. In relation to content, it should have an easy editor with a search box for interesting content from Europeana which you can add.



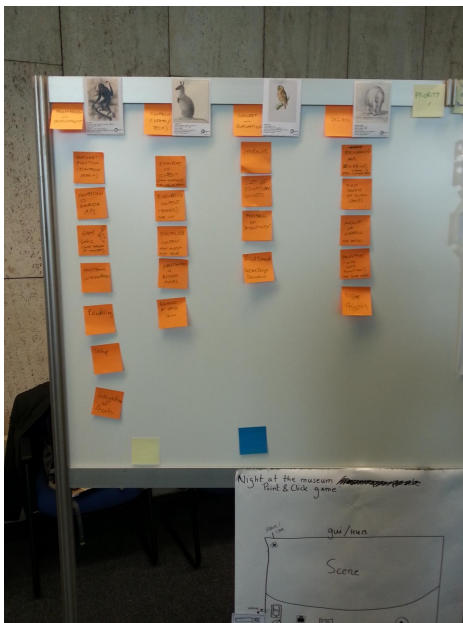
What to do next

- **WP4:** Leaders of this pilot should continue with the selection of one or two of this three concepts and designs after a quick exploratory phase, defining a minimum viable pilot based on what's needed in (a) terms of content (if its there in Europeana or not, and who selects it based on which criteria), (b) infrastructure (technical needs from Europeana metadata and code, as well as for programming) and (c) teaching/learning needs (which defined goals or activities should drive the design and how) based on stakeholders success criteria and potential end-users.
- **WP1:** Importance of helping to define an initial backlog of more things needed in each case, so once content, infrastructure and teaching/learning main needs are clear next steps can take place for developing the pilots in several sprints. (See next point).
- **WP3:** Conclusions and discussions of the business model workshop could mark an important influence of features to develop further in each case, so a list of recommendations based on this would be needed.

Backlogs of tasks to do in each case

Following the presentation activity of the wireframe and design concepts of the pilot, participants defined the backlog (or “to-do” tasks) of things needed for the development. That means to express in the less technical language possible things such as features, potential problems, enhancements, technical work, knowledge acquisition needed or negotiations to take place. They were divided in 4 areas according to participant’s roles: (1) technical development and programming, (2) content related (legal or technical), (3) concept and evaluation issues and (4) design.

Design 1: Night at the museum (detailed image [here](#))



PROGRAMMING / DEVELOPMENT TASKS:

- Integration of assets
- Setup
- Rendering
- Facebook integration
- Game Logic (code version of concept)
- Connection to Europeana API
- “Explore” function (Europeana search)

CONTENT (LEGAL / TECH)

- Examples of content from Europeana. List of objects
- Biodiversity content (books)
- Digitalise extra content from museum
- Negotiation around business model
- Editorial tasks for specific content

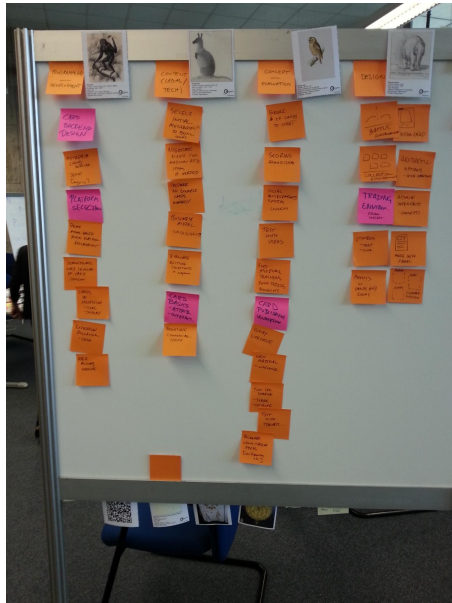
CONCEPT / EVALUATION

- Clarify which code will be open and available
- Define storyline
- List of educational concepts
- Feedback on authenticity
- High concept game design document

DESIGN

- Background for scenarios (photos / graphic / drawing)
- First draft of museum spaces
- Mock-up of screens
- Prototype with some functions (private access)
- Game assets

Design 2: Card game “Save the species” (detailed image [here](#))



PROGRAMMING / DEV

- Card Backend design
- Metadata crowdsourcing. Demo (tagging)
- Platform selection
- Demo mono-based multi platform environment
- Demonstrate web serving of card content
- Cards in Collection (Store / Display)
- Expiration Algorithm - Demo
- User accounts working

CONTENT (LEGAL / TECH)

- Select initial metadata (100) to become cards
- Negotiate rights for Medium Res Imgs if needed
- Prepare 20 example cards manually
- Business Model Sustainability
- Evaluate existing collections in Europeana

- Card basics attribution / interaction
- Negotiate commercial terms

CONCEPT / EVALUATION

- Explore set of cards to start
- Scoring algorithm
- Social achievements system concept
- Test with users
- Find museums, teachers, beta testers, biologists
- Card publishing workflow
- Expiry lifecycle
- New material lifecycle
- Flow for sharing (Trade / Combine)
- Test with teacher
- Research: Crowd tagging needs (Smithsonians <http://www.si.edu/>)

DESIGN

- Guidance systems / ecosystems (predator / Cereals / Water)
- More info panel
- Admin interface
- Concepts
- Aesthetic options (give directions)
- Design card
- Physics of cards and groups
- Controls (touch / click)

- Trading environment (design concept)
- Collection environment
- Battle environment

Design 3: Fossil hunters (detailed image [here](#))



PROGRAMMING / DEV

- Frontend templates
- Backend. Connect to Europeana API
- Foss Hunt api
- ADD GBIF metadata
- Connect to map (Google / open street maps)
- Database store fieldtrips + add content
- Develop Augmented Reality -App (e.g via layer)
- Set up frontend hosting
- Facebook integration
- Game logic

CONTENT (LEGAL / TECH)

- Curate relevant content (quantity)
- Rich Metadata (info on why objects are there)
- User tutorial

CONCEPT / EVALUATION

- Engage museum editors
- Fine / High Concept
- Explore LRMI Metadata standards
- User group testing

DESIGN

- Wireframe (editor / Client / app)
- Interaction design

What to do next

- **WP1-WP4:** Expand and/or refine backlog according to the final selection of pilots to develop.
- **WP1-WP4:** Agree on which digital tools to share notes and minutes, to update backlog and to present results of every development sprint.

- **WP1-WP4:** Establish priorities of what to develop next, simply by the order of items in the list ([here for the serious game option \(escape the museum\)](#) and [here for the card game option](#)).
- **WP4:** Choose a set of initial things from the prioritised list, to do in a sprint development of 4 weeks.