DELIVERABLE

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Europeana Cloud Deliverable 1.7 Research Community Evaluation Report

Authors:

Stavros Angelis (ATHENA R.C.)
Agiatis Benardou (ATHENA R.C. / WP1 Leader)
Nephelie Chatzidiakou (ATHENA R.C.)
Panos Constantopoulos (ATHENA R.C.)
Costis Dallas (ATHENA R.C.)
Alastair Dunning (The Europeana Foundation)
Stefan Ekman (Swedish National Data Service/University of Gothenburg)
Dimitris Gavrilis (ATHENA R.C.)
Vicky Garnett (Trinity College Dublin)
Eliza Papaki (ATHENA R.C.)
Owain Roberts (National Library of Wales)
Björn Sjögren (Swedish National Data Service/University of Gothenburg)

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Revision History

	When?	Who?	Organisation	What?
1.	November 2013	ALL		Report on First Evaluation workshop
2.	July 2015	Agiatis Benardou, Alastair Dunning, Vicky Garnett, Nephelie Chatzidiakou	ATHENA R.C., The Europeana Foundation, Trinity College Dublin	Report on Second Evaluation Workshop
3.	October 2015	Agiatis Benardou, Eliza Papaki, Vicky Garnett	ATHENA R.C., Trinity College Dublin	Report on Third Evaluation Workshop
4.	January 2016	Agiatis Benardou	ATHENA R.C.	Formatting and updates to the Executive Summary

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This deliverable contains original unpublished work except where clearly indicated otherwise.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.

D1.7 Research Community Evaluation Report

Executive summary

This report deals with three Evaluation Workshops organized by ATHENA R.C that took place as part of research undertaken in Work Package 1 of the Europeana Cloud (eCloud) project (2013-16).
The workshops were linked to WP3 iterative development cycle, and intended to provide feedback regarding the usefulness, as against usability, of tools and service prototypes within Europeana Cloud and their fitness-for-purpose with regard to the requirements analysis and user-centred design of Europeana Research.

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1. First Evaluation Workshop on Tools

This chapter reports on the first of a series of three evaluation workshops, held virtually via Skype on November 26th, 2013. The workshop focused on the formative and summative evaluation of user tools developed through the iterative prototyping process of WP3. The discussion evolved around the set of digital tools examined in WP3 in the context of the personas and scenarios of thematic use of content that the Europeana Cloud tools and services as well as the Europeana Research Platform is expected to support, and aimed at providing feedback regarding their usefulness (as against usability), and their fitness-for-purpose with regards to the requirements analysis of Task 1.3.2.

The agenda of the first evaluation workshop included a report from WP3, namely an overview of the process of development and user engagement on WP3 to date, a discussion of what worked and what was less successful, with an opportunity for reflection, a discussion of the wider context, especially other user groups that could be involved in WP3, and a discussion of lessons learned for WP1 and 3.

The participants of the workshop were: Lorna M. Hughes (NLW), Erik Duval (KU LEUVEN/WP3 Leader), Vicky Garnett (TCD), Owain Roberts (NLW), Stefan Ekman (SND), Thomas Baldwin (CERL), Eliza Papaki (ATHENA R.C.), Björn Sjögren (SND), Pavel Kats (EF), Gonzalo Parra (KU LEUVEN), Hein van den Berg (KU LEUVEN), Dimitris Gavrilis (ATHENA R.C.), Alastair Dunning (EF/Project Co-Ordinator), Agiatis Benardou (ATHENA R.C./WP1 Leader).

General Remarks

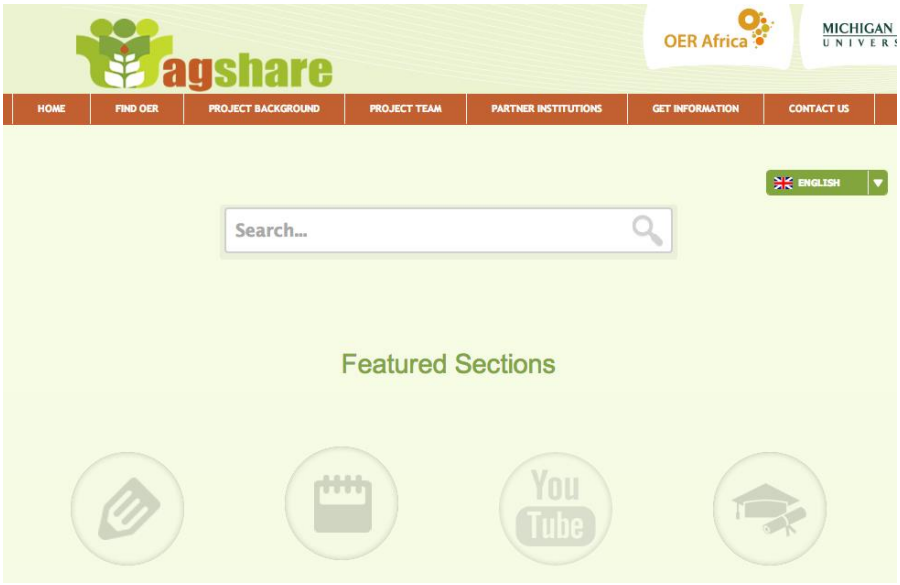
The set of digital tools explored by WP3 present heterogeneity in regards to their construction technology (e.g. several libraries on Javascript, Flash, Java, PHP). Therefore, two significant issues that emerge are firstly, to what extent these digital tools can be easily created and actually coexist in a united digital environment and, secondly, the measure of compatibility of the various libraries among each other in a single application.

Moreover, the major issues brought out on the call and in discussions are ones of scalability and application with Europeana content and metadata. Results from Tasks 1.4.2 and 1.4.3 (Tools and Content for the Humanities and Social Sciences Research Expert Forums) vividly displayed

the importance of enriched, good quality metadata. Towards this direction, this criterion will be used to evaluate the individual tools at a later stage of the iterative development process.

1. SEARCH TOOLS

1.1 ARIADNE Finder



description of functionality	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
deployment	http://ariadne.cs.kuleuven.be/finder/ariadne/ [looking into the GLOBE aggregator] http://laflor.laclo.org [looking into the Latin America learning repository aggregator] http://greenlearningnetwork.com/ [looking into the Green Learning Network OER aggregator] 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]

ARIADNE Finder is the only tool on which WP3 has been working to facilitate search across Europeana content for Humanities and Social Scientists. The aim for building/transforming a digital search engine, for the purposes of the platform Europeana Research, is for a user to be able to easily search across different collections mostly; however, not only based on Europeana. A customized, personalized search is also highly valued. To this purpose, the discussion held during the First Evaluation Workshop on Tools noted that unlike Google and other big search engines that search in the whole Internet, Ariadne searches produce specific results based on the needs of the field. More particularly, through testing Ariadne finder with the philosophers group, WP3 has identified relevant collections they would like to search in and then WP3 tried to make those collections available through specific instances (Demo: http://greenlearningnetwork.com/axiom/).

The functional characteristics for Ariadne finder, as these were suggested by WP1 and WP3, will be to implement a federated search tool which will hook up to different repositories, aggregate and present homogeneous search results to the end user and finally, to identify relevant Europeana as well as other collections to bring into the search machine. A random example was tested for comparative purposes. The word chosen was “Bolzano” and was compared and contrasted in ARIADNE Finder and Europeana.Eu. (ARIADNE Finder http://greenlearningnetwork.com/axiom/item.html?id=www.europeana.eu/resolve/record/92003/4E87F0301F6FFDCCBFCB58AD4D7C91EF5C0D04BC and Europeana.Eu

http://europeana.eu/portal/record/92003/4E87F0301F6FFDCCBFCB58AD4D7C91EF5C0D04BC.html?start=5&query=bolzano&qf=TYPE:TEXT&startPage=1&rows=24).
Observing the results, we spotted discrepancies such as the language (Czech / German). Also, not all metadata fields were yet completed. This is probably because this is still a demo, however we found the interoperability with outside tools such as the related sources in Zotero extremely helpful.

Suggestions

While this tool serves a major stage in the research cycle, that is search and discovery, and addresses domain specific scholar needs, it would be useful if the ARIADNE Finder included thematic descriptions of content and metadata held both within Europeana and elsewhere, regardless of access possibility to the material itself. Moreover, as this is a tool which facilitates the view, retrieval and annotation of existing individually selected and collected material, it would be useful to have a demo of not just text, but also of other types of Europeana content, such as image, audiovisual and 3D. Previewing of audiovisual and 3D records would complement well the view possibility offered by the ARIADNE Finder. Finally, when searching within ARIADNE Finder, it would be useful for a user to have the possibility to search by chronological area as well, and for the results to be sorted by specific thematic tags.

2. Visualization Tools

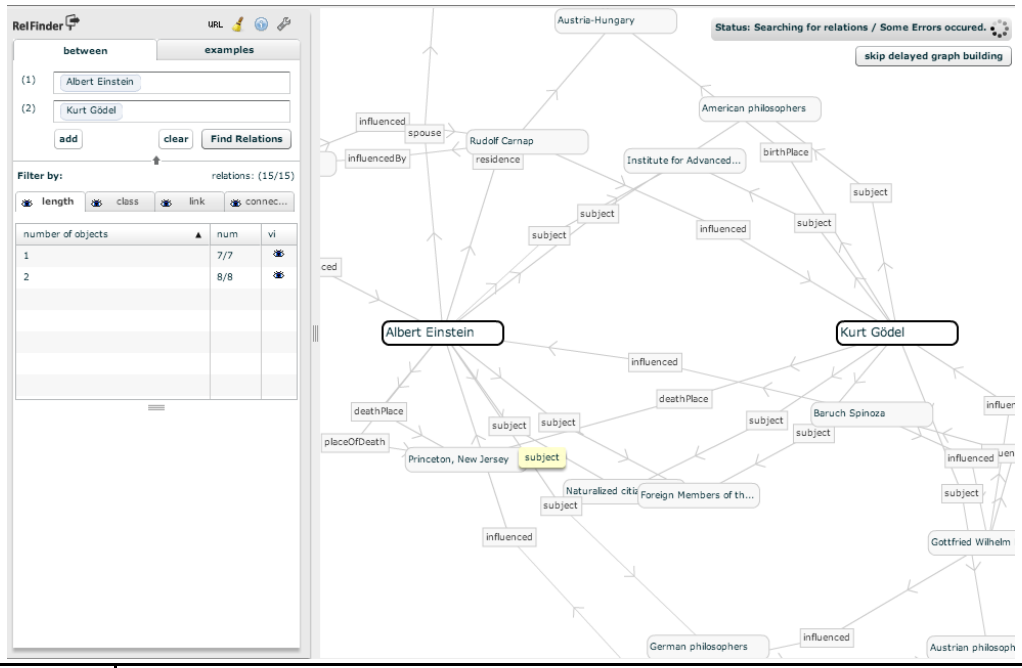
2.1 Timeliner

description of	A visualization tool making timelines and timemaps using Google

functionality	spreadsheets.
URL	http://timeliner.okfnlabs.org/
contact	info@okfn.org
license	MIT license
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_3Hr2PdGZnRjEwUWxOekhreTNNZEFEMWRZbkE - 2 On the Open Parliament Declaration http://www.openingparliament.org/about

This is a tool which creates timelines and timemaps using Google spreadsheets. It is already advanced/changed to TimeMapper. It is indeed pretty easy to use and looks like it would be of particular use to historians, art historians, and archaeologists. The idea behind this tool is that search results from Europeana (or through the ARIADNE Finder [see above]) are immediately visualized for a researcher on a timeline and get linked to other info on the Internet, like wiki. WP 3 considers this to be a very important tool for researchers as it provides a structured version of a large number and wide variety of search results. However, the disadvantage of this tool is that it was entirely designed to be used with google spreadsheets and thus, there is a question whether this will be applicable to Europeana content. Moreover, some concerns are raised regarding its functionality with a large number of entries. For example, TimelineJS, one of the components of its programming language, is only optimized for 20-30 entries.[1] Therefore, it is evident that Timeliner/TimeMapper can be mainly useful for simple/fancy demos/demonstrations.

2.2 RelFinder

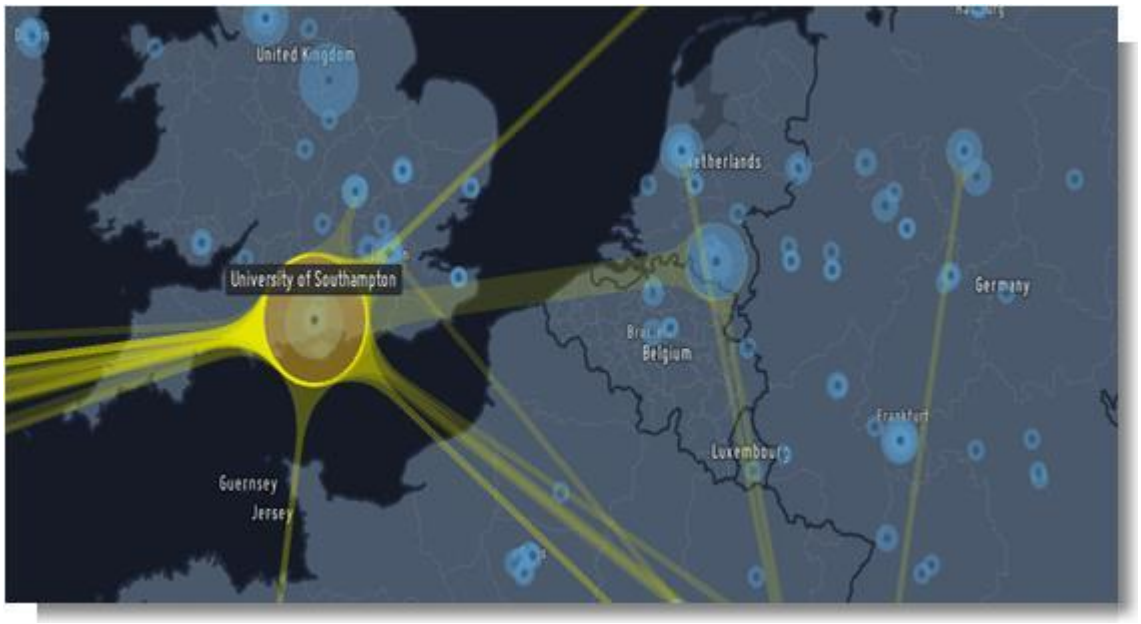


description of functionality	The RelFinder extracts and visualizes relationships between given objects in RDF data and makes these relationships interactively explorable. Highlighting and filtering features support visual analysis both on a global and detailed level. The RelFinder is based on the open 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
license	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
bibliography	Philipp Heim, Steffen Lohmann and Timo Stegemann: *Interactive Relationship Discovery via the Semantic Web*, in Proceedings of the 7th Extended Semantic Web Conference (ESWC 2010), volume 6088, series LNCS, pages 303-317. Springer, Berlin/Heidelberg, 2010. Philipp Heim, Sebastian Hellmann, Jens Lehmann, Steffen Lohmann and Timo Stegemann, *RelFinder: Revealing Relationships in RDF*

	Knowledge Bases. in: Proceedings of the 4th International Conference on Semantic and Digital Media Technologies (SAMT 2009*)*, pages 182-187. Springer, Berlin/Heidelberg, 2009. Steffen Lohmann, Philipp Heim, Timo Stegemann and Jürgen Ziegler.The *RelFinder User Interface: Interactive Exploration of Relationships between Objects of Interest*, in: Proceedings of the 14th International Conference on Intelligent User Interfaces (IUI 2010*)*, pages 421-422. ACM, New York, NY, USA, 2010.

RelFinder is the second visualisation tool explored by WP3. It creates interesting visualisations for the user among terms by demonstrating various relations interconnecting them. However, it draws information and creates relations only from two specific sources, wikidata and dbpedia, without answering the question what will be the role of Europeana in this. Moreover, it does not guide the user as to what kinds of terms are most likely to lead to results leading thus, sometimes, to fruitless searches. In the same context, RelFinder does not provide results unless the terms used are Main Names, and/or Place Names, and/or Events. For example, while the term “Olympic Games” is applicable, the term “Olympic Flame” was not. This tool could be mainly used by researchers who are aware of existing relations between terms used. It is not useful for discoveries of new relations. It is basically a confirmatory tool.

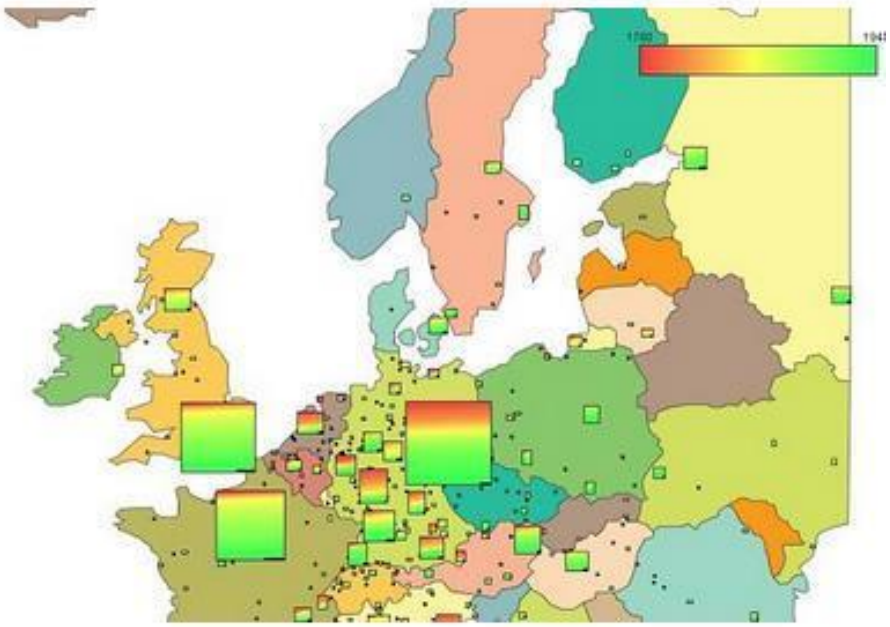
2.3 Muse



description of functionality	geo-spatial visualization of co-authorship on a multitouch tabletop
URL	http://tillnagel.com/2010/11/muse/, http://tillnagel.com/2011/10/interactive-exploration-of-geospatial-network-visualization/
contact	erik.duval@cs.kuleuven.be
current use	evaluated at ECTEL2010 and Hypertext2011
Bibliography	Nagel, T., Duval, E., Vande Moere, A.: *Interactive Exploration of a Geospatial Network Visualization*. CHI 2012, May 5-10, Austin, USA.
	Nagel, T., Duval, E.: *Interactive Exploration of a Geospatial Network Visualization*(Poster). VisWeek 2011, October 21-28, Providence, USA.
	Nagel, T., Duval, E., Heidmann, F.: *Visualizing Geospatial Co-Authorship Data on a Multitouch Table*. Smart Graphics 2011, July 18-20, Bremen, Germany.
	Nagel, T., Duval, E.: Muse: *Visualizing the origins and connections of institutions based on co-authorship of publications*. Science2.0 for TEL workshop at EC-TEL 2010, Barcelona, Spain.

Muse was a tool that was largely debated in the First Evaluation Workshop. It looks like a discipline-focused tool and there was a long discussion on whether it is useful to the general Humanities and Social Sciences research communities. Indeed, when dealing with secondary literature, there are instances in which researchers would like to find out quickly where any kind of secondary literature is/has been published. Furthermore, librarians would like to know where work is available. This, of course, raises a concern as to the straightforwardness of interaction of this tool with Europeana/TEL material. What remained unclear with regards to Muse is whether it only uses textual data.

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
Bibliography	Van den Berg, H., Betti, A., Speckmann, B., Verbeek, K., Huijgen, P., Kramer.J, Barendregt, P., *Mapping Philosophy*. A version of this paper will be presented at the GlaMMap Kickoff Meeting 2013, May 3, VU Amsterdam, The Netherlands.

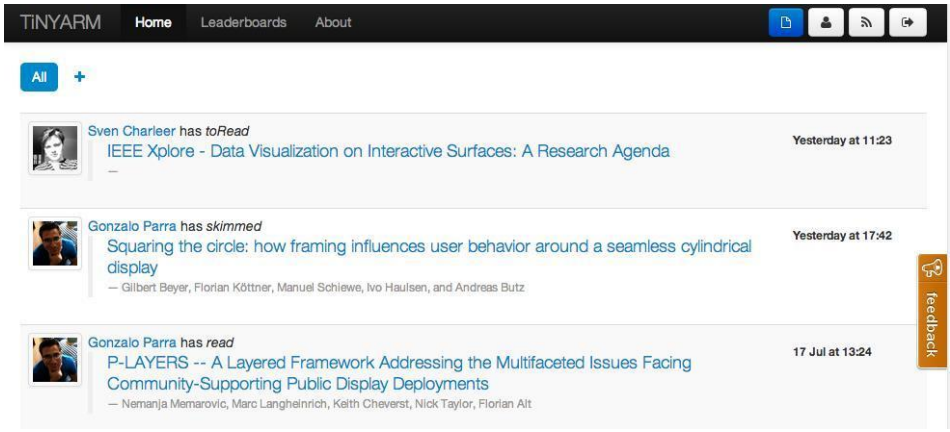
This is an interesting tool for the Philosophy research community in particular. Insofar as primary textual material is concerned in the case of philosophers and specific communities of historians, who may be interested in how ideas or works are disseminated, thus geography may be of interest. For example, by using GlaMMap, one philosophy researcher in a relevant field

can immediately find out how many and in which places logic textbooks from 1700-1900 were published.

However, it remains unclear to some members of WP1 the way in which other research communities would benefit from this tool, the ways in which Europeana/TEL material will be used/incorporated within it as well as the possibilities provided for the existence of linked data within this tool.

3. Awareness tools

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/

bibliography	Parra, G., Klerkx, J., Duval, E.: TiNYARM: This is Not Yet Another Reference Manager. 3rd International Workshop on Motivational and Affective Aspects part of the European Conference on Technology
	Enhanced Learning (ECTEL) vol: 957 pages:1-4. Parra, G., Klerkx, J., Duval, E.: What should I read next? Awareness of relevant publications through a Community of Practice. In CHI EA '13. ACM, New York, NY, USA, 2375-2376. Parra, G., Klerkx, J., Duval, E.: TiNYARM: Awareness of Research Papers in a Community of Practice. In Proceedings i-KNOW '13). (Accepted).

This is a web application to make researchers aware what their peers are reading and to promote collaboration. It again focuses on textual material and promotes trends in reading publications. This particular tool brings to mind a discussion held in the Third Expert Forum on “Tools and Content for Humanities Researchers” in Amsterdam in which a suggestion made referred to the usefulness of presenting researchers' search queries to other Europeana users. TiNYARM is undoubtedly a good first step toward the promotion of collaboration and awareness, which could, at a later stage, be extended to material other than reading documents and publications. Similar to reading trends promoted and encouraged through TiNYARM, creating trends inside Europeana based on the most popular content reached and/or retrieved would be useful to the communities of both the Humanities and the Social Sciences.

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	http://ariadne.cs.kuleuven.be/more/index.php?id=gonzalo-parra
bibliography	Parra Chico, G., Klerkx, J., Duval, E. (2011). More!: mobile interaction with linked data. In Diaz, P. (Ed.), Hussein, T. (Ed.), Lohmann, S. (Ed.), Ziegler, J. (Ed.), International Workshop on Data-Centric Interactions on the Web in conjunction with the 13th IFIP TC13 Conference on Human-Computer-Interaction (INTERACT 2011). Lisbon, Portugal, 6 September 2011 (pp. 37-47) CEUR-WS.
	Parra Chico, G., Duval, E. (2010). Filling the gaps to know More! about a researcher. Proceedings of the 2nd International Workshop on Research 2.0. At the 5th European Conference on Technology Enhanced Learning: Sustaining TEL. ECTEL10. Barcelona, Spain, 28 September 2010 (pp. 18-22) CEUR-WS.

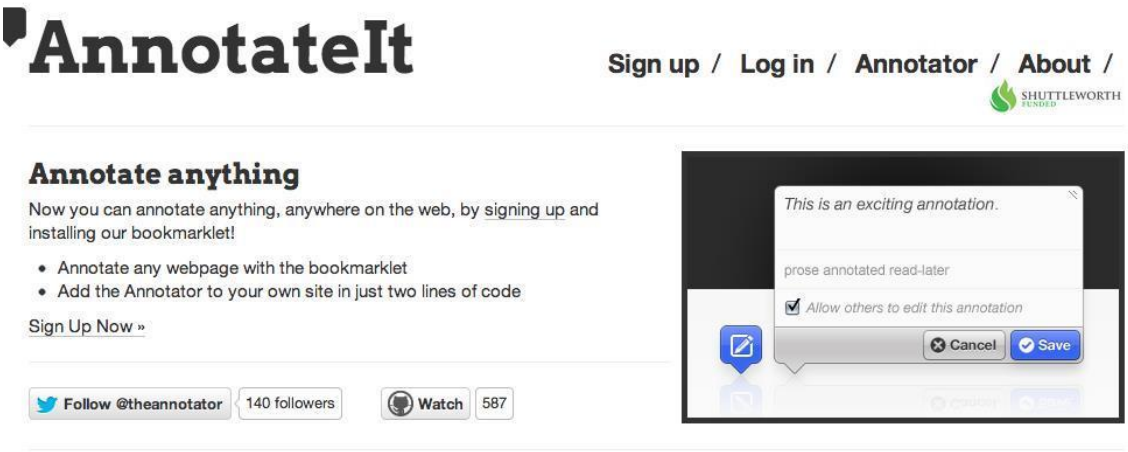
	Parra Chico, G., Duval, E. (2010). More! a social discovery tool for researchers. Proceedings of EdMedia10: World Conference on Educational Multimedia, Hypermedia and Telecommunications. EdMedia10. Toronto, Canada, 29 June 2010 (pp. 561-569) AACE.

More is a collaborative tool enabling interoperability with social media platforms such as Twitter, LinkedIn and Facebook, which can be principally used by researchers for broadcasting and communicating during conferences. It enables researchers to exchange slides and/or text documents and to communicate via email. It is a real-time – thus useful - collaboration tool. However, its connection to Europeana/TEL material still remains unclear.

4. Annotation tools

Annotateit / TEXTUS / Pundit / OpenAnnotation / DocumentCloud / Researchr

4.1 AnnotateIt



description of functionality	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/
contact	hello@aroncarroll.com rufus.pollock@okfn.org nick@whiteink.com

licence	GNU GPLv3 or MIT
deployment	http://annotateit.org/

4.2 Textus

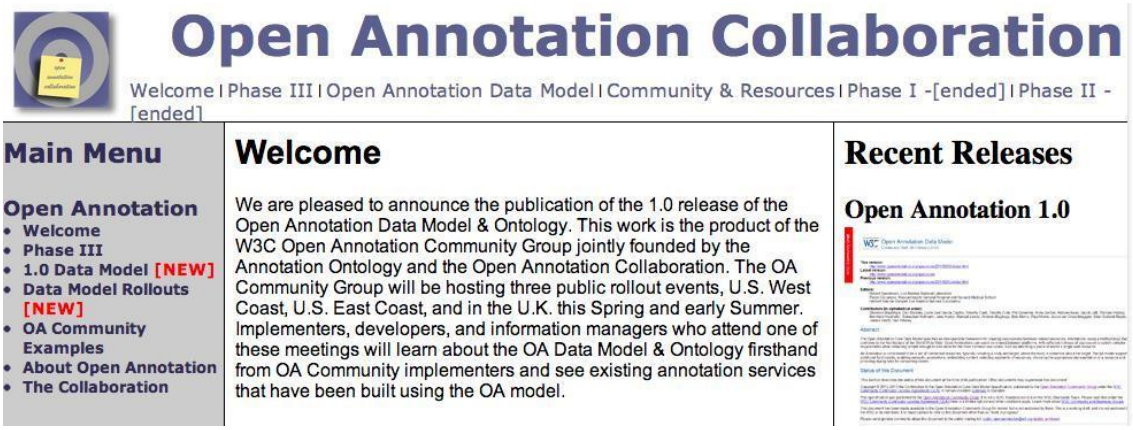
description of functionality	In a nutshell TEXTUS is an open source platform for working with collections of texts. It enables students, researchers and teachers to share and collaborate around texts by annotating them.
URL	http://textusproject.org/
contact	rufus.pollock@okfn.org
licence	MIT
current use	Open Shakespeare group (http://openliterature.net/shakespeare/)
deployment	http://beta.openphilosophy.org

4.3 Pundit

description of functionality	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	M.Grassi, C. Morbidoni and M. Nucci. "A Collaborative Video Annotation System Based on Semantic Web Technologies". In press: Cognitive Computation. Springer-Verlag, Berlin.
	M. Grassi, C. Morbidoni, M. Nucci, S. Fonda, G. Ledda. "Pundit: Semantically Structured Annotations for Web Contents and Digital Libraries". Annett Mitschick, Fernando Loizides, Livia Predoiu, Andreas Nürnberger, Seamus Ross (eds.): Semantic Digital Archives 2012. Proceedings of the Second International Workshop on Semantic Digital Archives (SDA 2012), Paphos, Cyprus, September 27, 2012, CEUR-WS.org/Vol-912, urn:nbn:de:0074-912-6.
	M. Nucci, M. Grassi, C. Morbidoni, F. Piazza. "Enriching Digital Libraries Contents with SemLib Semantic Annotation System". Proceedings of the Digital Humanities 2012 Conference, Hamburg,

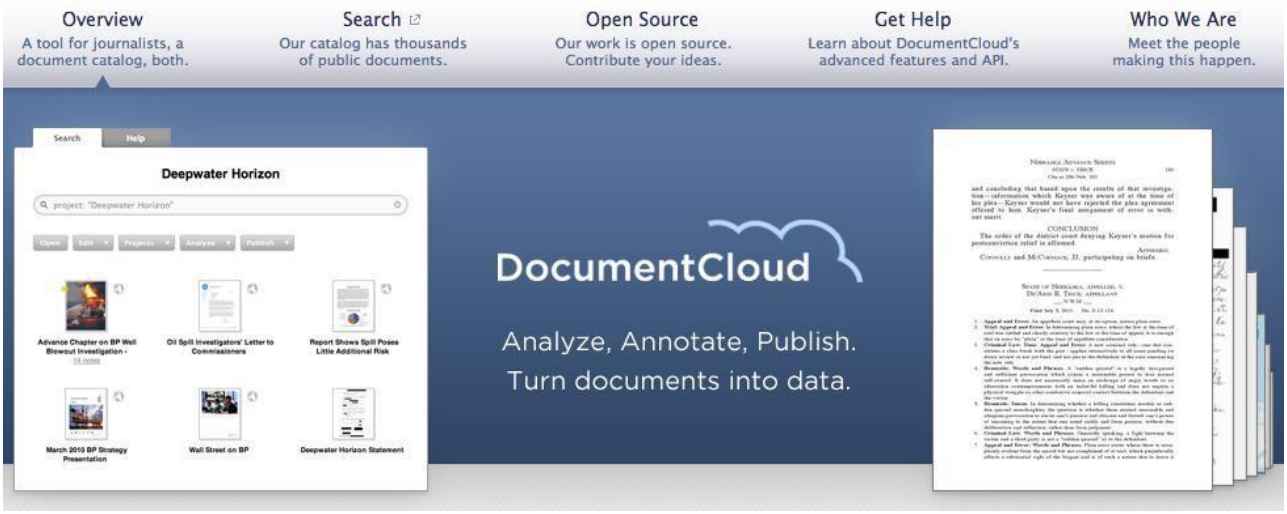
	Germany, 16th-20th July, 2012.
	C. Morbidoni, M. Grassi, M. Nucci. "Introducing SemLib Project: Semantic Web Tools for Digital Libraries", International Workshop on “Semantic Digital Archives - sustainable long-term curation perspectives of Cultural Heritage” held as part of the 15th International Conference on Theory and Practice of Digital Libraries (TPDL). 29.09.2011 in Berlin.

4.4 OpenAnnotation



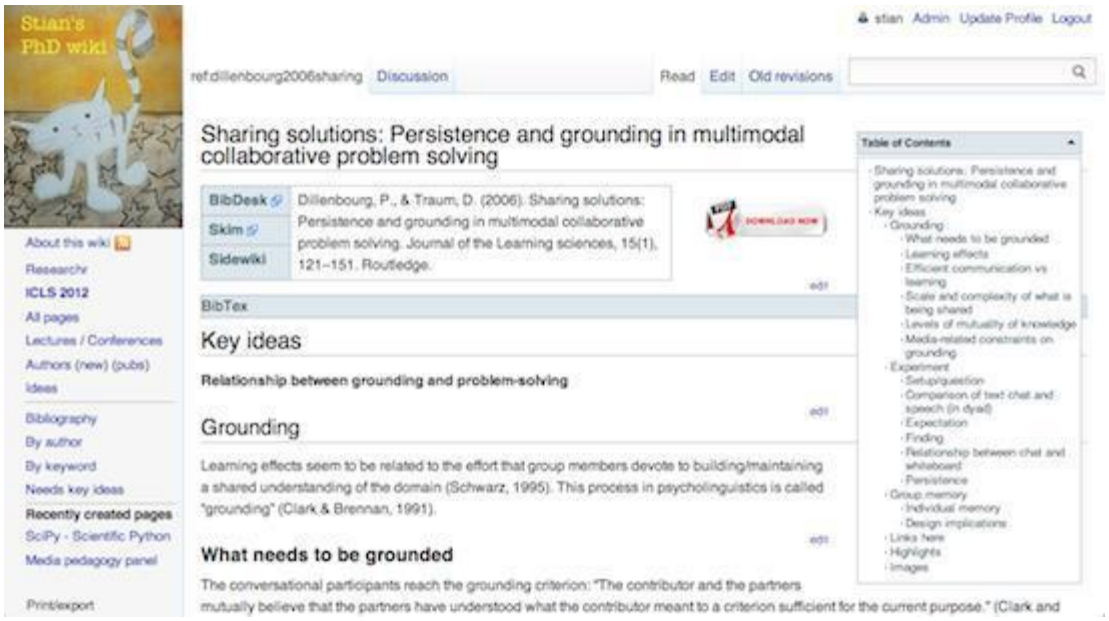
description of functionality	A collaboration tool that aims: ● To facilitate the emergence of a Web and Resource-centric interoperable annotation environment that allows leveraging annotations across the boundaries of annotation clients, annotation servers, and content collections. To this end, interoperability 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/

4.5 DocumentCloud



description of functionality	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/
contact	support@documentcloud.org
deployment	https://www.documentcloud.org/

4.6 Researchr



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

Annotation tools were discussed as a set. User Requirements work in previous EU projects such as Preparing DARIAH and EHRI has produced a long and concrete set of user requirements in the Humanities and Social Sciences, as annotation is a key activity in the entire research process. It appears that the ability to scribble on digital documents, a major user requirement in the field, is being met in all digital annotation tools proposed and worked on in WP3. Along the same lines, this set of annotation tools enables the Humanities and Social Sciences researchers to work with different types of material at the same time, cite, highlight, comment on it and share it.

However, this is not an easy undertaking in all tools explored by WP3. For example, OpenAnnotation is unclear to non-developers as to their exact use. Moreover, these tools are mainly focused on textual material, while researchers in the Humanities and Social Sciences often work with audiovisual data (also a very prominent set of objects in Europeana). The ability to work with and annotate multiple audiovisual files at the same time is key to the use, reuse and productive interaction with Europeana content towards the development of Europeana Research.

A final point made regarding annotation tools referred to the possibility provided to the user to annotate Europeana content and store it as metadata. This would not only enrich existing content by means of crowdsourcing but would also enhance collaboration if this newly created metadata could be attached to a digital object and then exported for sharing.

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[1] http://timeline.knightlab.com/

2. Workshop on Tools, Services and Content Priorities in Archaeology and the Classics

In July 2015, Europeana Research invited Archaeologists and scholars working on the Antiquity (Ancient Historians, Classicists), in order to discuss and evaluate available tools and content in the area, assess Europeana content in the area, provide insights to user requirements with particular emphasis on digital humanities methodologies, advise on feasibility of Europeana working in that area with a focus on issues concerning the creation and use of related datasets and indicate further content to be potentially aggregated by Europeana in that area.

The workshop was hosted by the UCL Centre for Digital Humanities on Thursday, 23 July 2015 and focused on available tools and services, archaeological methods and practices, semantics and metadata issues, excavation and monument data (maps, images, 3D representations), archaeological data organization and related datasets and applications of visualization technologies in archaeology and related datasets. The participants of the workshop were: Lorna Hughes (SAS, University of London), Simon Mahony (University College London), Christina Kamposiori (University College London), Benjamin Stular (Institute of Archaeology, Slovenian Academy of Sciences and Arts), Kostas Papadopoulos (NUI Maynooth), Elton Barker (Open University), Kate Fernie (2Culture Associates), Vicky Garnett (Trinity College Dublin), Alastair Dunning (Europeana Foundation), Agiatis Benardou (Digital Curation Unit / Athena R.C.), Lorna Richardson (University College London), Stuart Dunn (King's College London), Mads Kähler Holst (Aarhus University), Jessica Ogden (L-P Archaeology), Costis Dallas (University of Toronto), Keith May (Historic England), Hugh Bowden (King's College London), Alexandra Angeletaki (Norwegian University of Science and Technology), Jens Andersen (Aarhus University), Mette Løvschal (Aarhus University), Sven Charleer (University of Leuven), Kathryn Piquette (Cologne Center for eHumanities), Ulrich Tiedau (University College London) and Melissa Terras (University College London).

Two main sessions were held, the first being about excavation data and related content and the second about tools and services.

2.1 Data and related content in Archaeology and the Classics

The first session of the Expert Forum was dedicated to the data used in Archaeology and the Classics and the relevant content being made available to the research communities. The experts discussed issues related to the kinds of data, the ways those are made available and are being used, the data and metadata sharing and the use of data repositories and databases.

2.1.1 Kinds of data: availability, accessibility and usability

The discussion about data firstly evolved around questions of availability, accessibility and usability: "*What do we have available now? Can we find it? Can we use it?*". These questions brought up the issue of missing data, data that are not currently accessible, and the ways those might be retrieved and made available. As data and their availability is linked to aggregation, the discussion evolved also around issues regarding possible realistic targets for aggregators as well as for Europeana to achieve. It was agreed that experience from aggregation shows that there is not much interest on primary data, as it is much harder to work with them. Excavation and investigation reports, on the other hand provide summaries and synthesise raw data, making them more attractive to users. Additionally, the grey literature, as well as specialist reports, such as coins, carbon-dating, bones etc are also a kind of content that seems to have greater demand (see Figure 1). A first suggestion, therefore, was to enhance access to the kind of content that has more demand.

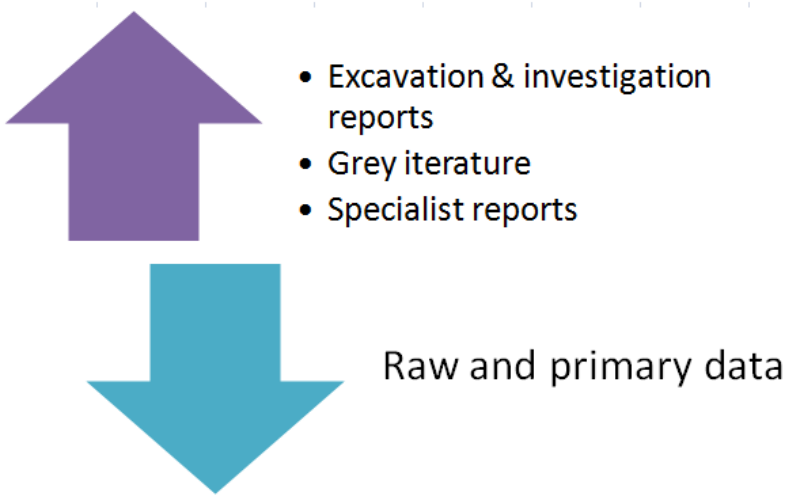

Figure 1. Kinds of archaeological data that are popular in comparison with those that are less popular.

Raw data were also discussed in connection with big data, as the participants pointed out the fact that raw data integrated into big data can create greater demand for it. It was also mentioned that raw data are important, as they constitute the evidence behind an interpretation

and pointed out the fact that discoverability of big data has mainly to do with archaeological practice and behaviours, rather than technical barriers (for example: how do researchers find out what sites have been excavated, what has been made available, etc).

The discussion about different kinds of data and their uses lead also to considerations regarding metadata and the ways those could be available to Europeana as well as the barriers presented and the kind of support that is needed in order to make not only more content but also more metadata available. Regarding discoverability, it was argued that technical support and networking were necessary, although the human factor was also mentioned, since “for various reasons, archaeologists do not release all their data, or in some cases they do not know how to, or there is not the reward for doing so”. This point led to the conclusion that the challenge for Europeana is more about connecting, or contextualising, existing data from across Europe.

2.1.2 Data and metadata sharing

About data sharing, the participants argued that individual researchers often need technical guidance in order to add their data to a repository and that some projects provide such support. About open data, it was argued that one one hand many archaeological excavations are commercial and there is less open publication of data and on the other hand quite a few funding agencies are now making data sharing a requirement as part of the funding. But in any case there is not a clear schedule about how long it should take before data reaches a repository.

Sharing and availability of metadata was also discussed, as the group of experts found that availability of metadata as well as feedback are of great importance. The problems regarding metadata which were identified were: the fact that there is no motivation for sharing metadata, owners of metadata often do not want to share them and finally that often some digital items lack metadata. The experts suggested, on this issue, that there is motivation for sharing metadata, licensing and that there is a way for Europeana users to give feedback on metadata.

2.1.3 Use of repositories and databases

Repositories, it was argued, are not equally distributed and available across European countries: in some countries not many repositories are available and researchers have less means to publish their data, as opposed to other countries, such as Denmark, Norway, the United Kingdom, Netherlands or Sweden.

The experts suggested that the use of repositories is relatively limited when it comes to research itself, but they are more commonly used for teaching. It was thus suggested that Europeana might want to focus on teaching and learning to enhance visibility within research communities. It was also argued that the use of repositories should become part of everyday practice in the process of "becoming a scholar", since if it would be embedded in teaching and become "a part of students' toolkit" then this practice would influence those who in their turn will be later teachers themselves.

Use of repositories was considered to be limited mainly because of lack of awareness, since "people have no idea how they could benefit from online resources" as well as because of the fact that it is difficult to identify exactly what one is looking for. One way to remedy this would be, according to the experts, to embed resources and the use of repositories in teaching and to visualize data. Visibility of collections was also discussed and it was suggested that Europeana focuses to different user groups and matches them with particular sets of services. The example of CARARE was mentioned, in which case there was focus on heritage bodies and the conservation of monuments. Additionally, the experts agreed that it is important to make the distinction between the general public and researchers. It was argued that content creation projects like "1914-18" worked very well.

2.2 Tools and services for research in Archaeology and the Classics

The second part of the workshop concentrated on the availability of digital tools and services for research in Archaeology and the Classics, as well as their usability and accessibility. Moreover, the extent to which existing tools work with available data in an interoperable way was extensively discussed. More specifically, annotation, gamifying and crowdsourcing tools were discussed as a means to ingest content by the users. Tools have been considered in a broader perspective that is not only tools for archaeological research but more generally generic tools. Other tools used by archaeologists and classicists that were considered by the experts and which would be of interest to Europeana were time-period tools for visualizing Europeana data, georeferencing tools, 3D modelling tools, tools for photogrammetry etc. Social media were also mentioned, with Twitter and Facebook being the first ones that came up, while LinkedIn was considered to be relatively formal. Some qualities related to tools included being open source and free or being linked into online Web services in order to pull data.

Another related issue that was considered had to do with ways Europeana could provide outreach to archaeology and how such a service or Europeana channel would look like. The

expert forum discussed on how such a service should be better described and if it needs to be more narrowly defined, following probably the example of Europeana Coins. Another issue on this had to do with ways to ingest relevant material, probably through focussing on bringing metadata together from other projects.

Finally, the need for tools focusing on methods was discussed, which were considered to be useful for other disciplines too, such as literature or linguistics. Focusing on the methods rather than the discipline brought up the need for ontologies which would link the research communities and the methods used. The NeDiMAH Methods Ontology (NeMO), it was argued, has tried to conceptualize digital research methods in the humanities. It was agreed that research generally can benefit from a proper understanding of concepts.

2.3 Conclusions and suggestions

According to the results of the experts forum, there is not an obvious role for Europeana in helping the research community in Archaeology and the Classics with research questions, but various opportunities were spotted on the field of teaching, providing paths for placing the data, and metadata enrichment. More specifically, the experts suggested that Europeana enhances access to the kind of content that has more demand, focuses on connecting, or contextualising, existing data from across Europe, provides motivation for sharing metadata, and focusses on users' feedback on metadata and focusses on different user groups and matches them with particular sets of services. About understanding user communities, it was suggested that researchers could more likely be interested tin genres within disciplines (e.g. space in archaeology, time in geography) and methodological areas that transcend disciplines. Finally, ontologies were proposed as a means in order to bring Europeana into the research community.

3. Workshop on ‘Using European Infrastructures for Humanities research: Scoping Content, Tools and Services’

This chapter reports on the workshop held in Athens on October 12th and 13th 2015, organised by the Digital Curation Unit, Athena R.C., in the context of the development of Europeana Research. By inviting key stakeholders (researchers, e-content experts and digital humanists), the aim was to discuss and brainstorm on how the new platform of Europeana Research should be structured to best serve the needs of the community.

Among the topics addressed in this workshop where:

1. Scoping and understanding the range of available digital content and metadata: what is available, what are the barriers to knowing what is available (discoverability, awareness, but also cultural issues and disciplinary issues that may inhibit the use of open content).

2. Using digital content and metadata for research: what are the barriers to use and reuse
of content? Are the aggregations of content, and the tools or services that are available adequate for researchers? If not, how can European Infrastructures scope user requirements to discover what is needed? How should such infrastructures interact with cultural heritage institutions? And what should cultural heritage institutions do to make their digitised content more amenable for research use? And in a landscape of short term project funding, how is the dialogue about research needs sustained?

3. Who are the Users: How can we cultivate the communities of practice that use the content, understand their requirements, and capture this in the process of designing content strategies and tools? How can use of digital content contribute to the sustainability of infrastructure services over the long term?

Do we need more formal ways to describe and understand use of digital content for research: is there a 'methodological layer' needed for research infrastructures?

They key stakeholders invited were mainly representatives from various research infrastructures initiatives including EHRI, DARIAH Teach, Pelagios, Iperion CH, Parthenos and DARIAH. Namely, the participants were Zanet Battinou (JMG), Anastasia Loudarou (JMG), Panos Constantopoulos (ATHENA R.C.), Eliza Papaki (ATHENA R.C.), Costis Dallas (ATHENA R.C.), Veerle Vanden Daelen (CEGES-SOMA), Elton Barker (Open University), Sophie David (Huma-

Num), Lorna Hughes (Glasgow University), Vicky Garnett (TCD), Marianne Ping Huang (Aarhus University), Nienke van Schaverbeke (EF), Yael Gherman (JV), Sigal Arie-Erez (JV), Petra Links (NIOD), Toma Tasovac (BCDH), Lars Wieneke (CVCE), Mike Priddy (DANS), Leif Isaksen (Lancaster University), Helen Katsiadakis (Academy of Athens), Agiatis Benardou (ATHENA R.C./WP1 Leader), Nephelie Chatzidiakou (ATHENA R.C.), Katerina Gardikas (University of Athens), Helen Vernardaki (Academy of Athens), Helen Goulis, (Academy of Athens), George Tzedopoulos (Academy of Athens), Kleopatra Kalafata (Academy of Athens), Herakleitos Souyioultzoglou (Academy of Athens) and Gerasimos Chrysovitsanos (Academy of Athens). Gathering such an audience from so many different institutions and projects created an interesting mixture of people, specialties and opinions resulting thus to a pluralistic approach of how a European Infrastructure for Humanities research should be like.

Apart from short presentations of these projects, the structure of the workshop centered around two round table discussions on who the users of Europeana Research are and on Digital Content and Metadata for Research. Focusing on the first round table, two break out groups (Teams Pink and Yellow) elaborated separately on a specific set of questions which acted as the guiding axes of the discussion in an attempt to reach ways in which the new platform could potentially deal with and serve the needs of a diverse audience. As Europeana Research cannot be the place for everything, identifying the different user communities was a crucial point in the discussion.

Round Table Discussion: **Who are the Users?**

- Who uses digital content and metadata in research? How is this research communicated? How can the publication and communication of scholarly outputs make digital content and methods visible?
- How can we cultivate the communities of practice that use digital content, understand their requirements, and capture this in the process of designing and delivering digital content and tools?
- What should a 'methodological layer' for Europeana Research look like? How could it contribute to the better design of Research Infrastructures? How can we ensure that it captures scholarly practice across the disciplines?
- How can use of digital content contribute to the sustainability of infrastructure services over the long term?

As said before, these questions functioned more as the axis of the discussion rather than as topics to be resolved. For this reason, a summary of the main points addressed by both break out groups will be presented here.

User terminology

First point of the discussion was the user terminology. The participants of this group elaborated on the terms ‘user’, ‘consumer’ and ‘stakeholder’ among other supporting that the word ‘user’ can be problematic because it implies someone who gets the benefit at the end rather than the benefits of all involved in the process while ‘stakeholders’ refers to people that produce things that are motivated to do and who, in the case of Europeana Research, may have nothing to do with a priori goals of Europeana. Users could even be content providers as well.

Who are the users?

Looking for examples of use of Europeana, there was the case of the project Judaica Europeana. Running for three years in the Jewish Museum in Athens, the project Judaica Europeana resulted in uploading all related artefacts into the Europeana database. This collection became then more open to the public with most users being male, professors based in European universities. The second largest group of users was recorded to be in Israel and the US, as seen from the requests. These users read the metadata and then went to the main source, the archive or the museum, in order to find more information, or permission to publish. Europeana acted thus as the search engine.

Metadata

This issue was significantly raised by both groups and was valued highly in the workshop’s agenda. Coming from a researcher's perspective, there was the observation that “for people engaged in research, they usually tackle questions by exploring a range of different kinds of evidence. If you only have the metadata to work with, that is only one (but still important kind) of evidence. The metadata may be the clue that tracks you back to something, so it’s essential, but on its own, it’s very unlikely to be sufficient.” One of the aims of Europeana was to bring together all the digital content of Europe which is missing in some places. Looking at metadata

and users, this aim generated the question if there is a relationship between the quality of metadata provided and the people using it.

Considering that metadata are helpful for researchers to conduct their research, they should thus be built by humanists themselves in order to create good documentation. In this case, Europeana Research should give methodological access to enrich or create those metadata either by researchers themselves or by large cutting edge research projects connected to archival material.

Researchers should contribute in editing or enriching metadata, making thus clear the provenance of the new additions, a fact that would distinguish this initiative from crowdsourcing methods for example. Enriching metadata should not be a black hole for researchers that contribute; resulting to more reliable data and metadata.

Data and data quality

Identifying users was considered to go hand in hand with the content provided and its quality. “If you want to expand Europeana, you also have to think about what is important for the data providers, what are they afraid of? What can they gain from joining Europeana, and what are the criteria for ‘good data’ for whoever is using it?”. The need for bilateral relationship between the content providers and Europeana was also stressed, suggesting that the content providers should give links back to related items within Europeana. In this way, users could even be visitors of museum websites, with the Museum providing additional context with links drawn from Europeana (‘You may also like…’ element). Strengthening the interaction between Cultural Heritage Institutions and Europeana in terms of linked data and interactivity was a crucial point raised by both groups.

It seems that currently researchers and libraries do not really interact. Researchers use the materials, work on them, annotate them, discuss them in class, but none of that generated knowledge gets back to the library. It could be said that there are two levels of interaction that should be further nurtured in the context of Europeana Research. Firstly, to get people working in the GLAM sector to create rich data, curate and further enrich them, as dedicated experts of the content, and on the other hand to make this data discoverable and reusable by researchers. Data curators should be thus less like gatekeepers and more like collaborators on research

while the research community should be engaged in the process of annotating material transforming thus these resources to living resources. Cooperation between academics and GLAMs should be a must in Europeana Research aim list.

Another suggestion made regarding making the collections more enriched and useable was for opening up tagging. This is a process already undertaken within Europeana Research for re-tagging key collections within Europeana to improve cross referencing. However, tagging has not been developed with researchers in mind and therefore the vocabulary adopted may vary from the researchers' terminology.

Case studies

A way of addressing the issue of 'who uses digital content and metadata in research' is to showcase actual examples of research with Europeana content. By providing case scenarios and giving them back to the community as examples of content use, this will also show the long-term added value of Europeana, as it would not be just delivering what people already have, but it would be about giving it back to the community for reuse or further enrichment.

In this context, the case studies scenario was discussed with the aim of identifying potential users/disciplines with current material. Suggested cases could be more topic specific rather than discipline specific (e.g. not Archaeology but Parliamentary Papers or Newspapers community).
What became apparent from similar work already undertaken in the context of Europeana Cloud and presented in Deliverable 1.3/1.6 was that the more granular the case studies, the most valuable the results have been. Attempting at first to look across disciplines led nowhere, not only because disciplines are vast, but also because disciplines tell us nothing in themselves. Looking at a sub-discipline level could potentially reveal much more interesting and useful results.

Apart from that, one of the issues identified in Europeana Cloud was that researchers do not cite digital resources used. Therefore, this raises the problem of the visibility of digital research methods and content. A suggestion towards addressing this issue in the context of the case studies was that part of the case studies should be the publication of the research produced and the content used.

The role of Europeana Research and cross-project collaboration

Europeana Research could be seen as a tool, facilitating access to content. However, what is the added value of using Europeana as opposed to going to ten different sites? Viewing it as a tool is not enough, there should be more tools on top of that to ensure channeling to Europeana. Having other Cultural Heritage Institutions sharing Europeana data on their portals is a successful way of channeling Europeana and an indicator of usefulness of that content as well.

Having invited several key representatives of other project initiatives in the workshop, the discussion oriented towards cross-project collaboration as a beneficial way for all projects involved and for better serving the community. DariahTeach was the first initiative to be discussed as a way of providing training in using Europeana and developed tools. “Can we find ways to collaborate on modules in how we can use Europeana, and how we can teach undergrads and younger to use Europeana sooner rather than later in their careers”. This would automatically create a community of users around the platform and will result in much more useful feedback on what should be further developed.

The project EHRI was also in the agenda and it was suggested that it could function as a guide for collection level descriptions it produced aiming in the case of Europeana to reach a wider audience. Cross-project collaboration would voice out and communicate what has been developed so far by all projects as a two-way street to get people to the data and that will lead to things from one project being reused in another project. There were thus two levels identified, the first was to engage with cutting edge research in infrastructures, and then address this and communicate it back to the community of practice level.

Second Round Table Discussion: **Digital Content and Metadata for Research**

- What digital content and metadata is available and what are the barriers to knowing what is available? (discoverability, awareness, but also cultural issues and disciplinary issues that may inhibit the use of open content)
- What are the barriers to use and reuse of content? What about metadata?
- Are the aggregations of content and the tools or services that are available adequate for researchers?

- How can European Infrastructures scope user requirements to discover what is needed?
- How should European infrastructures interact with cultural heritage institutions?
- What should cultural heritage institutions do to make their digitised content more amenable for research use?

The second roundtable introduced the different stakeholders to the new initiative of Europeana Research which will focus on building thematic use cases allowing collaboration with partner infrastructures in terms of content and research audience. Among the issues raised in this session was data licensing, copyrights and interoperability which provided valuable feedback in the development of the new platform.

Interdisciplinarity

One of the issues raised in this roundtable was the aim of Europeana to bring all disciplines together, facing the challenge of combining interdisciplinarity and the broad spectrum of content with particular needs of sub-disciplines. Calling archaeologists for example to share their content or expertise should have clearly stated advantages of that specific discipline for sharing its material and knowledge to the rest of the community.

Collection-level descriptions

With a different orientation in the data ingestion policy applied so far in Europeana (item-level ingestion), it was suggested that creating collection-level descriptions would be much more useful to the research community. Therefore, a definition of the term ‘collection’ had to be given. Collections were thus defined as thematic groups of items within Europeana. Similarly, the project Europeana Creative has been identifying a set of collections that could be of use to creative industries. Currently, the collections produced are almost separate islands urging for further interconnectivity. Working on collection level descriptions and interconnecting them can be an easy first step to support users navigating through Europeana. Apart from that, it should be noted that these descriptions should be cross-project /cross-infrastructure in order to allow researchers to get what they actually need from the content but also multilingual, allowing thus users to get past the barriers of language and get to the item they want on the content provider’s website / archive.

A quite important innovation suggested during this roundtable was for having non-digitised collections described in Europeana. There was a similar point made at one of the Expert Forums held within Europeana Cloud at the University of Gothenburg on Social Sciences Researchers. It was argued there that “you have content providers offering content to Europeana, but they do not necessarily have digitised items only. What about a description of a non-digitised content that can tell people where they can go to access that. Europeana can in this way mirror more content”.

Digital content and metadata

The discussion evolved around the issue of availability and visibility of digital content and sharing metadata. About metadata, it was argued that publicly available metadata enhance the visibility of the relevant resources and encourage reuse from researchers. The participants insisted on the importance of openness, for both data and metadata, and of making things as open and easy as possible.

It was argued that one of the barriers for sharing data and metadata has to do with the fact that holding institutions need to be ensured that giving content is of their best interest. Also, they have invested a lot of time and effort to create metadata and they consider it part of their own institution and are reluctant to share. The result of this is that high quality metadata remain often kept inside the institution.

Another issue related to sharing data that was vividly discussed by the group had to do with the nature of certain data and the cases when sharing is not appropriate because of rights and/or of special sensitivity issues. An example provided had to do with data from oral history interviews, which might have free copyright but they shouldn’t be freely available to the public in all cases. It was argued that a distinction should be made between the rights and the sensitiveness of some data. In this case the group discussing this issue agreed that there is a lack of legal framework as well as a problem of differentiating between those two categories.

For making data easy to discover, connect and reuse on the Web, it was argued that it is important to use unique, persistent, differentiable and shared URIs (Uniform Resource Identifiers). Using “stand off” markup with URIs provides “hooks” in the data that enables its connectivity, without disrupting more bespoke metadata to fit the content of the collections.

Moreover, by sharing metadata they get improved, since the very process of sharing means that you start to view your resource in relation to others.

Europeana users, access and content

For Europeana, it was argued, it would be useful to differentiate access to resources, allowing people from certain institutions to only have access for example to oral interviews. This would build a level of trust that users have access to content namely and would allow particular researchers to access the content. Another differentiation between users could possibly have to do with the skills that each user has.

Regarding the overall role of Europeana vis-à-vis its users, it was argued that Europeana should be the place to demonstrate, exhibit but also the place for people to build things on top of it, and that it should never be the "go-to" place itself. According to the participants, Europeana should acknowledge the different needs, and different content; it's not the place for everything. It was suggested that the example of Europeana Labs could be followed: to creatively use Europeana content and build interest around it.

It was also argued that users are more interested in tools rather than on infrastructures and that more detailed user requirements on tools, rather than on infrastructures, are needed.

Europeana should have data and metadata as open as possible, because this would encourage other people to share and to use the resources. Additionally, the group participants argued that the use of the Europeana portal and of resources should be measured not only for measuring success but also for using this impact to convince content providers and institutions to provide more content to infrastructures. Furthermore, it was argued that it is important both for content providers and researchers to see that work is rewarded. A suggestion towards rewarding researchers was to be recognized by peers, such as funding agencies and universities for career progression.

About content, in the context of Europeana, it was argued that having everything that is available is probably not an easy objective. Harvesting everything makes things more complicated and difficult. Moreover, the issue of transnational access to content and the differences between each organization in different national contexts was mentioned and it was suggested that Europeana could function as guiding transnational research infrastructure.

This brought up the issue of cultural heritage institutions and the ways Europeana could interact with them in order to be valuable for content holding institutions and for individuals. It was argued that Europeana holds the necessary expertise and awareness of these issues and could become a “broker” in this context as well as a facilitator. It could thus most usefully serve the community by being the broker between data curators (who hold valuable cultural material) and researchers (who want access to and the ability to use it). In this sense, Europeana should be facilitating links between the data curators and encouraging collaborations between data curators and researchers. It shouldn’t be about Europeana aggregating all the data in one place and building a search portal, since such a model would put off data providers. There is power in the aggregation, but that should be in the hands of the researcher, to aggregate the data they’re interested in.

Developing case studies

Similar to the first roundtable session, case studies were at the core of discussion as a way of reuse and analysis of Europeana content for research purposes and cross-project collaboration in this concern. The first suggestion for a case study was based on work conducted by the European Library in 2014 when EU libraries and the European Library collaborated on a portal for digital and non-digital items. The aim was for partners to work on a collection and provide a description to make it more discoverable. Similarly, another suggestion referred to a possible interconnection between EHRI and Europeana for linking collection level descriptions of all items in Greece, for example, providing links to materials that are not even seen in the portal but are described. This would result in liberating stuff out of Europeana and contextualising Europeana held material with other knowledge held elsewhere. Such and several other scenarios were given for developing case studies under different thematic areas, with different audiences and project collaborations.

The group concluded to:

* Develop case-studies with partners that are already involved with Europeana so that they would act as ambassadors once the work is completed.
* Show multiple points of entry to allow different sized projects and archives to be able to enrich their metadata and sign up to Europeana Research initiatives.
* And target the initiatives, not just the infrastructures, and move beyond Europeana project-base.