# D4.2 – Delivery of the History Education Pilot

This report describes the progress of the History Education Pilot, from the co-creation workshop in month 5 until the final delivery of the Pilot in month 18. It includes a description of the Pilot, the content, technical developments as well as the evaluation and business model aspects. A summary of the Challenge event, the results and an assessment of the added value for the creative industries within this Pilot theme is also included.

# Deliverable

**Project Acronym:** Europeana Creative

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## D4.2 – Delivery of the History Education Pilot

**Revision:** Final

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**Authors:**       Steven Stegers (EUROCLIO)

Paul Jongsma (Webtic)

Lizzy Komen (NISV)

Nico Kreinberger (MFG)

Callum Lee (ECBN)

Paskal Tak (External Reviewer)

**Revisions**

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**Statement of Originality**

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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## Executive Summary

Five innovative Pilot applications are being developed in the Europeana Creative project to showcase the potential to use Europe's digitised cultural heritage in innovative applications. They are being developed through a process of co-creation involving education, tourism, social networks and design experts, software developers, business model specialists and other project partners. The History Education Pilot is one of the first two Pilots to be delivered.

The objective of the History Education Pilot is to stimulate the re-use of digitised heritage, especially those made available through Europeana, in history education. In order to achieve this, EUROCLIO (European Association of History Educators) is working together with Webtic and an international community of history educators (who are working as professional volunteers) on the creation of (online) learning activities.

Within the learning section, history educators can search a set of sources that are pre-selected by their relevance for history education, their quality and their license (that should allow re-use in education). Users can search these sources by source type, people, locations and time. This set of sources includes newspapers, postcards, posters, diaries, music, monuments, official documents and newsreels, and they come from a range of digital collections from across Europe.

The learning section includes the first tool that an educator can use to make his or her own online learning activities to make best use of the digitised heritage. The learning section also contains learning activities that will be featured on the Historiana[1] website as an example of how to implement certain teaching methods, overcome teaching challenges and/or how to promote the students' acquisition of historical thinking skills. The learning activities provide all the information needed for the students and their teachers to implement the activity in practice.

The combination of free access and quality control will provide a unique social value for all stakeholders.

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[1] Historiana is a long term programme coordinated by EUROCLIO. In this programme EUROCLIO supports a community of professional volunteers, who are history education specialists from more than 30 different countries, work together to provide access to high-quality resources for history, heritage and citizenship education. The resources are selected, developed and tested in order to promote active learning, historical and critical thinking, and multiperspectivity in history. The Historiana website can be accessed at www.historiana.eu.

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# 1. Introduction

The History Education Pilot is developed within the Europeana Creative project. The project aims to demonstrate creative re-use of Europeana resources by developing test applications in five thematic areas: History Education, Natural History Education, Tourism, Social Networks and Design.

This deliverable summarises the development process and the delivery of the History Education Pilot, which was developed between month 5 and month 19 of the project. It gives insight in the product that has been made, but also the process by which it has been developed. This includes the co-creation process, the long-term viability and business plan behind it, and the spin-off to other initiatives.

The History Education Pilot offers history educators easy-to-find and free-to-use educational resources (sources, learning activities and tools) that are designed to stimulate historical thinking, multiperspectivity and active learning.

The Pilot has been developed in collaboration with Europeana Network members. The added value of working with the Europeana Network is that the sources from various content providers make it possible to create educational resources that are international and helps educators to look beyond their national history.

## 2. The Pilot

### 2.1 Co-Creation Workshop



**Fig. 1: Participants during the co-creation workshop**

The development of the History Education Pilot is a direct result of the History Education Co-Creation Workshop (The Hague, May 6–8, 2013) organised by Platoniq in the Europeana Creative process. During this workshop different user scenarios and prototypes were generated and discussed, along with previous research carried out by EUROCLIO.

The main objective of the workshop was to inspire, guide and help the development of Europeana Creative Pilots in the area of 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.

After forming small groups participants showed each other their favourite digital apps or websites and commented why they liked it, also thinking about how to use it in a learning/cultural environment, which open history content could be applied to it and how could it connect/mashup with Europeana.

From an initial discussion there were different websites 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).
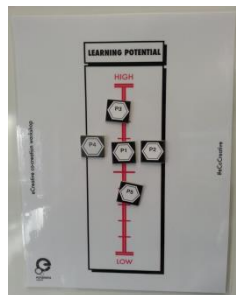


**Fig. 2: One of the indicators used in the co-creation workshop**

Then there was another more detailed presentation from EUROCLIO, highlighting the importance of having a Pilot that will allow educators to generate their own activities and learning materials online. EUROCLIO presented some examples of how this could be in the context of Historiana, based on some deep exploration of history materials. Based on some exemplar templates as case studies, explored the possibilities of generating learning activities around cartoon collections or portraits, timelines, biographies or historic key moments were explored.

There was also a discussion on which sources are most useful to History educators, and what additional information is needed for the sources (meta-data), as well as which ways of presenting information are helpful in this context. One shared reflection was the need of not

having too much content or at least a sense of collections / themes in order to work with limited samples.

Afterwards, participants focused on basic actions, content and learning opportunities in the near future related to an application using (open) history content. Initially in small groups they wrote scenarios in one sentence, with the following structure:

> "[What if I could <specific action>], [<history content>] [with <additional info>] [so <teaching/learning benefit>]"

> For example: "What if I could see and compare on a timeline pictures of a church over time, with comments from users and a 'print it' option, so is it possible to compare and discuss its evolution"

The main objective of the activity was to have a common visualization of areas of potential interest, as well as a shared language which could be used in the development of the Pilot in different versions and / or its main features, also taking into account the possible additional information needed apart from (digital) original sources. For this the five areas to explore agreed with EUROCLIO (although not as exclusive domains, but focus of interest) were:

- Dealing with multiperspectivity
- Compare and contrast
- Critical analysis of sources
- Encouraging historical thinking
- Innovative ways of presenting a narrative

Afterwards, in order to narrow down possibilities and continue with the development of a more visual brainstorm and specifications, each group of scenarios was presented and compared in its group with all participants. Then they voted with green dots in order to identify the more interesting or promising scenarios for future implementation, which were developed more visually in the next part of the workshop.

After the group discussion about which scenarios to develop further, based on distributed voting from participants, there were 6 groups of interest developing a rapid diagram and wireframe of each, following the 6 categories in which scenarios were developed, commented and voted.

The activity was oriented to match content with personas, as well as 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.

Participants were asked to 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, what 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.

The co-creation workshop ended with 6 designs worked out:

Design #1: MyNewsreel
Design #2: Pupils research (newspaper as a tool for multiperspectivity)
Design #3: [A tool for] critical analysis of sources
Design #4: Evolution of leadership over time
Design #5: Handwritten letters / Keep in touch, bro!
Design #6: Moving on!



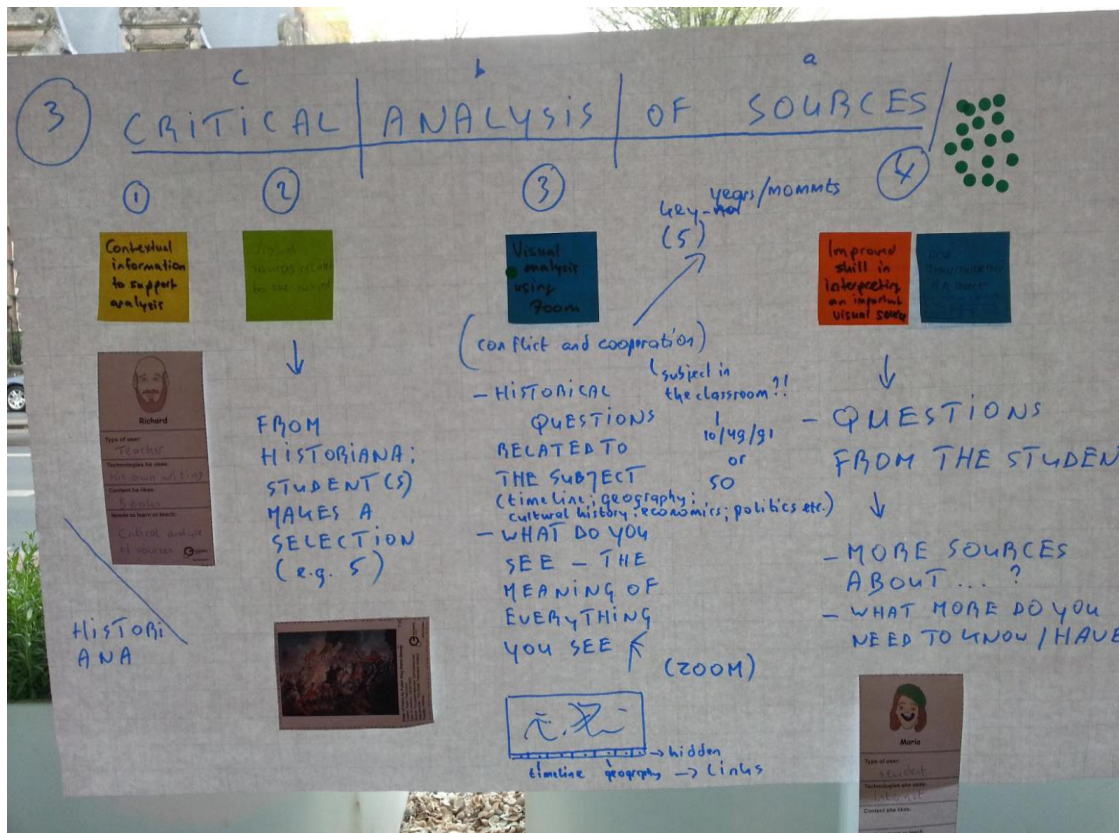**Fig. 3: The design of the "Critical Analysis of Sources" tool**

Design #3 which has been further developed in the History Education Pilot, got the following indicators of this concept for the Pilot:

- Innovation: High
- Engagement: Very high
- Learning Potential: Very high
- Adaptability: Very high
- "Europeanability": Very high
- Feasibility: High

A more detailed account of the co-creation workshop can be found here.

## 2.2 Pilot Concept

The goal that was set up for the History Education theme application is to stimulate the re-use of cultural heritage resources for history education.

There are several ways in which the History Education Pilot does so:

- By helping history educators to find sources that they can use.
- By providing tools that history educators can use to develop online learning activities for their students.
- By developing suggestions for lessons that make use of sources in learning activities.

By doing so the Pilot removes several obstacles that currently stand in the way of using digitised content from Europeana.

**Helping history educators to find sources that they can use**

History educators often experience obstacles in searching and selecting sources. It takes a lot of time to find sources that provide multiple perspectives, and translation is often not provided. The History Education Pilot helps educators to overcome these obstacles. The external reviewer, Pascal Tak, in his remarks, expressed his view that this is a major point in the development of new material for history education.

This means that the sources have to be

1. *Easy to find*;
2. *Relevant* for end users (in our case, suited to promote historical thinking, presented in multiperspective collections);
3. *Curated and contextualised*[2];
4. Of *sufficient quality* (naturally the higher the quality, the better);
5. *Superior to sources from other websites*
6. *Available for use in education*[3].

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[2] Curated. A source is curated when it includes technical information and accurate – in our case, historica – background. By technical information we mean: exact dating of the source (creation and / or reference to the historical event); origin (place) of the source; creator of the source; size and / or technical data of the file; copyright information. By accuracy we mean: the source provider has applied its expertise to the effort of furnishing the most complete information about the historical context, background and significance of the source. Assurance of such a level of historical accuracy is a real unique asset of the database.

Educators can search and select the sources that they want to use for their tools. These sources are pre-selected by EUROCLIO to make sure that they are historically relevant, available for re-use in education, sufficiently contextualised and of high enough quality. (for more information see the section on Technical Developments – Search and Select).

**Providing tools that history educators can use to develop online learning activities for their students.**

In the Historiana Apps Environment educators can create online learning activities using the tools, share these online learning activities with their fellow educators, and invite their students to do these learning activities. Educators can use pre-selected sources or upload their own sources.

The reason why EUROCLIO and the Historiana development teams designed the tools is that there are lots of online materials, but hardly anything promotes historical thinking. That is to say: online tools which enable students to go beyond simple factual recall and description (such as quizzes).

The tools are designed to engage students with historical source material by asking questions that promote high-level thinking.

The Analysis Tool is designed to help students with the critical analysis of visual sources. With this tool, students are asked to make their own annotations on the visual source and to identify the clues that help them to answer their educator's questions. The tool encourages students to critically analyse visual sources as a historian.

The Analysis Tool has been designed primarily to promote historical thinking specifically to analyse visual sources as evidence. However, different applications are possible and encouraged.

To date, the tool has been used in the following ways to:

- Use sources as evidence
- Encourage multiperspectivity
- Deconstruct a message
- Raise questions
- Apply historical knowledge

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[3] For individual educators this mostly means: getting access to the sources regardless of the license; for developers of educational material that mostly mean: getting access to the material that is licensed for use for education or non-commercial use.

**Fig. 4: Exemplar application of the tool, using a source from the Imperial War Museum**

This environment can be tested at http://apptest.historiana.eu. To see some exemplar applications of the tool log with email: demo@historiana.eu and password: demo.

**Developing suggestions for lessons that make use of sources in learning activities**
A community of contributors, an international group of history education specialists, is creating learning activities. These activities are designed to stimulate users to think critically on issues related to history and heritage and to acquire key competences while simultaneously gaining knowledge and understanding of specific events and long term developments in history. All learning activities that are featured on Historiana have undergone a process of quality control, including piloting, peer-review and editing.

**Historiana** | **LEARNING ACTIVITY**
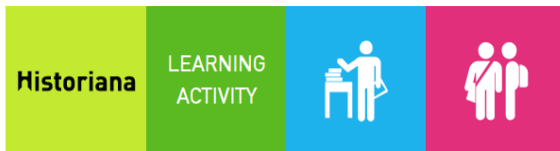
# How does propaganda work?

## Using examples from the First World War to understand how propaganda works and to learn how to identify it

At the end of this activity, students will be able to define the term propaganda and to identify different techniques that are deployed to make propaganda work. They will consider how the intended audience for a piece of propaganda shapes how it is produced and presented. They will categorise and analyse Some sources which are propaganda from World War one. They will then identify for themselves some examples of modern propaganda and compare them to the definitions and the propaganda from 1914-18 to assess the similarities and differences between the historic and the contemporary. They will produce a short 'how to?' guide to present to younger students to demonstrate their learning.

## Learning outcomes

### Students will

- Learn to define the term 'propaganda'.
- Practise their skills of close observation of historical source material.
- Categorise and analyse some First World War propaganda posters.
- Identify different techniques that are deployed to make propaganda effective.
- Discuss how the techniques deployed are closely related to the intended audience.
- Identify some modern examples of propaganda and compare these to the First World War posters in order to draw conclusions about similarities and differences.
- Write to clearly present an explanation of propaganda and how it works to a younger audience.

Acknowledgements

**Fig. 5: The introduction page of an exemplar learning activity**

The learning activities will be used to demonstrate how to implement specific teaching methods, how to overcome certain teaching challenges, and how to achieve certain learning outcomes. Where relevant, the learning activities can also be linked to historical themes, historical figures, locations or events. For the World War 1 Module learning activities are linked to, for example, causes of World War 1, iconic pictures of World War 1 or recruitment posters.

The following **learning activities** are made available via this link to demonstrate what kind of learning activities have been developed and will be further developed. All learning activities make use of digitised heritage.

- An interconnected world
- Sequencing causes on a human timeline
- How does knowledge help us to use a source as evidence?
- Understanding academic interpretations of the outbreak of war in Europe in 1914
- Women and the World War 1
- Why do we learn what about World War 1?
- Experiencing the end of World War 1
- Remembering the Assassination in Sarajevo
- Iconic images

The **tutorial video** of the learning section (made available via this link) demonstrates how learning activities will be made available on Historiana. The **descriptions** of the different sections of the learning section on "Historical Thinking", "Teaching Methods" and "Teaching Challenges" can be downloaded here**.**

## 2.3   Content

### 2.3.1   Rationale for Focusing on World War 1

There are several reasons for focusing on the World War 1 in terms of historical content

- First World War is a major topic in most school history curricula in Europe and beyond. A truly trans-border and multi-perspective approach to the subject allowing students to make connections and comparisons between the experiences across national borders and military alliances is still largely missing in the history classrooms. The ability to link learning resources to national curricula easily supports it use.
- There have been three Europeana Projects that specifically focus on World War 1: Europeana Collections (http://www.europeana-collections-1914-1918.eu/), European Digital Film Gateway (http://www.europeanfilmgateway.eu/content/efg1914-project) and Europeana1914-1918 (http://www.europeana1914-1918.eu/en). This guarantees that relevant

content is available, which is an important requirement for any topic or themes that needs to be addressed.

● The centenary of World War 1 has already and will continue to get a lot of press attention in most European countries because of all the national and international commemoration ceremonies. This increased attention will also be reflected in the history lessons, where history educators often tap into the media to get the interest of their students.

### 2.3.2    The Development Process

The development of the History Education Pilot has been done as part of a collaborative process. In total more than 150 history educators have been consulted and actively involved in the design and testing of the learning activities and tools during events in Germany, Estonia, Finland, Lebanon, Republic of Macedonia, the Netherlands, Spain and the United Kingdom, where the Pilot was presented and discussed. Exemplar learning activities were piloted during an in-service teacher training seminar in Spain with 25 participants, during an in-service teacher training conference in Republic of Macedonia with 15 participants, and during a seminar for educators in Germany with 45 participants.

The Analysis Tool was piloted during an in-service teacher training seminar in the United Kingdom with 20 participants and in Lebanon with 30 participants. The development of the learning section has been done by Benny Christensen, Ineke Veldhuis-Meester and Helen Snelson. The development of the rationale and way of presenting historical content has been done by Bob Stradling and Chris Rowe. Both teams have been supported by several trainees that worked at EUROCLIO. The programming, web-design (including the sketching and development of mock-ups) has been done by Nique Sanders and Paul Jongsma from Webtic with the support of Joes Koppens from Usemedia, who has been subcontracted for the interaction design. The development process has been coordinated by Judith Geerling and Steven Stegers.

Nico Kreinberger (MFG) and Enric Senabre (Platoniq) have been involved in UX testing in Belgium with 10 participants, and on Mallorca with 8 participants. Nique Sanders (Webtic) was also involved in the users' testing in the Netherlands for 15 participants, and in the United Kingdom with 20 participants. The project communication between EUROCLIO, Webtic and the rest of the consortium has happened mainly via online conference calls using agile SCRUM, with Lizzy Komen (NISV) and Enric Sanabre as SCRUM masters.[4] Nico Kreinberger has participated in these meetings as reviewer. The SCRUM meetings have helped to monitor the

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[4] See http://en.wikipedia.org/wiki/Scrum_(software_development) for more information about this process, accessed on September 24, 2014.

development process, set new priorities and ensure good communication within the overall Europeana Creative consortium.

### 2.3.3  Europeana Network Partners

Several Europeana Network partners have collections that are particularly interesting for the History Education Pilot. The main reason is that these institutes have digital collections with content that is relevant for history education. This means that the content is of sufficient quality (for example, all texts are readable, and the details of images are visible after zooming in). An additional reason is that the rights have been or can be cleared.

Here are some of the most relevant collections:

- The Imperial War Museum has a collection that is very relevant for learning about World War 1 (see here their First World War collection on Europeana). For example, there is a wide variety of posters, photographs and artefacts. A major advantage is the international scope of the collection. One issue is the licensing. Most relevant materials are licensed by the Imperial War Museum under the IWM NonCommercial License which allows use for the Pilot's purpose. The license of the collection in Europeana, however is licensed under a Free Access - No Re-Use license (which would not allow using the collection for the Pilot).[5]
- The National Library of France also has a very relevant collection for learning about World War 1 (see here their First World War collection on Europeana). The photographs and posters have a broad scope. In this case nearly all materials are licensed as Public Domain. The issue here is that at least one stakeholder contested the appropriateness of the labelling, which needs to be clarified with Europeana.
- The Central Institute for the Union Catalogue of Italian Libraries (see here their First World War collection on Europeana) is unique because it provides lots of visual sources of very high quality, but also because it has an international collection of Trench Journals and Illustrated War News. The issue here is the licensing, because the all the content is licensed under a Free Access - No Re-Use.

Other relevant content providers are the Austrian National Library, The Great War Archive of Oxford and The Berlin State Library (the Europeana projects are discussed below).

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[5] At the moment of writing it is only possible to see at the site of the collections from the Imperial War Museum which sources are licenced with an IWM NonCommercial License. As long as the whole collection of the Imperial War Museum is licensed under one license in the Europeana Database it is not possible to differentiate between the material that can be used in education and material that cannot be used.

Now that the Historiana database is improved and the first Historiana App is functional, EUROCLIO will continue to add more of the content from these collections and content providers. A first priority will be the inclusion of visual sources because these sources are most suitable to be used in the Analysis Tool and need no or limited translation to be used in history education. The addition of textual sources (on which history education heavily depends) and audiovisual sources (that cannot be included in printed resources) will happen together with the development of tools that are particularly suited to make best use of these source types.

The easiest is the searching and selection of content from one content provider with an international collection – because the curation does not always match. But in some cases (for example with War Music) it is worth (for EUROCLIO) to search the content from different content providers and turn it in a new international collection, and streamline the meta-data in the Historiana database.

### 2.3.4   Europeana Projects

There are several Europeana Projects that provide content that is highly relevant for use in history education. Throughout the development process, EUROCLIO has been in contact with several of them. In order to be able to use the materials, content providers need to use licenses that allow educational or non-commercial use of the content, or there has to be set up an agreement between EUROCLIO and the content provider. The advantage of the projects is that they have a clear focus and provide content from across Europe. This already provides a strong basis for integration in Historiana and use by history educators across Europe.

Current projects:
- The Europeana Collections 1914-1918 project (http://www.europeana-collections-1914-1918.eu/) has provided a lot material that has been mentioned under the Europeana Network above.
- Europeana1914-1918 (http://www.europeana1914-1918.eu/en) is a unique project in the sense that it not only provides access to the sources, but also the stories behind the sources collected through the collection days.

Future projects:
In addition to the projects that are now being used to search and select content, there are the following projects for which EUROCLIO tried to make a partnership.
- EUScreenXL (http://www.euscreen.eu): There have been talks between EUROCLIO and the EUScreen consortium about the use of their collection for future projects. The Historiana development teams have agreed on a Top 3 (Fall of the Berlin Wall, The Eichmann Process, Immigration). Reaching an agreement on the use of part of the collection would give access to the Historiana team to the content needed to

work on applications that work with video. The fact that the clips are all very short, is a big advantage because of the time it takes to search and select video content.
- Europeana Newspapers (http://www.europeana-newspapers.eu/):
  There have been talks between EUROCLIO and the Europeana Newspaper consortium. A big advantage is that the material is public domain, the newspapers are easy to find (by date), full text is provided, and the collection is international and to a certain extent complete. In this case the biggest obstacle is translation. A good example of the potential of this collection – contrasting news coverage about the assassination of Franz Ferdinand – can be found here.
- European Digital Film Gateway
  (http://www.europeanfilmgateway.eu/content/efg1914-project). The collection from the European Digital Film Gateway is very relevant for World War 1. At the moment, the selection of content from this project has not been prioritised, because of the time it takes to select content and because the majority of the content partners have not licensed their material. The allocation of content in topics and the provision of a list of the content are very helpful.

Other projects that are relevant are Europeana1989, HOPE, Judaica, EuropeanaPhotography and EURO-Photo. If these collections will be used in the continuation of the Pilot depends very much on the licensing. There are big differences in the way the collections are licensed: The whole collection of Europeana1989 is licensed in a way that it can be used in education, the same applies to most of the collection of Judaica. In contrast, only part of the collection of EuropeanaPhotography can be used, most of the collection from HOPE cannot be used and the entire collection of EURO-Photo cannot be used for free without asking for permission. Without an easy-to-use mechanism to get permission to use digitised heritage from collections in education, this will remain a big obstacle to use the collections from content providers that don't us open licenses.

### 2.3.5 Content Areas

Sources for the History Education Pilot have been selected around nine content areas that highlight different aspects of the war. These are:

- An interconnected world
- The descent into war
- The war begins
- Key moments in the war
- How the war was fought
- Experiences and reporting the war
- Who was to blame?
- An uncertain peace

- Remembering the war

The support from the Evens Foundation will enable EUROCLIO to present all the educational resources (sources, exemplar applications, learning activities) as a narrative via a separate part of the Historiana website that is highly curated. This module will be made freely available before the end of December 2014.

### 2.3.6 Future Use

Since the project has started, EUROCLIO obtained three additional projects that will make use of the functionalities developed in the Europeana Creative project (improved database, Historiana Apps, Historiana Learning Section). This will enable EUROCLIO to continue to add more digital objects.

Other developments will be:
- The development of a teacher's guide on how to work with the developed tools in partnership with at least 10 teacher training institutes where history teachers are being trained, including Fontys Tilburg.
- The presentation of many selected sources related to World War 1 in the form of a module, supported by the Evens Foundation. The design for presenting this module is already made and the majority of the content has been developed.
- The development of other modules on key moments in European history, such as World War 2 and the Fall of the Berlin Wall and Collapse of European Communism.
- The development, testing and implementation of at least 4 new tools in the "Innovating History Education for All" project, based on European wide needs assessment and analysis of curricula.
- The development of a policy recommendation on the use of digitised heritage in education together with Europeana, targeting cultural heritage institutes, policy makers in the field of education and culture and developers of educational resources.
- The improvement and further fine-tuning of the Search and Selection tool as part of the continued partnership with the Europeana Foundation.
- The use of the Analysis Tool in professional development courses in Belgium, Denmark, Estonia, Germany, Georgia, Italy, Kosovo, The Netherlands and Spain.
- The addition of new learning activities and digital objects resulting from the EUROCLIO projects "Multi-Faceted Memory: learning on-site and online about Nazi and Stalinist concentration and internment camps" and "Decisions and Dilemmas: Learning about the EU from a historical perspective".
- The establishment of strategic partnerships with Europeana network members, and Europeana project (such as EUScreen) and other European stakeholders (such as the European University and the International Society of History Didactics).

- The continued support to the community of contributors of Historiana, enlarging the network of professional volunteers.

## 2.4  Technical Developments

### 2.4.1  Database

The Historiana website is an existing website build using Python and Django with MySQL as a database backend.

The website that has been developed in a previous project (Exploring European History and Heritage) showcases "Case Studies" which consist of textual and visual information outlined in a thematic structure where possible all structural information is stored in the database. Within the web-application there are various main objects like location, person, source and theme. A case-study refers to any amount of these objects in the flow of the text. Apart from the use within the case-study these objects also have a major role in the navigation of the website.

During the development Webtic found that it is very hard to fit all the information in a relational model. Especially in the real world situation of history there are many exceptions and relations between objects are not always as mathematical as a relational database wants it to be. With the future of the Historiana Apps in mind Webtic started our research towards a better solution. As there are currently many innovations in database technology Webtic hoped for a better fitting solution.

There are many new database technologies, but there was one type of database technology lured Webtic's interest early on; graph databases tend to emphasise on the relation as well as the data. Basically a relation in a graph database is a first class object and is stored directly into the system. This stands in contrast to a relational database where the relation needs to be defined programmatically and often needs a separate table.

As the current Historiana website was made in Python using Django, the new database system needed to be easily accessible from the Python language environment. Python was a requirement, Django less, while building Historiana 1.0 Webtic already moved from the standard Django templating system to Jinja as that system is more expressive and fitted the needs better.

Basically Webtic was only using Django as the ORM and with moving away from the relational database keeping Django in the loop doesn't make much sense. The basic web-app routing and connecting data and templates are now done using Flask, which is a micro-framework with far less fluff than Django.

The Graph databases we evaluated, in order of evaluation are:
- OrientDB http://www.orientechnologies.com/orientdb/
- ArangoDB! https://www.arangodb.org
- Neo4J http://neo4j.com

At the time OrientDB had a bad working web interface and a very complicated way of hooking up to Python via too many dependencies of third party tools.

ArangoDB looked very promising with a native Python interface but the embedded javascript based server-side Foxx tool is the logical way of building applications within the system and that turned out to be too much of a learning curve to handle within the scope of this project.

Neo4J is a commercial project but has an open-source and free-to-use version available for non-profit projects. This turned out to be the best choice. There is a selection of Python interfaces that are small and not depending on large third-party projects and the speed of development is great.

Furthermore the Cypher query language (unique to Neo4J) is easy to understand and to adapt to. Webtic settled on an architecture using Neo4J as Graph database, Python with Flask and Jinja2 as web environment. The production site is hosted using uWSGI.

Webtic migrated the data needed for the prototypes from the old Historiana environment to the new one. The old Historiana website will be kept online while Webtic is building the new components. Once they are finished Webtic will migrate more when possible and needed. Selecting and migrating turned out to be a lot of work, as Webtic could not re-use the Django admin they had to create a completely new administrative website to be able to add, edit and maintain the database contents.

Part of the admin interface is the addition of a RabbitMQ (http://www.rabbitmq.com/) messagequeue (via Celery, http://www.celeryproject.org/) for the processing of uploads and the creation of various thumbnails. Future scalability issues are avoided by separation into a task queue.

### 2.4.2 Models

The current Historiana data model consists of seven main objects and thirteen helper objects which all are interconnected.

**Table 1: Main Objects**

| Object | Explanation |
|---|---|
| Asset | An object which is connected to all related information and available in all Historiana Apps. |
| Event | An historical event. Used to connect assets to time. |
| Location | Generic location holder to identify a specific (historical) place. |
| Member | A registered Historiana member, needed to have access to the Apps. |
| Module | The historical modules to which an asset is connected to. |
| Period | Attributes to place an asset in a specific historical time. |
| Person | Person object, used for Historical content. |
| Theme | The Historiana themes to connect an Asset to.[6] |

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[6] The Historiana themes are: Conflict and Cooperation, Ideas and Ideologies, Life and Leisure, People on the Move, Rights and Responsibilities, The Environment, and Work and Technology

**Table 2: Helper Objects**

| Object | Explanation |
|---|---|
| Collection | Represents a group of assets sharing a common characteristic. |
| ContentProvider | The provider who contributed the content. |
| Copyright | The copyright as defined by the provider for an object. |
| Country | Countries of the world; based on ISO-3166-1 http:// en.wikipedia.org/wiki/ISO_3166-1 |
| DataProvider | The provider of the data. |
| EventType | A type of historical event. Used to connect assets to time. |
| FoundVia | The service provider where the object was actually found through. |
| Group | A collection ofpPersons which share a common characteristic. |
| Language | Generic language identifier; currently used to classify content. |
| License | Associated to copyright, the explicit license for the object where applicable. |
| LocationType | Generic location holder to identify a specific (historical) place. |
| SourceType | Helper to specify what type of historical source an asset is. |
| Status | Primary status for an asset used for access control and usage. |
| Tag | A keyword associated with this object |
| Tool | Represents a webtool which combined with assets becomes an App. |

| | |
|---|---|
| Upload | Uploads are assets which are not yet curated. |

All these objects have an associated relation, any object can be connected to any object via one or more of these relations. The admin interface currently gives an easy-to-use interface which allows a subset of all possible connections but via the web-interface of Neo4J any needed relation can be made.
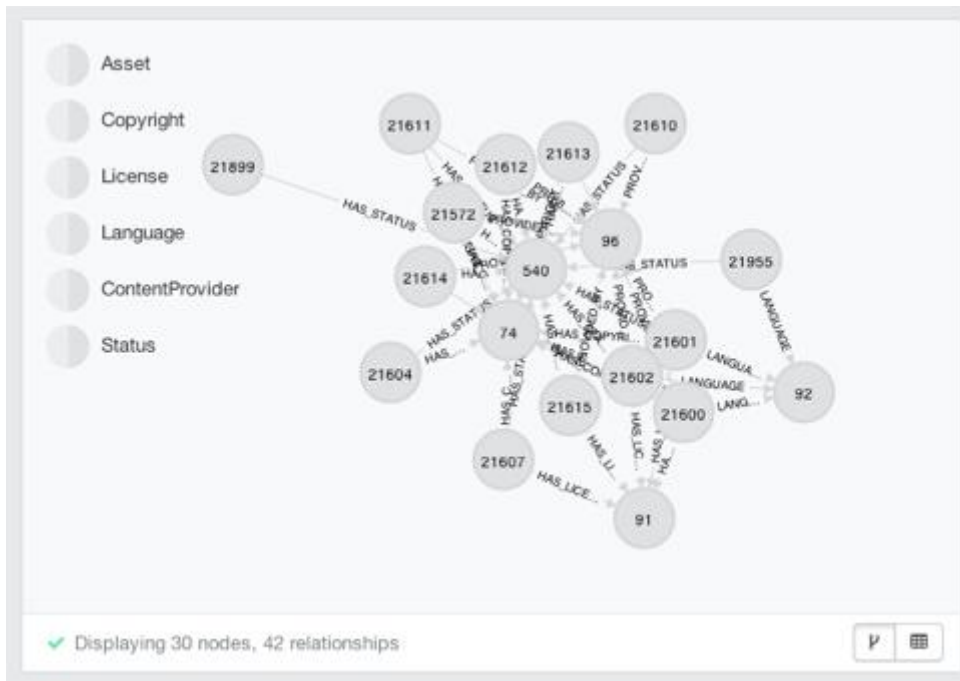


**Fig. 6:Typical example of object interconnections**

With all groundwork of the database done the database is currently being filled with relevant data. This project is done by EUROCLIO staff and uses the Europeana sources found earlier with the Search and Select tool.

Feedback indicates that adding assets to the database is a task which takes a lot of time, partly due to the amount of information which needs to be recorded and partly due to an interface which could be more efficient.
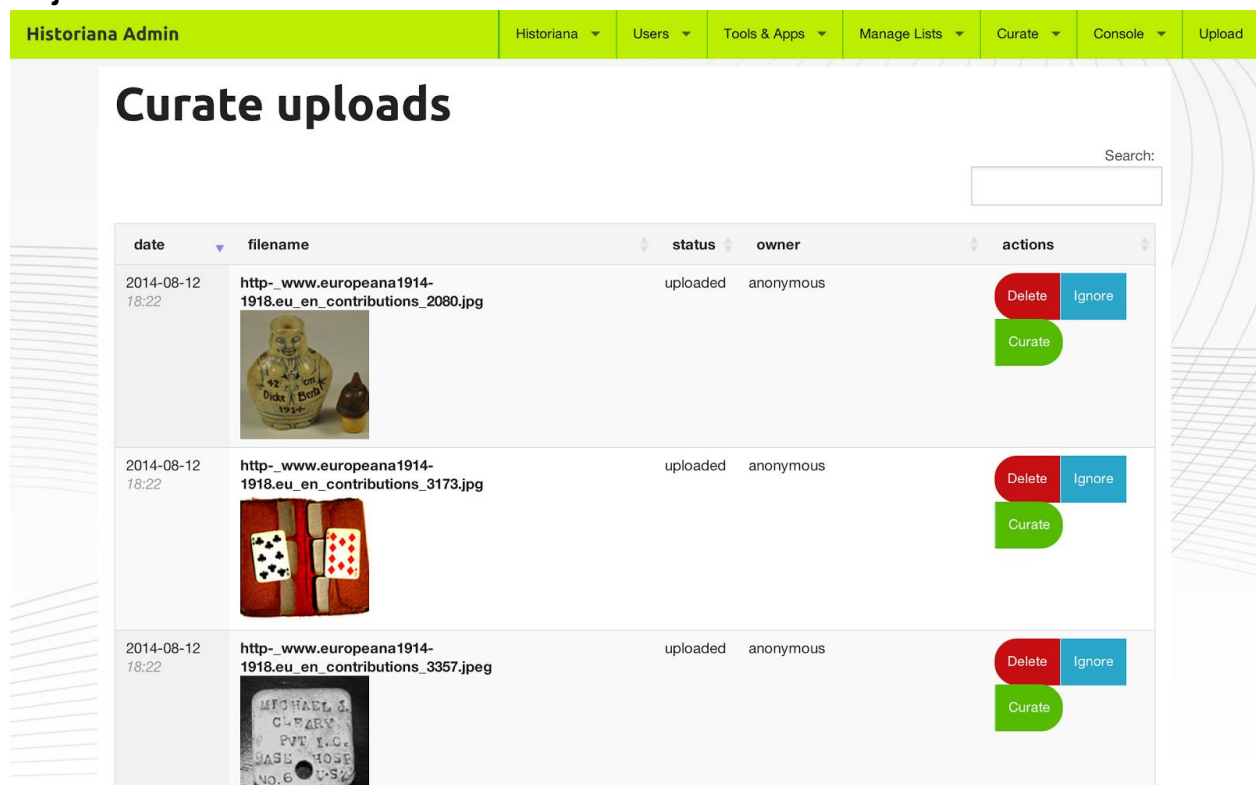
One bottleneck for instance is the retrieval of all possible values of almost all helper objects. This task is currently done sequentially and takes a lot of processing time on the server. Either caching or smarter queries should make major speed improvements.

On the user interface side it would be best to be able to apply settings to a group of assets at the same time. While database wise this is fairly easy it is a challenge in the user interface.

Currently there is the process of researching easy-to-implement optimisations in both code and workflow.

The Historiana Apps Environment is already fully connected to the new Graph database system and during the implementation of the tool it was very easy to work with.

**Objects to curate**



**Fig. 7: Screenshot of the Historiana Admin where objects in the database can be selected and curated**

**Curate Meta values**
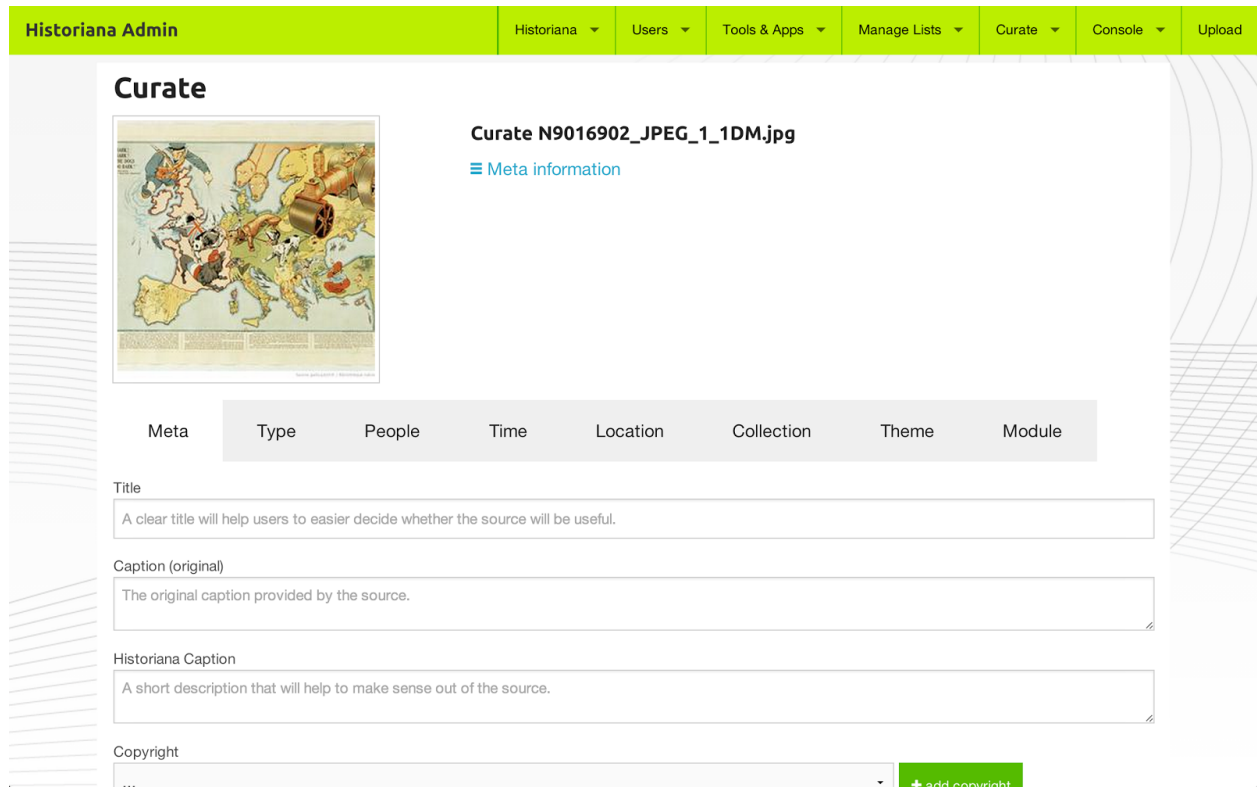


**Fig. 8: Screenshot of the Historiana Admin showing the fields where metadata can be added or changed**

The horizontal navigation gives access to all other meta information: type, people, time, location, collection, theme and module. Some helper objects are grouped within one tab where applicable.

### 2.4.3   Search and Selection Tool

The current search and select tool will be migrated into the admin interface where it will live on as a helpful tool to do batch imports into the database. The separate existence at http://sas.historiana.eu/ will cease to exist.
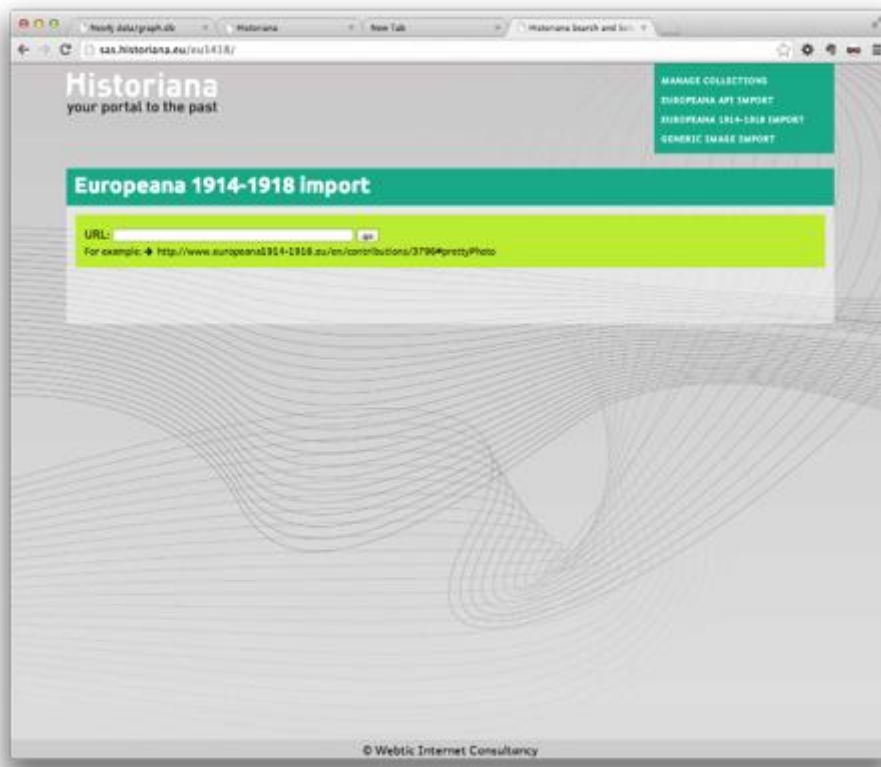
**Fig. 9: Screenshot of the Search and Selection Tool**

A variation on the Search and Select tool appears in the Apps section; the content selection tool within the Apps is a reworked version of the same tool but more suited for integration in the Apps section.

### 2.4.4    Historiana Apps

Together with the UI designer of the App the Analyse Tool is now in a workable prototype stage. Anyone with an email address can create an App at http://apptest.historiana.eu
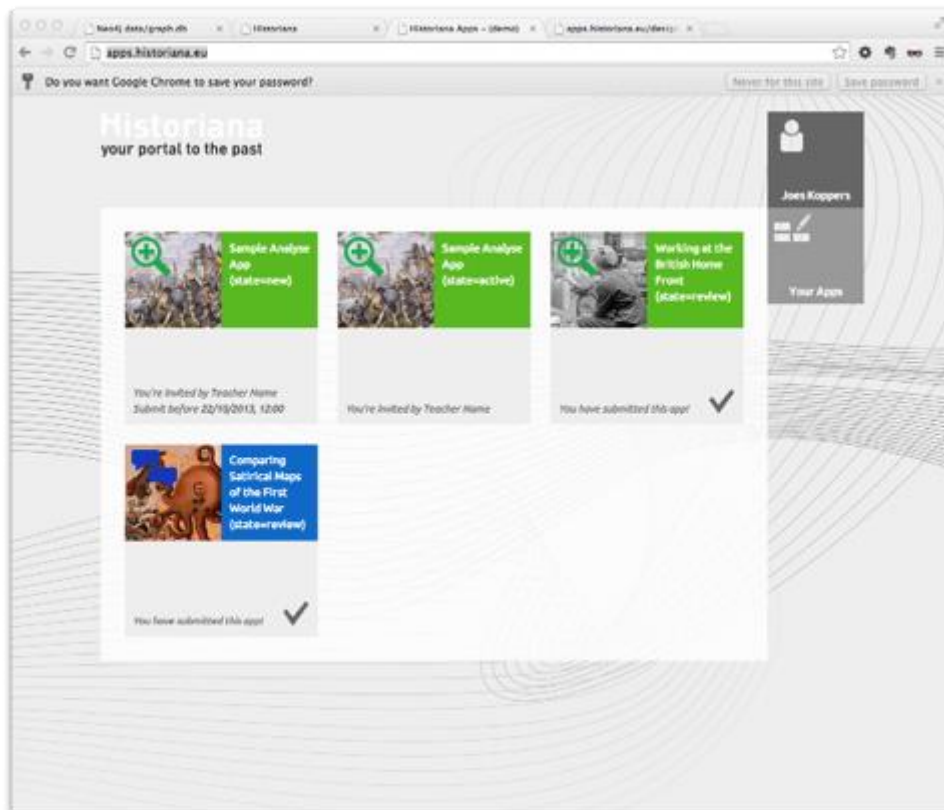
**Fig. 10: Screenshot of demo version of the Historiana Apps Environment**

**Creating an Analysis App**

There is a **video** that shows how users can create a new tool in the App Environment. The video can be downloaded here.

**Comparison App**

As an addition to the Analyse Tool a design was made for comparing pictures. Although the experiment in itself was nicely done, in practice it turned out that the design was lacking some essential features to be made actually useable within the scope of the Europeana Creative project.
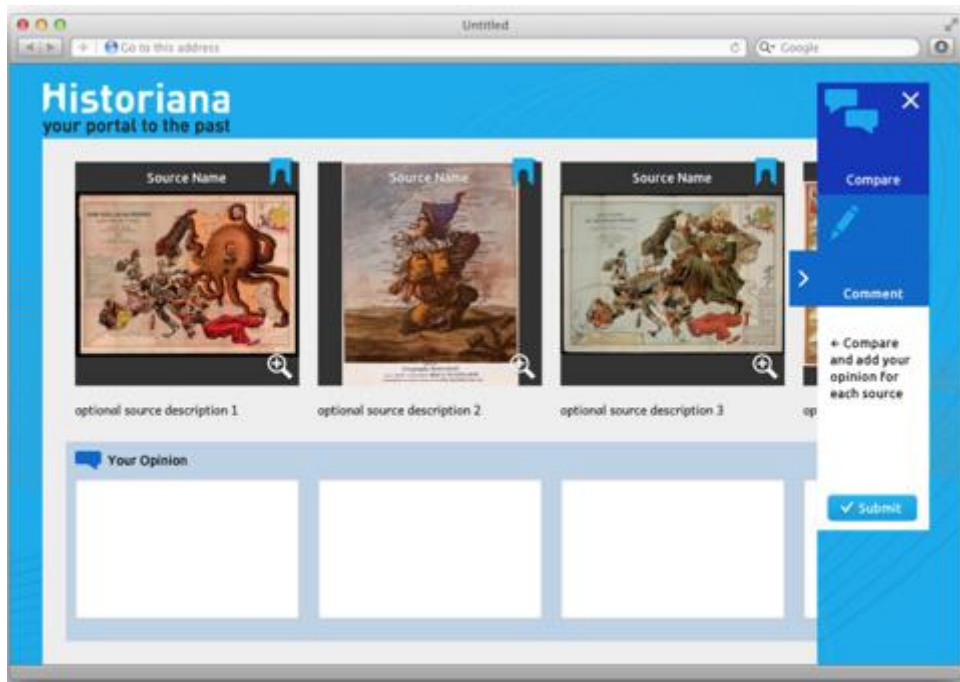
**Fig. 11: Screenshot of the prototype of the Comparison Tool**

As available time and budget is lacking it was decided to postpone this Compare Tool. The further development of the Compare Tool will be considered to be part of the "Innovating History Education for All" project that has been recently granted to EUROCLIO and partners under the Erasmus+ Programme.[7]

### 2.4.5 Learning Section

The Learning Section is completely redesigned and has been made more colourful and interactive. Currently the model for the tools is being made and added to the admin interface. As soon as this is completed the design will be connected to the already made templates.

Content can be connected to one or more "didactic entrances" being: Historical Thinking, Teaching Methods and/or Teaching Challenges. Either via one of these or by searching for keywords teachers can find materials for their lessons.

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[7] This project will lead to the development of at least 4 new tools, a users' guide and a needs assessment. See also section 2.3.6 Future Use of this Report.
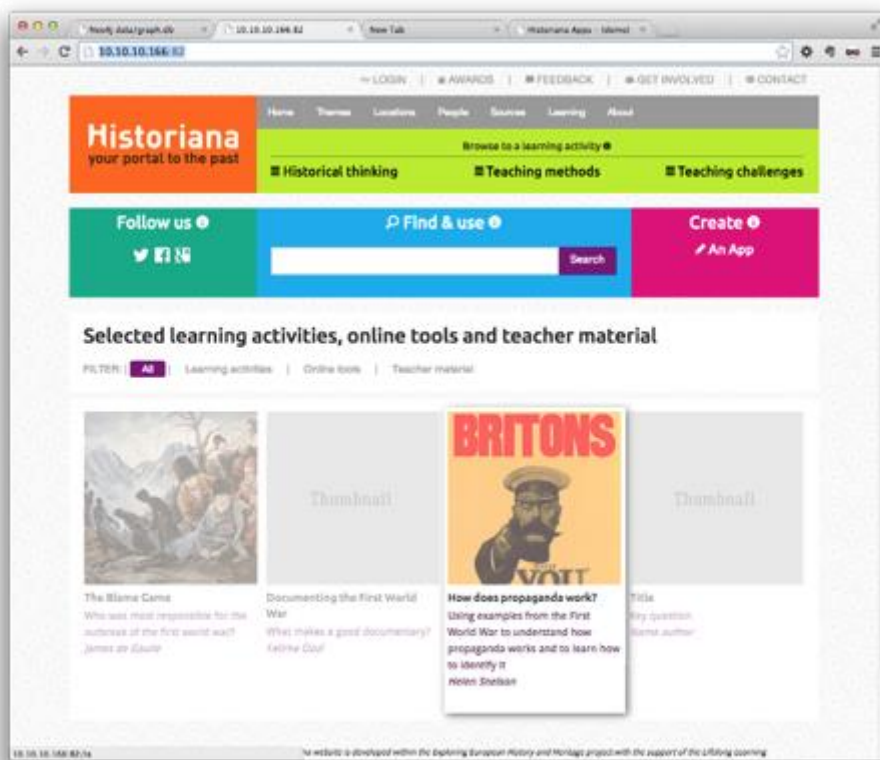
**Fig. 12: Front page of the Historiana Learning Section**

Every subsection has additional texts for teachers and it groups the found learning activities on the page.

Fig. **13**: Example of the page within the Historiana Learning Section

For each learning activity there is a page which shows all details in one overview.



**Fig. 14: Example of the learning activity page within the Historiana Learning Section.**

The design is finalised and implementation is worked on, Webtic will deliver this function before September 30, 2014.

## 2.5  Business Model

### 2.5.1  Introduction

The starting point for the development of the business models in Europeana Creative was to get a shared understanding of what a business model is and how it could be used in the context of the project. Therefore, a concept that everyone could easily understand and apply was needed. Within the Europeana Creative context, several stakeholders, especially those dealing with education issues, are not particularly familiar with business modelling. A simple but robust concept and methodology was needed. Since the business model canvas developed by Alexander Osterwalder and Yves Pigneur had proven to be a successful methodology,[8] allowing an individual or group of individuals to discuss and develop business models by using a simple but effective canvas as a working tool, the decision was made to use this methodology.

Osterwalder and Pigneur explain "how value is created, delivered and captured within an organisation point of view". Value takes several forms such as cultural, economic, social, environmental, thus not being limited to a common perspective that refers to business for profit per se. A business model can also be developed not only around organisations but also around specific projects, products or services. Putting it in another way: Which pieces are necessary and how to put them together so that your organisation, product, service or project is built in a sustainable way.

The goal that was set out for the History Education Pilot is to stimulate the re-use of cultural heritage resources for history education through the development, testing and implementation of easy-to-find and free-to-use educational resources (sources, learning activities and tools) that are designed to stimulate historical thinking, multiperspectivity and active learning. This fits well with the mission of Pilot leader and product owner EUROCLIO, who has a long-term commitment concerning the further development of the tool and wants to act as a central hub for an international community of history educators. The external evaluator for the History Education Pilot, Pascal Tak, expressed his view that this is an important goal for 21st century teachers who develop their own educational materials and therefore heavily depend on source material. Providing free-to-use resources and (sample) learning activities really helps this type of teacher.

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[8] See http://www.businessmodelgeneration.com; accessed February 19, 2014. See Alexander Osterwalder and Yves Pigneur, Business Model Generation, Wiley, Hoboken, NJ, 2010. See also Stichting Nederland Kennisland, Stichting DEN, TNO, Stichting E30, "BMICE Step-by-Step Plan", 2011, available online at: http://www.den.nl/art/uploads/files/BMICE-Step-by-step_EN.pdf; accessed August 13, 2014.

In the History Education Co-Creation Workshop and Business Model Workshop three concepts were developed. The concept of a "Tool for Critical Analysis of Sources" was selected as the concept with the highest potential of all three, although some elements of the other concepts were also selected to integrate them in the chosen concept. The Tool for Critical Analysis of Sources is meant to give students a critical tool to analyse key moments in Europe (World War I was chosen as a first key moment to be further developed). The Historiana platform gives access to content that is aggregated by Europeana within specific themes and gives access to a suite of tools (e.g. a tool to create a simple page, to do image analysis, to compare and contrast sources, to create a newsreel and to zoom in on sources). Educators can create lessons as well as new tools with these tools, and they can publish and share these lessons on the Historiana platform where students (and other educators) can access them.

### 2.5.2 Business Model

The following business model canvas was developed and fine-tuned for the Tool for Critical Analysis of Sources:

**1. Customer Segments**
- History educators
- Students
- Memory institutions[9]
- Educational publishers
- Ministries of Education / governmental organisations

**2. Value Proposition**
- Improve analytical skills and get high-quality online and visually attractive education (which is better than a traditional book).
- Access to preselected, curated and trusted source material of various content providers.[10]
- Access to free learning tools and resources that engage students and are tailored for use in history education.[11]
- Access to training services that can support educators in their professional development.

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[9] Memory institutes are organisations (such as archives, libraries and museums) that create and organise collections of materials (mostly cultural heritage) thereby preserving the memory of peoples, communities, institutions and individuals.
[10] The external reviewer, Pascal Tak, expressed his view that these two value propositions are the most valuable from a teachers' perspective: 1. Access to preselected, curated and trusted source material of various content providers and 2. Access to free learning tools and resources that engage students and are tailored for use in history education.
[11] See comment above.

- Increase of the use of collections by an international community of schools (history educators and students).
- Gain visibility and recognition to safeguard/increase public funding opportunities that contribute to an organisation's public mission.
- Participate in an effort to deliver IT services for an international educational community of history educators.
- Offer schools and educational organisations state-of-the-art online learning resources for history education.

## 3. Channels
- The Historiana web portal
- Training services
- Professional partner networks for history education (e.g., HEIRNET, Anna Lindh Foundation, EUROCLIOAssociation)
- Social media (Twitter, LinkedIn, Facebook)

## 4. Customer Relationships
- Community-driven
- "Open" sharing of knowledge and resources
- Trusted and credible (e.g., approved by UNESCO, Council of Europe)

## 5. Revenue Streams
- Partner fees/contributions
- Training services
- Public funding / projects: European Commission, Ministries of Education
- Philanthropic funding
- Crowd funding donations
- Corporate sponsoring
- (Online) advertising
- Selling audiences

## 6. Key Resources
- EUROCLIO organisation and international trainee pool
- Network of pilot schools
- Community of contributors
- Content providers and heritage content/collections (e.g., Imperial War Museum, International Institute of Social History)

## 7. Key Activities
- Pre-select and curate collections from memory institutions.
- Create learning resources for history students.
- Train educators to work with the learning tools and resources.

- Disseminate learning resources to schools.
- Promote the tool and resources in the professional history education and digital heritage field (e.g., Europeana Network Annual General Meeting, DISH conference, Museums and the Web conference).

**8. Key Partners**
- EUROCLIO
- EUROCLIO member organisations
- Memory Institutions: Europeana, Imperial War Museum, International Institute of Social History
- Web developers: Webtic, UseMedia
- Educational publishers

### 2.5.3 Value Proposition

As part of the business model, the following value proposition has been identified:

- **History students (14+)**: improving analytical skills and get high-quality online and visually attractive education;
- **History educators** who are not confident in the use of IT, who are limited in their time and find it challenging to engage students: free access to preselected, curated and trusted source material, free learning activities that engage students and are tailored for use in history education, training services (paid, offline) that support professional development;
- **History educators** who are highly IT-skilled and are willing to contribute actively to the development of the tool: join an exclusive community of contributors, help with the selection of sources and the development and testing of learning activities, get in contact with and recognition by peers, get access to professional development, equipment and travel opportunities;
- **Technology providers**: participation in an effort to deliver IT services to an international educational community of history educators, recognition and a growing reputation in the history education sector, more business and sales of their products and service contracting;
- **Educational publishers**: state-of-the-art online learning resources for history education for clients as "professional users" of the tool;
- **Public organisations** with the mission to provide high-quality and accessible education for all citizens: being a partner in an international public–private partnership where costs and risks for the development of online educational resources are shared, and teachers and students get free access to high-quality learning resources.

### 2.5.4 Revenue Streams

The following analysis was made by Kennisland and EBN about potential revenue streams for the History Education Pilot:

EUROCLIO has a long-term commitment to develop engaging online learning activities for and with their community. The tool increases access to quality (enriched) content, improves services for their members by creating learning activities (tools and resources) and increases their visibility on a non-commercial basis. The following business and revenue models are set out to ensure the sustainability of the tool.

● **Crowdsourcing**: A crowdsourcing scheme entails the outsourcing of tasks, allowing users to contribute and add information. The success of the tool stands or falls with an active community of educators creating online learning materials, providing feedback (peer reviews) and students using the materials. In this Pilot most of the work is done by educators as part of professional volunteering. Although crowdsourcing does not generate revenue directly, it supports the core value of the service.

● **Partnerships with memory institutes:** In partnership with memory institutes EUROCLIO selects quality content as building blocks for the learning resources and gets resources (educators) to work on the platform (pooling and sharing of resources and services). This does not create revenues directly. On the longer term, when the basic tools proves to be valuable for the market, the focus can broaden to establish partnerships to build more tools (with educational publishers, technology providers and memory institutions).

● **Partnerships with training institutes**: Another type is partnership with Teacher Training Institutes, e.g. research institutes and schools. In these partnerships the training institute works with their students to provide content or feedback. They provide quality feedback to improve the services.

● **Training (additional services)**: While maintaining the core business free of charge for educators and students, additional training services and seminars for teachers are offered. EUROCLIO is already offering training services to their community, but does not promote this very explicitly yet. A training model for the new application is developed and promoted explicitly in the community, so this business model can mature throughout the project period.

● **Exemplar learning activities (projects and consulting)**: EUROCLIO offers memory institutes or educational publishers the possibility to showcase exemplar learning activities on any website. An account with tailored demo content is

developed. Educators can try out this demo without being logged in and memory institutes can show how their content can be used in an educational context.

- **Grant funding/ subsidies**: Though it is difficult to make the case for grants from the public sector in times of hardship, this is still the most common way of funding educational platforms in Europe. Since this business model requires a long breath, EUROCLIO follows-up this business model by promoting the tool and results at conferences to develop a network of public funders. EUROCLIO makes analysis of which funding cycles fit the further development of the tool.

- **Donations / philanthropic funding**: Generating revenue from indirect beneficiaries (e.g., public organisations, technology providers) by asking for donations and optionally for direct beneficiaries in the form of crowd funding for the development of specific additional technology and modules (teachers, students).

- **Sponsorships:** Corporate and social organisations financially support the tool and in return their products or services are associated within the brand and/or audience.

### 2.5.5 Stakeholders

**Educators**

The history, heritage and citizenship education professionals are one users group of Historiana. This group includes teachers in primary and secondary schools, curriculum developers, authors of textbooks and other teaching tools, teacher pre-service and in-service trainers, assessment experts, advisors and inspectors, educational staff in museums and institutes, board members of member associations and trainee teachers. This group is directly involved in the development, but is also regularly consulted and targeted for dissemination efforts.

**Students**

Students are another user group of Historiana. They will work with the applications of tools developed by their educators, access the Historiana historical content sections and learn from the learning activities offered. They are involved in the piloting and testing of the tools and learning activities.

**Partners**

Several types of partnerships and modes of cooperation have been established that are mutually beneficial and are part of the enabling environment that is key to the future development of Historiana:

- **Developers of Content:** (e.g. history educators and historians) work together on the development of their material. They identify problems and opportunities for improvement, give a better understanding of the bigger picture of each other's work, and help to provide additional context to the various case studies. Working together and reviewing each other's materials helps to identify parallels between different historical case studies that are developed.

- **Content providers:** (e.g. museums, archives and libraries) help the contributors, who make the material, to get access to sources and background information from specialists. The partner organisations can show that their collection and / or research is / are used and will find its way to relevant audiences.

- **Pilot schools and peer reviewers:** give the development team a better idea of what works and doesn't work in the teaching practice. The improvements that are made to Historiana on the basis of this feedback are beneficial for the schools because the material will be better suited to their needs.

- **European and International Associations**: help to reach bigger audiences and create new partnerships. By doing so, they give added value to their memberships.

Many of the other partner organisations that we cooperate with have problems to disseminating their material. Historiana helps them as their material is disseminated and implemented at the same time increasing the amount of content that students and educators can access on Historiana.

Here it is key to provide free access (through the use of Creative Commons Licenses and copyright clearing), to ensure the quality (through piloting, editing and peer-review) and to present the learning resources in a way that they are easy-to-find (through careful curation and subject specific meta-data).

**Policy makers in the field of education and culture**
Policy makers on a national and European level have made policies to support digital learning and are interested in the promotion of good education. The further development of Historiana is relevant for many of the policies of policy makers.

**Technology providers**
Technology providers are stakeholders because the field of education is a major market. High quality digital educational resources are essential to make best use of the new technologies provided by them. Offering free access to these new resources, will also add value to their technologies.

**Educational publishers**

Educational publishers have to adapt to the changes that are taking place. The dominance of the traditional printed resources is decreasing. At the same time making investments in new technologies is often expensive and difficult to earn back.

### 2.5.6    Europeana

EUROCLIO and the Europeana Foundation have intensified their cooperation during the implementation of this project. Joke van der Leeuw-Roord (Founder and Special Advisor of EUROCLIO) is representing EUROCLIO in the Europeana Foundation Board. Europeana and EUROCLIO are working together in the development of a policy recommendation on the use of digitised heritage in Education (one of the priority fields of Europeana) and EUROCLIO has been invited to join the consortium that is applying with Europeana for core funding as part of the Connecting Europe Facility.

The vision is that EUROCLIO and Europeana will continue to work together on promoting the use of digitised heritage in education.

### 2.5.7    Earning Models

From the identified earning models, most elements have already been tried successfully, but some have not been tried yet.

Elements that have been tried:
- **Institutional Support:** EUROCLIO has provided and will continue to provide institutional support to further develop Historiana as learning tool for history in Europe and beyond. This is formalised in the multiple year action plan of EUROCLIO. The institutional support of EUROCLIO means that it will facilitate at least 2 meetings of the Historiana development teams, invest in the further improvement of Historiana services, and will use the International Training Programme to help with the testing and dissemination of Historiana. In addition, acquiring new projects to support the development of Historiana will be a priority for fundraising (see below) and EUROCLIO will devote part of the time of the trainees working at EUROCLIO to Historiana and provide training for them. The reason that EUROCLIO provides the institutional support to the further development of Historiana, is that it provides a unique added value for its members and is a good instrument to help implement its mission.

- **Partnerships with memory institutes:** As part of the Europeana Creative project EUROCLIO established partnerships with several museums and archives. Organisations such as the Imperial War Museum and the UK National Archive have

responded positively on a request to clear copyright for inclusion of selected sources in the Historiana database. One of the international trainings that EUROCLIO has provided has been done in partnership with the Imperial War Museum and the British Library. The biggest challenge is that the clearance of copyright of sources that are not licensed for use in education always requires a complete list (which is difficult to deliver when one is still in the development phase).

- **Partnerships with training institutes**: Several teacher training institutes (including Fontys Tilburg) have expressed interest to work together on the further development of Historiana. Some of the learning activities that have been developed for Historiana now, have been made by trainee teachers. The idea of these partnerships is to create a win-win situation where trainee teachers are introduced to new technologies, get a wider audience for their quality learning activities and help to set the priorities for future developments and improvement to Historiana.

- **Training (additional services)**: Since the start of the Europeana Creative project, the History Education Pilot has been used for international trainings in Bosnia-Herzegovina, Finland, Germany (3x), the Republic of Macedonia, Lebanon, Spain and the United Kingdom (3x). Future trainings are scheduled to take place in Belgium, Denmark, Estonia, Germany, Georgia, Italy, Kosovo, The Netherlands and Spain.

  These training events are used for professional development, but also to get user feedback and to stimulate the use of the developed tools. The more Historiana is being used, the stronger the argument is that inclusion of material on Historiana is good for sustainability and visibility.

- **Grant funding / subsidies**: Since the start of the Europeana Creative project, EUROCLIO has managed to acquire the following projects to search, select and enrich additional sources; to develop, pilot and disseminate new learning activities; and to design, test and improve new tools.

  - Multi-faceted Memory – Learning on-site and online about Nazi and Stalinist concentration and internment camps (supported by the Europe for Citizens Programme).
  - Decisions and Dilemmas – Learning about the EU from a historical perspective (supported by the ErasmusPlus Jean Monnet Programme).
  - Innovating History Education for All (supported by the Erasmus Plus Programme as a Key Action 2 Partnership Project).

As a result of these projects, history education specialists from Belgium, Croatia, Estonia, Germany, Finland, Italy, Latvia, Poland, Slovenia, Spain, the Netherlands, Ukraine, and the United Kingdom are directly involved in the further development and testing of Historiana.

- **Donations / Philanthropic funding**: The development of Historiana has been supported by the Evens Foundation in 2014 (see Future developments, above).

- **Crowdsourcing**: Crowdsourcing is a key element of the enabling environment that makes up the business model for the History Education Pilot. The development and testing is done on a voluntary basis. There is a good potential to develop this further, but to do this effectively, it is important to have a staff member working as community manager as well (which so far, has not been possible, because of the effort needed for the development).

Elements that have not been tried yet:
- **Showcasing applications:** In this case memory institutes, teacher training institutes, educational publishers or association of (history) educators would be offered a space to showcase the exemplar application that they have authored. This could be beneficial as way of stimulating the use of their own collections in education (in the case of memory institutes), to integrate Historiana application more easily in educational programmes (in the case of teacher training institutes) or as a service to customers or members (in the case of educational publisher or associations). One advantage of being able to showcase the applications is that educators can then also copy this exemplar application to their own work space within the Historiana Apps Environment (which means that no action is required from the original maker of the application).
- **Sponsorships:** In the case of a sponsorship the organisation that sponsors the development of a tool will be acknowledged for this in the Historiana Apps Environment when an educator selects this particular tool. This can be done by adding a shape with the logo of the sponsor indicating that "this tool has been supported by". This shape / acknowledgement will not be visible for the students that are invited to make use of the application when they do so.

The institutional support from EUROCLIO, the commitment from the professional community of volunteers, and the financial support from projects, will ensure that the Pilot will be continued. Although the Pilot does not create revenue, it does create value – which is the most important fact for a mission driven organisation. Especially the granting of the "Innovating History Education for All" (in which new tools will be added to the Historiana website) and the inclusion of EUROCLIO as one of the strategic partners in application of Europeana for the Connecting Europe Facility (in which the Search and Selectm tool will be improved) will make it possible to continue the further development of the Pilot in the mid-

term. In the long-term there is the potential for services (including trainings, but also the facility for memory institutes and teacher training institutes to showcase exemplar applications) to take over institutional support and project funding as main revenue streams. This would give the development team more room to set their own priorities for development.

## 2.6 Pilot Evaluation

The final evaluation results of the Pilots will be delivered within WP6 at a later stage. This chapter summarises the core findings so far. During the first year the evaluation focused on the development process based on the adaptation of the agile Scrum development framework in order to improve the communication and workflow. The adapted agile Scrum development framework has shown its functionality after some adjustments in year one.

The main difficulties encountered during the development stages are related to the Europeana Portal and Europeana API search functions and the accessibility of relevant content. Especially the integration of the Europeana API caused several challenges for the developers. In order to improve the impediments the Europeana Foundation announced a content coordinator who improved the situation significantly. By the beginning of the Challenge phase a variety of content sets was available for re-use.

An important evaluation task was the UX testing compiled by WP6, which focused on the front end of the product. The execution of the testing was done in two steps, offline and online. The offline testing was realised in parallel in two physical labs from the Europeana Labs Network. In total 18 participants have been invited to the *Future Classroom Lab[12] (FCL)* in Brussels and the *YOUCOOP CoLaboratory*[13] in Palma. The applied method was an adaptation mixed from the think-aloud protocol (TAP)[14] and world café[15]. The combination of both methods allowed getting a broad feedback on the products. In the beginning the two methods needed certain modifications. The UX testing tasks were realised in working groups with three to four representatives from the educational sector (students, university employees and teacher) which made thinking aloud during the testing not feasible. Instead the participants solved a predefined task with the applications on their own and wrote down their experiences and perceptions on post-its. After everyone has finished the testing the group discussed the experience at the working stations and documented their results on a prepared flipchart paper. The rotation of the participants allowed an enrichment of the feedback provided at each working station. The UX testing focused on six predefined usability indicators (see Table 3). At the end of the development

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[12] See http://fcl.eun.org accessed February 4, 2014.
[13] See http://www.youcoop.org accessed February 4, 2014.
[14] See http://en.wikipedia.org/wiki/Think_aloud_protocol accessed February 17, 2014.
[15] See http://en.wikipedia.org/wiki/The_World_Caf%C3%A9 accessed February 17, 2014.

cycle a second testing was compiled by asking the same participants to test the final prototype online by applying the same principles like in the offline UX testing workshop and indicating their feedback through an online survey.

**Table 3: Usability Indicator**[16]

| Criteria | Explanation |
|---|---|
| ● *Starting screen* | The test person has a positive first impression and is willing to start using the product. It is clearly visible what kind of actions can be initiated. The screen displays the purpose of the application and raises awareness on the value proposition. |
| ● *Accessibility* | The applications pricing is transparent. The test person can easily access the content. The user control and navigation matches the requirements of the application and its hardware. Important fields to fill in are labelled with terms that match the real world. |
| ● *Navigation* | The status within the application is visible and test persons are aware of it. The navigation is consistent and standardised. Test persons can easily recognise how to navigate to a desired destination. Links and buttons are described in a manner that allows test persons to identify the purpose clearly. |
| ● *Design & Layout* | The design follows aesthetic criteria, addresses the target audience and is consistent through the whole application. Relevant content is identifiable and displayed accordingly. |

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[16] See http://www.nngroup.com/articles/ten-usability-heuristics/ and http://userium.com/ accessed October 20, 2013.

| ● *Efficiency* | The application can be used by a broader audience than the target group. Expected objectives can be reached by the application. |
|---|---|
| ● *Help options* | During the use of the application the test person is provided with hints (e.g. error prevention), search and help options. |

The main results for the History Education Pilot addressed user interface issues. For first time visitors without a prior briefing the starting screen would need additional instructions and a clear layout that allows differentiating between the shown learning applications. The navigation and functions within the applications are not self-explaining. Several users have been confused by the icons and colours. The educational purpose could be enhanced by adding options for cooperation.

With regards to the efficiency the testers indicated that this kind of application could work for every subject and offers a lot of opportunities for the use in classroom. The application gives the chance to produce a comprehensive storyline and could be used for other purposes (journalism, photography, biology) to share annotations or opinions on pictures.

EUROCLIO and Webtic will follow up on the results from this evaluation as the Pilot will be maintained further beyond the end of the project. The testing outcomes will be integrated in the WP6 deliverable 'D6.3 – Pilot and Infrastructure Evaluation Report' in month 25 (February 2015).

The Pilot has been tested by an internal and an external reviewer. The internal reviewer was Callum Lee, who is involved as a consortium member of Europeana Creative on behalf of ECBN (the European Creative Business Network). The external reviewer was Pascal Tak, a teacher trainer in history at Fontys Tilburg, who has not been involved as consortium member, but expressed interest in the History Education Pilot and will to cooperate with EUROCLIO on the further development of Historiana beyond the Pilot. Their comments on the History Education Pilot delivery plan are included as Annex to this document.

# 3. Challenge for History Education Theme

## 3.1 Challenge Event

In order to engage creative industries to re-use digitised cultural heritage content, Europeana Creative compiles five thematic Challenges in the field of Natural History Education, History Education, Social Networks, Tourism and Design. In advance of the Challenges the whole project consortium started a holistic marketing campaign comprising press releases, e-mail and social media campaigns, personal contacting of potential target audiences and presentations of the Challenges at relevant events.

The initial Challenge event was addressing the educational themes and started February 12, 2014. Interested participants had the chance to apply through the competition platform www.istart.org maintained by the Kauffman Foundation[17] from Kansas City. For a successful submitting of the proposal the participants had to answer eight categories (see Table 4).

**Table 4: Application Criteria Description**

| Application Criteria | Description |
|---|---|
| Project idea and applied dataset from the Europeana content repository or database | A description of the applicant's project idea, delivery strategy and the proposed Europeana datasets to be used.[18] |

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[17] See http://www.kauffman.org/ accessed February 10, 2014.
[18] Depending on the development stage of the Content Re-use Framework and the available open access and copyright-cleared content in Europeana, the applied database can vary. In online consultancy sessions the applicants can clarify in advance what kind of content is available for the Challenge theme.

| | |
|---|---|
| Vision: innovative character of the project | The description of the vision and innovative character should describe in maximum 75 words the idea of the business planned and point out what differentiates the idea within the chosen marketplace. |
| Market potential | Applicants need to show that they have done research on the targeted market (ideally including a rough competitor analysis) and potential target audience. |
| Economic and financial viability of the project | Sustainability is one core element of the required business plan. The business plan does not have to take a commercial approach (e.g., a free-to-use educational platform would potentially be a viable idea) but it would need to show a "self-feeding" potential. |
| Potential social impact of the project in the community | Applicants shall describe what their business is going to change for the community of customers and how the idea engages people. |
| Feasibility of technical implementation of the project idea | The application must elaborate how the business will be developed, what kinds of resources are already available and how missing ones will be acquired. The technical implementation must be feasible with the resources allocated. |
| Business model | The "Business Model Canvas"[19] will be embedded in the application form. The applicants shall fill in this form to describe their business model in a brief way. |
| Short profile of the applicants | A one-pager which describes the expertise of the applicant in relation to the provided concept. |

The application phase ended on April 14, 2014 and the judging process started. The project deliverable "D5.3 – Challenge Entry Criteria, Selection Process and Prize"[20] describes the application and judging criteria which have been applied for both Challenges. The jury consisting of eight jurors from the project consortium and external experts was shortlisting the five best applications of each theme afterwards.

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[19] See http://www.businessmodelgeneration.com/canvas; accessed December 21, 2013.
[20] See http://pro.europeana.eu/documents/1538974/1601973/eCreative_D5.3_MFG_v1.0 accessed July 28, 2014.

The nominees have been invited to the final Challenge event in The Egg, Brussels on April 29, 2014. There the participants had the chance to pitch their concepts in front of representatives from the creative industries and potential investors. At the end of this event the final winners of the Natural History Education and History Education theme have been announced.

## 3.2 Challenge Results

Overall 23 representatives from the creative industries applied for Challenge themes whereby 21 of the received applications were addressing the History Education theme. Due to the broad field of the History Education and the strong interdependencies between the Pilot themes it was difficult to contain clearly the application purposes. Some of the applications could have addressed the Tourism or Social Networks theme as well. The jury decided to invite the following five applications to Brussels:

**Zeitfenster**

The Zeitfenster app wants to change the way people discover and experience historical sights, events and places by providing mobile access for smartphones and tablets to historical images and make them available as a digital experience on exact location.

**Trimaps**

Trimaps is a web service allowing anyone to quickly deploy custom maps, such as historic site map.
Maps can then be used by any mobile device for geolocation purpose. The vision is to enable every European historic site, or every European city to reuse their historic maps for educational and touristic purposes.

**Glimworm IT BV**

A "second screen" re-enforcing learning experience for teaching history via mobile devices enabled by a mashup of an existing Vistory App; Muse Open Source; Open Images and the Europeana API including the latest interactive features developed for the Inventing Europe App which include a simple CMS that would enable instructors to create interactive multi-media history lessons and tours.

**GEOGAMING EUROPE**

GEOGAMING EUROPE is oriented to perform 3D Interactive augmented reality (AR) environments around European cities by implementing user geolocation inside traditional media in form of a fascinating AR printed book. The objective is to discover enigmas, hints, 3D characters, treasures, and involve children from around the world. The concept consists

of a global e-learning game where cities stories are geo-located and displayed through interactive virtual environments, relating to foundations of urban planning, ICT technologies and storytelling.

**Geo-based App for History Learning**

The goals of this app are to improve learning success and motivation for students. It creates spatio-temporal interrelationships to support historical thinking as well as exemplary learning on local and regional history. Therefore the app works with digitised primary sources from regional historical archives on mobile devices.

Current app functions support individual and group work, competitive games ("geo-based mapping", "tagging", etc.); search in archives; creating and publishing own interactive timelines. A Pilot test is running since February 2014 at Eichendorff-Gymnasium Koblenz (Germany).

Within the Challenge track of History Education the jury finally decided to nominate two winners. Trimaps and Zeitfenster shared the first place in this category.

With regards to the use of the Europeana infrastructure it has to be mentioned that the Europeana Labs and the Content Re-use Framework (CRF) as well as the tools developed within the project all have been in beta stage that could not be integrated in the submitted proposals. Independent from this point none of the applications or prototypes submitted made use of the Europeana API. The reasons for that varied. Some applicants have not been entirely sure what kind of content they wanted to integrate in their product and others required content that could be used offline within their product.

## 3.3 Assessment of Added Value Values for Creative Industries

At the time of writing, the assessment of the Pilot impact could not be finalised because the relevant indicators cannot be applied at this stage. Within the deliverable 'D6.1 – Evaluation Strategy and Framework' the Pilot impact evaluation is basing on 5 different criteria (see Table 5).

**Table 5: Pilot Impact Evaluation Criteria**

| Impact Evaluation Criteria | Description |
|---|---|
| Number of contributors | Target group, take up and depth of involvement. For some of the Pilot themes the contribution by volunteers is mandatory based on the indicated business model (e.g. History Education and Social Networks). |
| Number of uptakes for the Challenges | The uptake of the Pilot concepts for the Challenges is addressing those applications that are building on the initial Pilot concepts / products. |
| User statistics | The user statistics can provide important information about the impact of a Pilot. Such statistics can be:<br>○ Number of downloads<br>○ Number of subscriptions<br>○ In-app purchases<br>○ Number of frequent users |
| Sustainability of the Pilot beyond the project duration | This category is addressing the successful acquisition of funding or further investments besides the SMEs who are developing the products. It should also include an assessment of progress against the business planning targets each Challenge winner is developing as part of their incubation support package. |
| Requests besides CCIs | The number of direct request from CCIs to project partners for cooperation or the development of related products. |

Within the first year of the project Europeana Creative was challenged by certain difficulties which made it hard to provide a functional source code for the Challenge participants, this is why the number of uptakes cannot be measured so far. The same appears for user statistics and the sustainability of the Pilots. Given the fact that none of the Pilot products was released until now the user statistics and requests besides CCIs have to be evaluated at a later stage of the project.

## 4. Conclusion

The History Education Pilot shows that there is a value in the use of digitised heritage in the field of education. The institutional support of EUROCLIO, financial support by donors for projects, and commitment and willingness of professional volunteers helps to sustain and further develop the results of the project. The long-term strategy, innovative nature of the project, and the work with an existing user community has had a positive impact in creating this enabling environment.

The fact that EUROCLIO, as a mission driven not-for-profit association, provides free access to all resources and services has certainly contributed to enabling this environment. Heritage organisations have been willing to give access to part of their collections, educators (including teacher trainers, professors and consultants) have devoted significant time in professional volunteering, and the licensing has been an argument for dissemination and sustainability in the project applications that have been submitted (of which 3 / 4 have been granted).

The cooperation between webdevelopers and educators has proven to be essential for the development of educational resources that are innovative, easy-to-use and meet the needs of educators and students. The need for professional webdevelopers makes the business model costly and not easy to replicate by others. In this project most effort went into the development of the database and core functionalities (such as users registration), not the educational tools. The fact that these investments have already been made makes it easier for EUROCLIO to continue the Pilot.

Now that the database has been improved and most core functionalities have been developed, it will be easier for EUROCLIO to continue its work. The biggest issue for the large-scale use of digitised heritage, however, remains licensing. This is also why the addition of a license that would allow for educational use and the widespread adoption of this license by the content providers, is one of the main recommendations of the policy document that is now being drafted for the European strategy meeting "Europeana for Education and Tourism" that will take place on September 30 –October 1, 2014 in Rome as part of the Italian Presidency of the European Council. This Pilot should help to show what can and will be done with the content by educators, if only they are allowed to do so.

# Annex

## Comments by the Internal Reviewer

The following questions were proposed as guiding questions by Steven Stegers (EUROCLIO) to help with the review process.

*Callum Lee (ECBN), September 25, 2014*

### 1) What do you think of the Pilot as a whole?

In my view, the Pilot demonstrates the value of the right institutions (EUROCLIO and Europeana) in bringing an app to market, especially in the education sector. The importance of a trusted educational partner in the development of the app has clearly been crucial, and therefore the value of cross sector engagement is a pivotal factor.

It also shows that there is significant social impact and value (as an educational tool) in the app and therefore in Europeana's content. This should provide some justification for its economic value in future, as it clearly provides an attractive offer to educators and so should be saleable on some level.

### 2) What do you think of the business model section?

The use of the Business Model Canvas approach clearly identifies the opportunities and challenges for the Pilot as a spin-off, and this has been validated through the work of EUROCLIO.

It also ensures that the work of the Pilot remained focused on the ambitions of the Europeana Creative project as a whole (to "enable and promote greater re-use of cultural heritage resources by creative industries".)

In particular, this process has shown that the strength of the Pilot is in its identification and articulation of the "value proposition". This addresses issues found in other research around the integration of culture into education. For example, it shows that the issue of teachers being very time-poor and without the capacity to test a new classroom tool themselves, can be addressed by the verification and reassurance of the association with the EUROCLIO name.

Kennisland and EBN's analysis of potential revenue sources looks plausible and provides a series of ideas that can be tested out individually in a structured approach, as it has begun. Any revenue secured could be reinvested in Historiana in future.

**3) Would you encourage EUROCLIO to further develop the history education pilot in the future? Please explain.**

The business model for the Pilot gives the "big picture" strategic analysis and shows the potential options for spinning the Pilot off effectively. To develop this, EUROCLIO could think about developing a fuller business plan to show what revenue is needed to develop it, and set targets for how this might be reached. With this structure, in place (based on the work of Kennisland and EBN) then a sustainable model might be found that can help to contribute to the upkeep and inclusion of content on the app, even if its social value provides a justification for keeping it free.

**4) Do you have any other comments, remarks, suggestions? If so, what are they?**

This is a well written and clearly thought out account of a Pilot that was, we know, at times challenging. It shows the progress that was made on the Pilot and the lessons learnt, as well as providing a valuable way forward to ensure Historiana continues.

## Comments by the External Reviewer

*Pascal Tak, September 24, 2014*

**1)  What do you think of the Pilot as a whole?**

The Pilot is a good initiative, because it addresses several key problems that teachers who develop their own educational material encounter:

1) How to get (relevant and primary) historical sources for use in class learning activities.
2) How to apply available (re)sources in their lessons.

Both matters are (partially) solved in the Pilot, because Historiana provides 'ready-to-use' sources and educational material, as well as digital tools (two at the moment) for development of learning activities.

**2)  What do you think of the learning section?**

The learning section of the Pilot has laid the groundwork for further development. The next step in the process would be, in my opinion, expansion of the available (re)sources (either visual or written sources), as they provide the 'building blocks' for learning activities. The following step would be to provide more (examples of) learning activities that promote historical thinking (skills) and multiperspectivitiy. These learning activities should be ready-to-use and at the same time inspire teachers to further develop their own activities. The criteria for the development of material for Historiana are a welcome tool (which could even be seen as a sort of checklist) for teachers who would like to take on the role of developer (for their own lessons or, maybe eventually, for Historiana).

**3)  Do you think the Analysis App is useful in education(al) practice? Why do you think that?**

As a didact I think the Analysis App is a very useful instrument for the analysis of visual sources. It is basically a digital version of the 'roster' method, which is used for screening visual sources in an analogue way by using a transparent layover with a roster to part the image in several sectors, which can be used to make a more detailed analysis of the source.

The Analysis App has the added value of providing the opportunity to add text to certain aspects of the visual source (something that could be done in the original analogue 'roster' method). Especially the fact that pupils can add text to the sources makes the app useful as an educational means (for training the historical thinking skill of using sources).

**4) How informative is the text describing the process in which the History Education Pilot has been made?**

The text is rather expansive in its approach, detailing the entire developmental process. Certain parts are, in my opinion, of little interest to 'the layman', especially the technical aspects. On the other hand: the text is aimed at a wider and more varied public, so there is something in it for everyone (teachers, IT experts, sponsors etc.).

As far providing 'need to know' information for users of either the sources on the Historiana website or the apps, I have my doubts. I think most materials are usable without knowledge of the entire process.

**5) Would you encourage EUROCLIO to further develop the history education pilot in the future? Please explain.**

In short: yes. As said the Pilot has provided a foundation for a database of ready and free to use (digital) sources for the creation of educational materials, as well as tools for the development of said materials and some examples of digital and printable, ready-to-use materials.

The concept and the user friendliness make the Pilot something to expand upon in the (near) future.

**6) Do you have any other comments, remarks, suggestions? If so, what are they?**

In my opinion it is essential to increase the development speed and provide a solid amount of content (sources, apps and ready-to-use educational materials) to stimulate the use of Historiana. As said in the document: the success depends on the intensity in which Historiana is used. By increasing the amount of available material a snowball-effect could be generated, in which the use increases and users provide new (digital) materials for other uses. This seems to be in line with the business model that is opted for in the document.

Another aspect is the promotion of Historiana as a platform for educational material. It would be interesting to get a general idea of how well known Historiana is 'in the field'. Based on that strategies could be developed to get Historiana more 'into view', so more (potential) users find their way to the website and materials.