Deliverable 3.1
Personas, scenarios and use cases

Revision 0.1

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<th>Revision</th>
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<th>Organisation</th>
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<tr>
<td>0.1</td>
<td>17 July</td>
<td>Erik Duval</td>
<td>KU Leuven</td>
<td>First integration of working documents</td>
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<tr>
<td>0.2</td>
<td>19 July</td>
<td>H. vd Berg</td>
<td>VU</td>
<td>Adding background, rewriting, editing</td>
</tr>
<tr>
<td>0.3</td>
<td>20 July</td>
<td>Erik Duval</td>
<td>KU Leuven</td>
<td>Editing, adding context, adding section on next phase, restructuring appendix.</td>
</tr>
<tr>
<td>0.4</td>
<td>21 July</td>
<td>H. vd Berg</td>
<td>VU</td>
<td>Minor comments, additions.</td>
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<tr>
<td>0.5</td>
<td>22 July</td>
<td>N. Manouselis, G. Stoitsis</td>
<td>ARIADNE</td>
<td>Added context and section on process, restructured appendix, reformatted text</td>
</tr>
<tr>
<td>0.6</td>
<td>22 July</td>
<td>G. Parra</td>
<td>KU Leuven</td>
<td>Minor edits on scenarios 3.5 and 3.6.</td>
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<tr>
<td>0.7</td>
<td>22-7</td>
<td>H. vd Berg</td>
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<td>Substantial change to scenario “Arianna, Hein, the ARIADNE Finder and Pundit”; suggestions to rewrite certain portions of section 5 (in comments); general comments and minor edits.</td>
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<tr>
<td>0.8</td>
<td>22 July</td>
<td>G. Parra</td>
<td>KU Leuven</td>
<td>Final draft for internal review.</td>
</tr>
<tr>
<td>0.9</td>
<td>27 July</td>
<td>H. vd Berg</td>
<td>VU</td>
<td>Rewritten scenarios 3.9 and 3.10.</td>
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<tr>
<td>1.0</td>
<td>28 July</td>
<td>G. Parra</td>
<td>KU Leuven</td>
<td>Editing and rewriting of content based on the external reviewers suggestions.</td>
</tr>
<tr>
<td>1.2</td>
<td>29 July</td>
<td>G. Parra</td>
<td>KU Leuven</td>
<td>Final version.</td>
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Executive Summary
This document describes the personas, scenarios and use cases that WP3 has focused on in the first six months (M1-M6) of eCloud. This work has been undertaken in collaboration with the DM2E project (and more specifically the Wittgenstein archives at the University of Bergen) and with the Axiom philosophy group at the VU University Amsterdam. Through the personas and scenarios, we have identified a set of core problems and classes of tools and services that can address these problems for our target community of Humanities researchers that work with Europeana content.
In the next phase of WP3, we will now configure, integrate and evaluate specific tools from the classes identified so far. In this deliverable, an appendix lists the current candidate tools for this next phase.
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1 Background and Context

The objectives of WP3 include (p.13 of 38 in the Description of Work):

- Development of services and tools that leverage Europeana content for use by researchers.
- Follow an iterative design process to identify typical personas and scenarios of thematic use of content that the Europeana Cloud tools and services as well as the Europeana Research Platform would be expected to support.

In order to reach these objectives, task 3.1 focuses on Personas, Scenarios and Use Cases:
In close alignment with the tasks in WP1 on user needs and existing tools, KU Leuven will lead on developing personas (descriptions of typical researchers that we address with this project), scenarios and use cases that describe in detail what kind of tool a researcher would typically use, and how that use would fit in his typical workflow. This will result in Deliverable 3.1 [M6, M18, M30]

This document is v.1 of deliverable 3.1, due in M6. It will be updated to reflect progress in our thinking as the project evolves, in M18 and again in M30. The basic idea is that we report here on personas and scenarios that we have developed in order to elaborate and consolidate our thinking on tools and services that leverage Europeana content for researchers.

A really nice, but rather lengthy, introduction to the use of personas and scenarios for this kind of purpose can be found in:


From that source:

Common understanding is that the persona is a description of a fictitious person […] In the design process, we begin to imagine how the product is to work and look before any sketch is made or any features described. If the design team members have a number of persona descriptions in front of them while designing, the personas will help them maintain the perspective of the users. The moment the designers begin to imagine how a possible product is to be used by a persona, ideas will emerge. Thus, I maintain that the actual purpose of the method is not the persona descriptions, but the ability to imagine the product.

A shorter introduction, with some examples, is:

The gist of the idea behind personas and scenarios is that they help us to focus on the intended user of the tools and services, rather than on the technical challenges of how to develop those tools and services. Thus, the likelihood that we develop tools and services that are actually useful for and usable by the target user increases.

The main aim of WP3 is to develop tools and services that allow researchers to make optimal use of Europeana content. For this initial phase of work, we focus on developing tools that benefit researchers in the humanities. To this purpose, we have worked more closely with two concrete communities of researchers interested in using Europeana content:

- The DM2E project ([http://dm2e.eu](http://dm2e.eu)) is also looking at “new tools and services for the re-use of Europeana data in the Digital Humanities”. Of particular interest for us is the Pundit ([http://www.thepund.it](http://www.thepund.it)), a ‘semantic annotation tool’ that enables the sharing of annotations between researchers. We have discussed (online and face-to-face) collaboration with this project and will focus in a first phase on a small community of researchers that focus on the Wittgenstein Archives at the University of Bergen – see [http://wab.uib.no/wab_nachlass.page/](http://wab.uib.no/wab_nachlass.page/).

- The Axiom group of history and philosophy of logic, semantics and axiomatics ([http://axiom.vu.nl/](http://axiom.vu.nl/)) at the VU University of Amsterdam studies the ‘Semantics and Axiomatics from Bolzano to Tarski against the Background of the Classical Model of Science’. Also with this group, represented directly in eCloud through the participation of Stichting VU-VUMC, we have interacted both online and face-to-face.

On the basis of this early interaction with the DM2E and Axiom Group, we have identified three core problems that many of these researchers face: 
(i) problems with navigating and identifying relevant (digital) content and with building corpora; 
(ii) a lack of user-friendly computational tools for conducting fine-grained textual research; 
(iii) a lack of appropriate tools and infrastructure that allow members of research groups to work collaboratively rather than individually.

In our work so far, we have identified
(i) search tools to find relevant content, and
(ii) visualization tools (geographical maps, timelines) that assist in overcoming problems (i).
(iii) annotation tools (see below), incorporating information extraction methods and Linked Data techniques, that help solve given problems (ii),
(iv) and social awareness and discovery tools (see below) that help tackle (iii).

These tools will be further developed, linked to each other, and linked to Europeana content in the next phase of our work. As such, WP3 will provide researchers in the Humanities with tools that assist them with various aspects of their work, ranging from the identification of...
textual resources to the analysis of these resources, and that allow them to fruitfully exploit content provided through Europeana. An appendix lists the current candidate tools for this next phase.
2 Structure of the document

In the next section, we list the personas and scenarios that we have developed in dialogue with our target user community of humanities researchers. Personas and scenarios below are listed in no particular order and there is quite a bit of overlap in the scenarios: this is useful, as it helped us to identify the common issues mentioned in the previous section. Those common issues inform the next phase of WP3: the configuration, integration, and evaluation of specific tools. Tools that will be used in the next phase on WP3 are presented in Section 4, while in Section 5 we further analyse the process to follow in order to develop and adapt tools based on the scenarios presented in Section 3. Section 6 concludes this document and the appendix lists the candidate tools analysed in this phase.
3 Personas and Scenarios

3.1 Anita and Muse

Persona
Anita is a post-doctoral researcher on Technology-Enhanced Learning in a computer science department of a European university. She is collaborating with colleagues from different European research units, in a Framework 7 EU project. She regularly travels to project meetings, workshops, and conferences throughout the EU. Anita is pretty tech savvy and works in a department that is well equipped with smartphones, laptops, large screens, and even a few multitouch tabletops.

Scenario
Anita is assisting her supervisor with the preparation of a new EU proposal. There are some partners that her team regularly collaborates with and they decide to invite three of those partners to join the proposal preparation. They then turn to the multitouch table and use Muse to explore whom else they have worked with, and, more importantly, whom their colleagues have worked with before. Together with her supervisor, she thus discovers a team that focuses on Computer-Supported Collaborative Learning (CSCL) in Norway. Anita remembers that she met one of members of that team earlier in the year. Through the visualisation, Anita and her supervisor discover that the Norwegian team has a close collaboration with the team in Lausanne that they had already invited for the new project. They thus decide to ask the Lausanne team about the Norwegian partners first. Moreover, her supervisor will travel to Madrid next week for a conference. With the tabletop visualization, they remember that they had previously worked with two research units in Madrid: Anita’s supervisor sends an email to both of them to set up a meeting to discuss the new project proposal.

3.2 Anna and Annotateit

Persona
Anna is a research associate at the department of philosophy in Cambridge, UK. She is preparing a thesis on Shakespeare's eighteenth-century reception in England and France. She is interested to explore and apply ICT-based methods and tools to enable new research questions and is eager to exchange knowledge, expertise, methodologies, and practices across domains and disciplines. She is an active member of the Open Humanities Working Group of the Open Knowledge Foundation that meets online weekly to discuss Shakespeare’s work and to explore new ICT-based research practices and tools for the digital humanities.

Scenario
For an essay on Shakespeare’s thoughts on urbanism and the city Anna needs to scan a lot of documents against the topics of interest for her essay and is therefore also interested in the thoughts of like-minded colleagues. She and her colleagues have used the Annotateit tool to share annotations on online documents before, and she now invites her colleagues to help her
scan through a series of relevant texts for the topics of interest for her essay and share their annotations, comments and tags with her.

3.3 Paul and Pundit

Persona
Paul is a post-doctoral researcher on philosophy at the Wittgenstein Archives at the University of Bergen (WAB) in Norway. The focus of his research is on the linguistic aspects of Wittgenstein's work. WAB has published 5,000 pages of the Wittgenstein Nachlass Open Access on the Web and developed a Wittgenstein domain ontology for these texts. WAB is part of a Framework 7 EU research project, called Digital Manuscripts to Europeana (DM2E), where Paul is involved in testing new technologies for collaborative work with semantic annotations online.

Scenario
Reading Wittgenstein’s work using Pundit allows Paul not only to annotate the texts, but also to look up various concepts and persons occurring in the texts. Pundit allows Paul to add and share simple comments as well as semantic links to the Web of Data (as Freebase or DBpedia) for fine granular cross-references and citations using the WAB’s Wittgenstein domain ontologies. Its named-entity recognition features allow for disambigual linking of real world entities mentioned in texts to their entries in Linked Data sets and thus deriving more information on this entity as well as the possibility to further traverse the Web for more fine-grained information. Furthermore the annotations help finding other relevant texts on a specific topic or concept in Wittgenstein’s work.

3.4 Pam and GlaMMap

Persona
Pam is a 25 years old PhD-student at the department of philosophy at the University of Utrecht, the Netherlands. She has received her Master’s degree at the University of Groningen, where she has written a thesis on Kant’s use of the concept ‘transcendental logic’ in the second edition of the Kritik der reinen Vernunft (1787). Pam has enjoyed a classical training in the history of philosophy, which means that she has learned to provide highly detailed analyses of a very small number of texts. At Utrecht, Pam is a member of an NWO Vidi-project in which she is supposed to investigate how the concept of ‘logic’ is used within German philosophy books published around 1800.

Pam is ambitious, hard working, and desperately wishes to write a good dissertation. Like many of her colleagues at the philosophy department, she is an avid user of technology. She is a member of various social media sites, she owns a smartphone and a laptop and she is constantly online. Pam is eager to use and explore ICT-based methods to push further her
research and has recently developed an interest in digital humanities. Nevertheless, her knowledge of ICT-based methods and tools is quite limited. When conducting her research, Pam mostly uses Google Books and Google Scholar.

**Scenario**

Having just started research for her dissertation, Pam is overwhelmed by the number and complexity of the philosophical and scientific texts that she needs to read and understand. Although her knowledge of the works of Kant is adequate, she lacks an overview of the works on logic published around 1800 that are relevant for her research. In order to identify publications that are important for her research, Pam uses GlaMMap. Using this tool, she obtains an interactive geo-spatial visualization of bibliographic metadata of logic books published in Europe between 1795 and 1805. She uses the tool to identify and order various (types of) books that she needs to study for her dissertation. She identifies publications on ‘transcendental logic’ that have been published in Jena and Leipzig, she identifies traditional books on term logic published in Halle, and she identifies works on psychology, anthropology, and logic published in Heidelberg. Through exploring the visualization, Pam is also able to quickly distinguish between the relatively small number of books published by famous philosophers in this period, and the relatively large number of textbooks and lecture scripts concerning logic. Since these latter books are easier to read and have also been little studied, Pam decides to start her research by focusing on these books.

### 3.5 John and TiNYARM

**Persona**

John is a PhD candidate in the doctoral school of human sciences at the Vrije Universiteit Brussel. After finishing his master in arts, he just started to work pursuing a PhD degree in philosophy and history of education. During his master thesis work, he got familiar with tools used by researchers, such as: references managers (Mendeley and BibTeX) and digital libraries.

**Scenario**

John has a clear idea of his dissertation topic and started with the literature review about the subject. As he is new in the research community and he doesn’t know which colleagues from other European universities may be working on the same topic. Colleagues from his research team suggested him to use TiNYARM. His research group employs this tool to share publications read by them, to know what other research groups are reading, and his advisor uses it to suggest articles to his PhD students. As soon as he joined the tool, John saw a recent suggestion from Anna (a researcher from Germany) to one of his colleagues; this article was quite interesting for his research. He also opened the TiNYARM profile page of his advisor and skimmed the different papers his promoter read over the past months. John found some articles that were relevant for his research. Looking at his group activity, John got an idea of what everybody is interested in, based on the different papers they read or skimmed.
3.6 John and More!

**Persona**

John is a PhD candidate in the doctoral school of human sciences in the Vrije Universiteit Brussel. He is doing a PhD in philosophy and history of education. During his master thesis work and his first year in his PhD, he got familiar with tools used by researchers, such as: references managers (Mendeley and Bibtex), digital libraries, SlideShare, and academic social networks (LinkedIn, Academia.edu, and ResearchGate).

**Scenario**

After his first PhD year, John and his advisor get a paper accepted in an international conference. This will be his first time attending a conference. On the first day, John gets the conference programme and tries to figure out which sessions to attend. While creating the list of sessions, he notices that a QR code is available in the conference programme. Using his smartphone, John scans this code and is redirected to the More! mobile web application showing different links to social networks that the presenter is actively participating in. After seeing the presenter profile and checking his publications and recent tweets, John gets a good idea of what the presenter worked on before and which are his current research interests. John decides to meet the presenter later and sends him a mail using More!. After using this application for a few presentations, he is a bit frustrated with some of the other sessions that do not provide a More! profile of the presenter and that he actually has to ‘google’ them for some minutes in order to obtain the same information as he gets from More!.

3.7 Hein and ARIADNE Finder + Textus

**Persona**

Hein is a post-doctoral researcher working on the history of philosophy, the history of biology and their interplay. In particular, he is interested in 18th century philosophical ideals of science and their influence on 18th century life sciences. His research has been recently focused on debates in philosophy of history and historiography, where he investigates and needs access to philosophical document and digital media corpora and their visualisations.

**Scenario for ARIADNE Finder**

Hein participates in a group of post-doctoral researchers and academics interested into the history and philosophy of logic, semantics, and axiomatics. This group explores the concept of semantics and axiomatics in the history of philosophy, exploring ideas coming from philosophers like Bolzano and Tarski against classical models of science. Hein has already been using some interesting visualisation tools for relevant document and literature corpora that are working over a bibliographic metadata aggregator/network that his group has set up. He would like to enhance the web site of this group with a search interface that will allow the group to discover and navigate relevant digital resources that are coming from other large
aggregators, such as: material on the history of philosophy collected by the Europeana aggregator (http://www.europeana.eu), relevant literature that has been indexed and aggregated from various European national libraries through The European Library (http://www.theeuropeanlibrary.org), as well as presentations, notes, slides, and other relevant educational resources that come from a global network of educational repositories called GLOBE (http://globe-info.org).

Hein would use the ARIADNE Finder technology to carry out the following steps:

- Define the metadata facets that his group would like to use in order to search and browse through the various digital resources on the history of philosophy, and define the desired properties of a local metadata index that will collect periodically relevant material that can be found in the various aggregators.
- Design the information architecture of the content search pages using a simple pre-existing template that will allow him to integrate the search functionalities into the look and feel of the group’s web site.
- Run the tool that will set up and create the local metadata index (also with a mechanism for periodic re-harvesting/ingestion and re-indexing from the various aggregators) running over a cloud-hosted virtual machine through a simple web-based interface. The tool will also allow him to select which thematic keywords or specific collections he would like to include when retrieving descriptions of content from the three external aggregators.
- Get as an outcome of the tool a simple HTML code that he can easily embed into his group’s web site in order to get the new ARIADNE-powered search pages easily set up and running with no further technical effort.

Scenario for Textus

Hein would like to incorporate in the web site of the group a functionality that would allow the post-doctoral researchers to select digital documents discovered through the ARIADNE Finder and to carry out further discussions and analyses using Web-based open annotation features - in a similar way that the OpenPhilosophy.org group (http://beta.openphilosophy.org) is working with public domain philosophy texts. For this purpose he incorporates the Textus tool into the web site in a way that allows the group to:

- Select/bookmark some interesting digital resource coming from one of the aggregators like Europeana or The European Library and add it to a shared common space.
- If its license scheme allows it, saving a local copy of the digital resource and opening it in the Textus viewer.
- Providing annotations on various parts within the text under analysis and saving them into the shared space together with the digital resource.
- Generate as a separate new document all the produced annotations in a digital format, including a reference to the original document into its metadata description - saving it in the group’s shared document repository.
- Enhance the metadata record ingested from an external source with the generated annotations of the group and saving the new version of the record into the group’s shared document repository (either as a new, enriched version of the original authority record or as a new metadata record that stores only annotations and other user actions using some scheme like CAM).

3.8 Pam and Textus

**Persona**

Pam is a 29 year old postdoc working at the department of history and philosophy of science at the University of Cambridge (UK). She has a Master’s degree in Computer Science and in Philosophy, both obtained at the University of Edinburgh (Scotland). In her doctoral dissertation Pam studied the philosophy of mathematics of the eighteenth-century mathematician Leonard Euler. At Cambridge, Pam is part of an ERC-Starting Grant Project that aims to provide a comprehensive overview of the history of 18th and 19th century philosophy of mathematics. For her research, it is essential that Pam collaborates intensively with philosophers, historians, and mathematicians from different European research units. She and her partners require easy access to historical documents and wish to collaboratively study such documents. Apart from doing her research, Pam also teaches an annual course on the history of mathematics at Cambridge.

Pam knows a lot about existing ICT tools and methods that can help with her research. Thanks to her efforts, her research group and various European partners use project management software (Basecamp) to coordinate projects, they use reference managers (Mendeley) to create shared bibliographies, and they compile large databases using digital resources obtained via Europeana, Google Books, archive.org, and other online repositories.

**Scenario**

Pam and one of her colleagues working at the University of Duisburg-Essen (Germany) decide to write a joint paper on the reception of Euler’s mathematical works at the end of the 18th century, focusing in particular on the work of Immanuel Kant. They decide to use TEXTUS in order to share, study, and collaboratively annotate historical documents that are relevant for their paper. Through their contacts at Duisburg-Essen, they obtain plain-text files of Kant’s published writings ([http://www.korpora.org/kant/](http://www.korpora.org/kant/)). After uploading these writings, they use TEXTUS to identify, annotate and discuss passages within the Kantian corpus that concern mathematical topics. Through sharing their annotations with other project partners and interested researchers, they further obtain valuable information and references that help them in writing their paper.

Apart from using TEXTUS for research purposes, Pam also uses the tool while teaching her undergraduate course. Students following her course are supposed to study historical texts by collaboratively commenting on these texts. They also have to correct and grade each others
annotations. Pam notices that by working in this manner her students find it easier to read and understand scientific and philosophical texts.

3.9 Jeroen, ARIADNE Finder, GlaMMap, Pundit

*Persona*
Jeroen is a 25 years old PhD student at the department of philosophy at the Vrije Universiteit Amsterdam. He has Master’s degrees in philosophy and intellectual history, both obtained at the University of Groningen. In Amsterdam, Jeroen is a member of an NWO VICI Project that aims to rewrite the history of eighteenth-century philosophy of biology. Jeroen and his colleagues need to identify many unknown historical documents and they wish to collaboratively study such documents. The members of Jeroen’s research group are pretty tech savvy. They use Whatsapp to communicate, they use Document management & Intranet software (Papyrs) to coordinate projects and write papers, they use reference managers (Zotero) to create shared bibliographies, and they compile large databases using digital resources obtained via Europeana, Google Books, archive.org and other online repositories. Jeroen is keen to use ICT tools while conducting his research and he hopes that they enable him to work in a more efficient manner.

*Scenarios*

**Compiling and organizing primary sources (step 1)**
Jeroen and several other PhD students have to write a paper on methodological debates within eighteenth-century natural history. In order to write this paper, they need to compile a database of relevant primary sources i.e., books on natural history published in the eighteenth-century. When compiling his database of primary sources, Jeroen uses the ARIADNE Finder, a search interface that allows him to discover and navigate digital resources that have been collected by the Europeana aggregator, The European Library, digital resources compiled by Google Books, and resources contained within other repositories. For his paper, Jeroen decides to search for the term “Natural History” from 1700-1800 within the European Library. He obtains over 9000 metadata records of books on natural history published in the eighteenth-century. Using the ARIADNE Finder, Jeroen exports these records to Zotero and compiles a large database of primary sources.

**Navigating the primary sources (step 2)**
It is difficult to navigate 9000 works. After having obtained his 9000 metadata records, Jeroen downloads these records and feeds them to GlaMMap in order to obtain an interactive geospatial visualization of these bibliographic metadata. He uses the tool to navigate the metadata and he orders books on the basis of time and place of publication. By doing this he can identify various (types of) books that he needs to study for his paper. After ordering his books, he decides to write a paper on the species concepts of Linnaeus and Buffon.
Identifying secondary sources (step 3)
Having identified his primary sources, Jeroen needs to identify relevant secondary sources, i.e., works on the history of biology published in the twentieth-century. He again uses the ARIADNE Finder in order to aggregate metadata of contemporary (20th century) books discussing Buffon and Linneaus. He collects metadata from the Europeana aggregator, the European Library, Pubmed, Worldcat, Google Scholar, and other possible sources. He selects all the relevant literature and exports his selections to Zotero. He has now created his database of secondary sources.

Navigating the secondary sources (step 4)
Having obtained metadata records of his secondary sources, Jeroen visualizes these records using GlaMMap (the procedure is identical to step 2). He obtains an interactive geo-spatial visualization of his bibliographic data. He now has two visualizations: one of his primary sources and of his secondary sources. Jeroen is able to compare both visualizations and is able to find several interesting relations between them.

Studying the relevant literature (step 5)
After identifying the specific literature that is to be studied, Jeroen and his colleagues decide to use Pundit to collaboratively study a number of selected texts. They obtain texts of Buffon and Linneaus and semantically annotate them by relating sections of these documents to Linked Data resources such as DBpedia and Wikidata. They use named-entity recognition in order to identify names and concepts occurring in the text, and link these items to important online resources. Thus, for example, fragments of Buffon’s Natural History are related to relevant Wikipedia articles, to more technical articles on the history of biology in the Stanford Encyclopedia of Philosophy (e.g., evolution – see http://plato.stanford.edu/entries/evolution/), and other educational resources (e.g., history of biology – see http://www.ucmp.berkeley.edu/help/topic/history.html). In this manner, Jeroen and his colleagues can easily navigate and study numerous quite technical texts.

3.10 Arianna, Hein, the ARIADNE Finder and Pundit

Persona
Hein is a post-doctoral researcher working on the history of philosophy, the history of biology and their interplay. He is interested in 18th century philosophical ideals of science and their influence on the 18th century life sciences. Arianna is professor of philosophy of language and conducts research on the history of logic, metaphysics and digital humanities. Arianna and Hein are members of a research team investigating the history of logic and science. Both use a variety of digital tools to enhance their research, such as reference managers (Zotero), WhatsApp, and various other tools.

Scenario
Arianna and Hein have, for research purposes, scraped over 7,000 bibliographic records from Wilhelm Risse’s Bibliographica Logica (http://www.olms.de/). As a result, they have obtained bibliographic metadata of over 7,000 books concerning logic published between 1700 and 1940. Both are currently attempting to obtain a comparable database of logic books by aggregating metadata from Worldcat, Europeana, The European library, and other repositories.

Arianna and Hein wish to write a paper on logic books that have been little studied by researchers on the history of logic. In order to write this paper, they need to compare the historical data from Risse (or similar data obtained via other large aggregators) to bibliographic data and references contained in philosophy repositories (e.g., Philpapers – see http://philpapers.org/), entries on history of logic published within Wikipedia, entries in the Stanford Encyclopedia of Philosophy (http://plato.stanford.edu/), the Internet encyclopedia of Philosophy (http://www.iep.utm.edu/), and possibly results provided by Google Scholar and Worldcat. Arianna and Hein use the ARIADNE Finder to obtain bibliographic metadata of thousands of logic books published from the 18th to the 20th data. Using Pundit, they link this data (e.g., name of author) to resources found within Wikipedia, the Stanford Encyclopedia of Philosophy, the Internet Encyclopedia of Philosophy, Wikidata and other Linked Open Data sets. In this manner, they are able to reconstruct which logic books are often mentioned in popular resources and which logic books are rarely mentioned. This allows them to give a reasoned estimate on which logic books have been little studied by contemporary researchers.

3.11 John and Researchr

**Persona**

John is a PhD candidate in the doctoral school of Human Sciences at the Vrije Universiteit Brussel. After finishing his master in arts, he just started to work pursuing a PhD degree in philosophy and history of education. During his master thesis work, he got familiar with tools used by researchers, such as: references managers (Mendeley and Bibtex) and digital libraries.

**Scenario**

John has to start doing his literature review about the subject. He has downloaded a lot of PDFs (usually with generic or unidentifiable names) and started to take notes using different software and on papers. After realizing the challenges of organizing these, he got really interested in how to improve the management all the PDFs, citation metadata, clippings, notes, and ideas. He started to use Researchr, which was an aggregation of different tools such as: BibDesk (to manage citations), Skim, (to make comments and highlight text), DokuWiki (to manage notes), and scripts; and use it as his personal open publications management system. John uses the uses different scripts of Researchr (via keyboard shortcuts) to: import citations from the browser directly to BibDesk; or send notes, highlights, and images from Skim to DokuWiki.
4 Next: Four classes of tools
As mentioned in section 1, we have identified three core problems for the researchers that constitute our target audience:
1. finding relevant content;
2. navigating the content to explore and research it;
3. sharing annotations about the content and being aware of what colleagues and peers are doing.

In the next phase of our work, we will address these problems through a combination of the following tools (a more technical explanation of these tools is present in the Appendix):
1. Search tools to find relevant content: a specifically configured version of the ARIADNE Finder is one candidate that we have started to experiment with – see illustration below. The Finder lets users search content and browse the results of different repositories, hiding protocols and standards from them.

![Figure 1: The ARIADNE Finder](image)

2. Visualization tools (geographical maps, timelines) that assist in exploring the search results. For this purpose, we have experimented with geo-spatial visualizations, such as Muse and GlaMMap; which present co-authorship on a multitouch tabletop and bibliographic metadata from books in logic from 1700-1940 on an interactive map, respectively. Also, we experimented with a timeline visualization of a term or word. Early experimentation screenshots are shown below.
Europeana Cloud is co-funded by the European Union CIP-ICT Policy Support Programme
http://pro.europeana.eu/web/europeana-cloud
3. Annotation tools, incorporating information extraction methods and Linked Data techniques, in order to help researchers to share detailed comments and annotations. We have experimented with AnnotateIt and Pundit, which are web applications that allow users to easily annotate web content. As an extra feature, Pundit also allows the creation of semantically structured data that will enrich the Web of Data. Finally, we also evaluated TEXTUS, a web platform that allows the creation of shared and collaborative annotations between researchers. Again, we include some screenshots of our early experimentation in this area.
Annotator

The Annotator Demo

Annotator is a Javascript shim that you can insert into any page, allowing you to select and annotate text, images, or (almost) anything else.

How do I use it? We think you'll get the hang of it pretty quickly. It's running right now on this page — try it out by selecting some text and clicking on the note icon. Enter a note and press ‘enter’; you should see your annotation as a highlighted piece of text. Hover over the highlight with your mouse to view, edit and delete the annotation.

What happens to my annotations? The annotations on this page are being sent to AnnotateIt, an online web service for storing annotations. However it's simple to set up your own store. Check out the Storage and Annotation Format wiki pages for more details.

Figure 5: AnnotateIt: the Javascript annotator

dante alighieri

Durante degli Alighieri (US: /ˈdoʊ nɪtər/; UK: /ˈdɛntɪə/; 1265-1321), commonly known as Dante, was a major Italian poet of the Middle Ages. His Divine Comedy, originally called Commedia and later called Divina by Boccaccio, is considered the greatest literary work composed in the Italian language and a masterpiece of world literature.

Figure 6: Pundit
4. Social awareness tools: enable researchers to be more aware of the research activities of their colleagues and peers – see below for an early experimentation screenshot with the use of activity streams listing the behaviour of users.
In the next phase of our work, these tools will be further adapted, linked to each other, and to the Europeana content via the eCloud API. As such, WP3 will provide researchers in the Humanities with tools that assist them with various aspects of their work, ranging from the identification of textual resources to the analysis of these resources, and that allow them to fruitfully exploit content provided through Europeana.

A generic workflow for these tools could be the following: a Humanities researcher wants to find more about ‘Bolzano and Tarski’ and uses the ARIADNE Finder to get content to be studied. After that, he tries to visualize them on a timeline or using an interactive map (or other visualization tools) to further filter the content and get a better overview of the different resources found on Europeana. After selecting the most interesting resources, these could be annotated using Pundit (or other). Finally, all the different actions made during this process (search, visualize, explore, annotate, download) are captured and presented via the Activity Streams tools.
5 From Personas to Tools

The main objective of this deliverable is to identify the personas, analyze the scenarios, and present specific use cases for the tools that will be developed or adapted in the context of WP3. To achieve this goal, a specific process is followed in order to connect the work described in this document with the development and adaptation of the tools. This process, also called user-centered design, which involves the continuous communication and collaboration of both, developers and researchers from the humanities.

The first two steps in this process are described in the previous section. These steps involve the workflow identification of (specific) researchers in the humanities and the preparation of scenarios where the different tools can be used. After writing the scenarios, a process is followed in which, on the one hand, developers continuously update the scenarios, create mock-ups and use cases for the modelled tool, while, on the other hand; researchers continuously provide feedback on their needs and requirements. This continuous communication between the two groups is needed in order to cover the needs of the researchers and final users of the tool. The final steps are the development of a pilot and a demo of the tool. A schematic representation of this process is shown in the figure below.

To further analyse this process we will describe the work that is currently being done for the development of an ARIADNE Finder for the Axiom group of the VU University Amsterdam.
This work is based on the scenario “Hein and the ARIADNE Finder” presented in the previous section.

The first step in our process is persona identification. In our case Hein, a member of the Axiom Group, is a post-doctoral researcher working on the history of philosophy, the history of biology and their interplay. After analysing the profile of the persona, we proceed with a generic analysis of a scenario for the tool to be developed: Hein could use the ARIADNE Finder technology to embed a search tool in the site of his research group to quickly search and browse through the various digital resources on the history of philosophy and biology. After the creation of the first generic scenario, feedback from Hein (as the Axiom group representative) was requested to better understand his needs and requirements.

Based on the persona and the described scenario, the following step is the creation of the first use case scenario. In our case, the following use case description was developed.

<table>
<thead>
<tr>
<th>Use Case Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Axiom Group – ARIADNE Finder</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>The finder helps researchers in history and philosophy of science to find material that they can use in their research.</td>
</tr>
<tr>
<td><strong>Legal foundation(s)</strong></td>
<td>The copyright license of the content should be respected during the aggregation of metadata and the use of material.</td>
</tr>
<tr>
<td><strong>Pre-condition</strong></td>
<td>Metadata for different type of content should be triplified and provided through a single API.</td>
</tr>
</tbody>
</table>

**Flow of Events - Basic Path**

**Step 1** A researcher is visiting the axiom group site

**Step 2** He is entering a search query or using the browse functionalities

**Step 3** A results set is shown to the researcher

**Step 4** The researcher can use specific facets to narrow down the results set

**Step 5** The researcher clicks on specific results to show more information and to access the resource

**Post-condition** All the metadata of resources are aggregated, indexed and provided through a single API

**5.1 Actors**

<table>
<thead>
<tr>
<th>End-users</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information provider(s)</strong></td>
<td>Europeana, European Library, GLOBE, YouTube, Flickr</td>
</tr>
</tbody>
</table>

**5.2 Expected added value**

| Expected value added | Researchers will be able to search simultaneously in many external sources with different type of content e.g. books, |

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http://pro.europeana.eu/web/europeana-cloud
Table 1: The use case description for the scenario of “Hein and the ARIADNE Finder“

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>- the results will include only relevant resources to the user query</td>
</tr>
<tr>
<td>- the user will be able to make complex queries</td>
</tr>
<tr>
<td>- discovery of relevant resources with very good performance that will improve the user experience</td>
</tr>
</tbody>
</table>

The following step required the development of the first mock-ups, shown in the figures below. The mock-ups provide an illustration of what the final tool could look like based on the analysis of the scenario. Since the ARIADNE Finder is a technology that is embedded in an existing site, the first version of mock-ups included the following pages:

- A main page, shown in Figure 10a, where users can search the repositories for data. Additional buttons are included to quickly access predefined searches, specific resources or the local repository of the group.
- A second page, shown in Figure 10b, with a number of the philosophers the group investigates, links to a search for their biographies and work, and access to the group’s work on a specific philosopher,
- A search result page, shown in Figure 10c, with a faceted search to quickly filter the results with a number of different criteria,
- A view more information on a specific resource page, shown in Figure 10d, where all the metadata of the resource are shown and the user has the option to either view the original resource or save a copy of the resource for annotation (enabled based on the copyright).
This set of first mock-ups was distributed among the eCloud WP3 group and an online meeting, open to all members of the WP3 group, was arranged with Hein, the main persona, to discuss them. The feedback gathered from this meeting led to a second version of the mock-ups and to respective changes in the use case description. Apart from comments made by the user-researcher Hein, feedback was also given by other members of the WP3 group, mainly on the technical side for the tool to be developed. The second version of the mock-ups, shown in Figure 11, had the following additional features:

- A bar to quickly add a time period in any search,
- A button to search for the group’s work in Mendeley or Zotero,
- A button to view specific and selected resources (essential work),
- More collections to search,
- When viewing a resource, the options to download, export, or view related resources in Mendeley or Zotero are available.
As explained earlier, we continuously gather feedback from users in order to update the use case scenarios and mock-ups until we reach a desired outcome and the pilot can be developed. During the first days of July 2013, the eCloud WP3 group arranged a meeting with Hein and the axiom group to discuss, among others, the ARIADNE Finder demos. The mock-ups were presented to the group along with a number of questions to guide the users in providing feedback for the technical team through a presentation that was later distributed to all the members of the WP3. Hein and the rest of the group members decided before continuing to...
gather additional feedback from other members of the group not present in the meeting. When all the feedback is gathered, the third and final version of the mock-ups will be developed. The updated mock-ups will be discussed with the rest of WP3 group and the first pilot version of the tool will be developed. As soon as all the required functionalities and collections are integrated to the pilot, the first demo of the ARIADNE Finder for the Axiom group will be made available. At the same time, the pilot and the demo will be made available to other members of the WP3 so that it can be integrated with other tools of WP3.

The following table summarizes all the steps that were followed for the above example.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Persona identification</td>
<td>28th March 13</td>
</tr>
<tr>
<td>Step 2</td>
<td>Initial scenario development</td>
<td>15th April 13</td>
</tr>
<tr>
<td>Step 3</td>
<td>Feedback from Axiom group representative</td>
<td>27th May 13</td>
</tr>
<tr>
<td>Step 5a</td>
<td>Use case development</td>
<td>13th Jun 13</td>
</tr>
<tr>
<td>Step 5b</td>
<td>Initial mock up</td>
<td>13th Jun 13</td>
</tr>
<tr>
<td>Step 6</td>
<td>Interview with Axiom group representative and WP3 members</td>
<td>19th Jun 13</td>
</tr>
<tr>
<td>Step 7</td>
<td>Revised mock up</td>
<td>5th July 13</td>
</tr>
<tr>
<td>Step 8</td>
<td>Presentation of mock up to the whole Axiom group</td>
<td>8th July 13</td>
</tr>
<tr>
<td>Step 9</td>
<td>Final mock up &amp; specs for implementation</td>
<td>31st July 13</td>
</tr>
<tr>
<td>Step 10</td>
<td>Prototype development</td>
<td>(planned)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>August 13</td>
</tr>
</tbody>
</table>

Table 2: Summary of all the work for the case of “Hein and the ARIADNE Finder”
6 Conclusion

WP3 aims to develop services and tools that leverage Europeana content to be used by researchers. In this deliverable we focussed on the first step before the development of the tools, which is to understand and analyse the user needs by developing personas, scenarios and use cases; and to present a number of different existing tools that can be combined, expanded, and integrated to cover the needs of researchers. In addition, we introduced the process to be followed in order to connect these scenarios with the tools’ development. This document is the first version of the Deliverable 3.1, which will be updated during the project lifetime to reflect progress of our thinking as the project evolves.

During this work, we have identified three core problems for the researchers that constitute our target audience:

- problems with navigating and identifying relevant (digital) content and with building corpora;
- a lack of user-friendly tools for conducting fine-grained textual research;
- and a lack of appropriate tools and infrastructure that allow members of research groups to work collaboratively.

In the next phase of our work, we will address these problems through a combination of search, visualization, annotation, and awareness tools and the integration of those in the Europeana environment that will be defined in eCloud.
7 Appendix: Science2.0 tools

7.1 Search tools

7.1.1 ARIADNE Finder

Lightweight search interface (implemented as an HTML page with some Javascript) that works on top of a Solr index. The Solr index is build using a number of metadata facets that can be used to navigate metadata records aggregated through different sources. Ingests metadata records of relevance to the specific users, by a number of ingestion mechanisms/APIs that are creating the Solr index behind the particular search page.

**URL**
http://ariadne-eu.org/wiki/

**contact**
nikosm@ieee.org
stoitsis@ieee.org

**licence**
LGPL for older versions, still undefined for current/working ones (but will be a xGPL one)

**programming language**
HTML and Javascript

**current use**
at least 5 deployments of beta versions, with estimated usage by >200 users
http://ariadne.cs.kuleuven.be/finder/ariadne/  [looking into the GLOBE aggregator]

**deployment**
http://laflor.lacl.org  [looking into the Latin America learning repository aggregator]

http://greenlearningnetwork.com/  [looking into the Green Learning Network OER aggregator]
7.2 Visualization tools
A good overview on visualisation methodologies / tools by functionality:
http://www.visual-literacy.org/periodic_table/periodic_table.html

Data visualization guidelines, by Gregor Aisch:

7.2.1 Timeliner

A visualization tool making timelines and timemaps using Google spreadsheets.

URL
http://timeliner.okfnlabs.org/

contact info@okfn.org

licence MIT licence

programming language Java Script and other open-source components including TimelineJS, ReclineJS, Leaflet, Backbone and Bootstrap

deployment Example of an implementation on Medieval Philosophers:
http://timeliner.okfnlabs.org/view/?url=https://docs.google.com/spreadsheet/ccc?key=0Al6mO9_3Hr2PdGZnRjEwUWxOekhrcTNNZEFEEMWRZbkE-2

On the Open Parliament Declaration
http://www.openingparliament.org/about

http://www.greenlearningnetwork.com/organicedunet/ [looking into the organic collections of the Green Learning Network OER aggregator]
http://agsharedemo.agroknow.gr [looking into the Africa-related OER collections of the Green Learning Network]
### 7.2.2 RelFinder

The RelFinder extracts and visualizes relationships between given objects in RDF data and makes these relationships interactively explorable. Highlighting and filtering features support visual analysis both on a global and detailed level. The RelFinder is based on the open source framework Adobe Flex, easy-to-use and works with any RDF dataset that provides standardized SPARQL access.

**URL**

http://www.visualdataweb.org/relfinder.php

**contact**

contact@visualdataweb.org

**licence**

GNU General Public License

**programming language**

Adobe Flex

**deployment**

University of Leipzig,

http://catalogus-professorum.org/tools/relfinder/RelFinder.swf

Ontotext

http://linkedlifedata.com/relfinder


### 7.2.3 Muse

**Description of functionality**

geo-spatial visualization of co-authorship on a multitouch tabletop

**URL**


**Contact**

erik.duval@cs.kuleuven.be

**Current use**

evaluated at ECTEL2010 and Hypertext2011

**Bibliography**


Nagel, T., Duval, E.: *Interactive Exploration of a Geospatial Network Visualization*.
Visualization(Poster). VisWeek 2011, October 21-28, Providence, USA.

7.2.4 MappingPhilosophy/GlaMMap

| description of functionality | Geo-spatial visualization of bibliographic metadata (place of publication, author, title, year) from books in logic from 1700-1940 on an interactive geographical map of Europe |
| URL | http://axiom.vu.nl/MappingPhilosophy.html |
| contact | ariannabetti@gmail.com, hein.van.den.berg2@gmail.com |
| programming language | HTML5, CSS, and JavaScript |
| current use | early prototype (internal use) |
| deployment | no users apart from developers |
7.3 Awareness tools

7.3.1 TiNYARM

description of functionality
web application to make researchers aware of what their peers are reading

URL
http://atinyarm.appspot.com/

contact
gonzalo.parra@cs.kuleuven.be

licence
Free

programming language
Java (GAE)

current use
HCI group KUL

deployment
http://atinyarm.appspot.com/


7.3.2 More!

description of functionality
A social discovery tool for researchers

URL
https://sites.google.com/site/kulmoreapp/

contact
gonzalo.parra@cs.kuleuven.be

licence
Free

programming language
Java, PHP

current use
Currently not used

deployment

bibliography


7.4 Annotation tools

7.4.1 Annotateit

The Annotator is an open-source JavaScript library and tool that can be added to any webpage to make it annotatable. Annotations can have comments, tags, users and more. Furthermore, the Annotator can be easily extended with new features.

URL: [http://annotateit.org/](http://annotateit.org/)
Contact: hello@aroncarroll.com, rufus.pollock@okfn.org, nick@whiteink.com
Licence: GNU GPLv3 or MIT

7.4.2 TEXTUS

In a nutshell TEXTUS is an open source platform for working with collections of texts. It enables students, researchers and teachers to share and collaborate around texts by annotating them.
7.4.3 Pundit

Pundit enables users to create structured data annotating web pages or images, collect annotations and share with others to create collaborative structured knowledge. Furthermore, Pundit already has a built in entity extraction feature which annotates the texts using knowledge bases like DBpedia or Freebase.

URL: http://thepund.it/
Contact: pundit@netseven.it
Current Use: Wittgenstein group in Norway (via DM2E project)
Deployment: http://release-bot.thepund.it/latest/examples/authors_index.html

Bibliography:

### 7.4.4 OpenAnnotation

A collaboration tool that aims:

- To facilitate the emergence of a Web and Resource-centric interoperable annotation environment that allows leveraging annotations across the boundaries of annotation clients, annotation servers, and content collections. To this end, interoperability specifications will be devised.

- To demonstrate through implementations an interoperable annotation environment enabled by the interoperability specifications in settings characterized by a variety of annotation client/server environments, content collections, and scholarly use cases.

- To seed widespread adoption by deploying robust, production-quality applications conformant with the interoperable annotation environment in ubiquitous and specialized services, tools, and content used by scholars -- e.g.: Zotero, AXE, LORE, Co-Annotea, Pliny; JSTOR, AustLit, MONK.

**URL**

http://www.openannotation.org/
7.4.5 DocumentCloud

DocumentCloud is a tool for annotating documents and sharing those annotations on the web. DocumentCloud runs every document you upload through OpenCalais and extracts entities (people, places and organizations) mentioned in it.

URL: [https://www.documentcloud.org/](https://www.documentcloud.org/)

contact: support@documentcloud.org

deployment: [https://www.documentcloud.org/](https://www.documentcloud.org/)

7.4.6 Researchr

Academic information management workflow, which is at the same time individual and happens on the local computer, but also set up to be easily shared with others. It's really a whole framework with a bunch of applications (the key ones being BibDesk, Skim, DokuWiki, Chrome).

URL: [http://reganmian.net/wiki/researchr:start](http://reganmian.net/wiki/researchr:start)
Europeana Cloud is co-funded by the European Union CIP-ICT Policy Support Programme
http://pro.europeana.eu/web/europeana-cloud

contact shaklev@gmail.com
licence Free
deployment http://reganmian.net/wiki/researchr:start