DELIVERABLE

Project Acronym: **Europeana Cloud**

Grant Agreement number: **325091**

Project Title: **Europeana Cloud: Unlocking Europe's Research via The Cloud**

Deliverable D1.1 – Research Communities Identification and Definition Report

Revision: Final

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Project co-funded by the European Commission within the ICT Policy Support Programme	
Dissemination Level	
PU	Public	

Revision History

Revision	Date	Author	Organisation	Description
1	08.03.13	Petra Links	KNAW-NIOD	Initial draft
2	25.03.13	Petra Links	KNAW-NIOD	Update draft; processed comments, DCU/ATHENA TC
3	16.06.13	Kees Waterman	KNAW-DANS	Light editing
4	28.06.13	Kees Waterman	KNAW-DANS	Sent out for contributions, UGOT / SND
5	05.07.13	Kees Waterman	KNAW-DANS	Processed, first contributions, UGOT / SND
6	09.07.13	Kees Waterman	KNAW-DANS	Processed, second contributions, UGOT / SND
7	10.07.13	Kees Waterman	KNAW-DANS	Sent out for comments to RCAB
8	25.07.13	Kees Waterman	KNAW-DANS	Processed comments, RCAB
FINAL	29.07.13	Kees Waterman	KNAW-DANS	Light editing

Table of Contents

This report lays out the research communities with which Europeana needs to engage. It should be read **in conjunction with** two associated spreadsheets, listing relevant research projects in the Humanities and the Social Sciences: 'D.1.1_Communities_Table_Humanities' and 'D.1.1_Communities_Table_SocialSciences'.

1.0 Introduction

Europeana was born as a political vision to create social and economic capital:

'We believe in making cultural heritage openly accessible in a digital way, to promote the exchange of ideas and information. This helps us all to understand our cultural diversity better and contributes to a thriving knowledge economy.' [1]

Launched as a proof of concept in 2008, Europeana aggregated in the following four years more than 26.9 million objects, from more than 2,200 content providers and 142 aggregators. It is Europeana's ambition to move from this centralized platform, acting primarily as an aggregator, to a more distributed model. In the years 2011 to 2015 Europeana is about to take its place in a wider European information space, collaborating with other aggregators of content and engaging with users.[2]

It is in this context that the project Europeana Cloud: Unlocking Europe's Research via The Cloud (eCloud) has been conceived and will be carried out. The project's main objectives are to provide new content, new metadata, a new linked storage system, new tools and services for researchers and a new platform, Europeana Research. For Europeana Cloud to achieve these objectives, it is essential that researchers' needs are thoroughly understood. Europeana Cloud work package (WP) 1 is concerned with assessing the researcher needs and to ensure that community engagement plays a key role in this process.

The present report is one facet of this effort. It seeks to identify and define the Humanities and Social Sciences research communities that will be supported via the Europeana Cloud.[3] Our findings should guide WP1 in our work to approach these communities and to assess their needs.

The European Science Foundation (ESF) defines 11 research areas.[4] Europeana Research will facilitate access to Europe's cultural and intellectual heritage for researchers in two of these areas, the humanities and the social sciences. The target research community that Europeana Research intends to support will be researchers undertaking digitally-enabled research in those disciplines. Such researchers carry out their research using computational methods[5] to analyse and interpret digital source materials, such as those aggregated by Europeana Research. In this report we present both computational methods and types of (digital) resources, grouped around several subject domains within the humanities and social sciences where scholars are increasingly agile in digital identification, combining, handling, and analyses of (meta)data.

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[1] See, for instance, the Europeana Foundation's website, http://pro.europeana.eu/foundation.

[2] *Europeana strategic plan 2011 – 2015* (http://pro.europeana.eu/c/document_library/get_file?uuid=c4f19464-7504-44db-ac1e-3ddb78c922d7&groupId=10602) 5. Jill Cousins, *Europeana Cloud as part of the Europeana Ecosystem* (presentation, kick-off Europeana Cloud, The Hague, 4 March 2013) 10.

[3] *Europeana Cloud: Unlocking Europe's Research via The Cloud. Description of Work* (18 October 2012) 5.

[4] These are, in alphabetical order: '(1) Humanities, (2) Life, Earth and Environmental Sciences, (3) Marine Sciences, (4) Material Sciences and Engineering, (5) Medical/Biomedical Sciences, (6) Nuclear Physicals, (7) Physical and Engineering Sciences, (8) Polar Sciences, (9) Radio Astronomy, (10) Social Sciences, (11) Space Sciences: http://www.esf.org/research-areas.html.

[5] Examples of computational methods can be found in the Arts-humanities.net community-led computational methods taxonomy: http://www.arts-humanities.net/ictguides/methods.

1.1 Methodology

The analysis presented here is mainly based on desk research. For the section on the Humanities, it has greatly benefited from information on methods and projects in the database on the website arts-humanities.net. In addition, several experts provided us with helpful suggestions. Our identification and definition of research communities in the Social Sciences is primarily based on a study of awards by national funding agencies and was further amplified by a review of research publications employing computational methods relevant to the various content types of Europeana.

In addition, the contents of this report are based in part on detailed inventories in two associated spreadsheets; one for the Humanities and one for the Social Sciences. The tables in the spreadsheets contain a detailed segmentation of the research methods and subjects, related to the kind of content types that researchers use within their sub-disciplines.

2.0 Defining and identifying research communities

Following the task of assessing researchers' needs, eCloud's description of work (DoW) makes the explicit choice to engage researchers from two specific research disciplines: humanities on the one hand and social sciences on the other. The focus on these two disciplines is not coincidental, as these two research fields are amongst those most familiar with using items from cultural collections. Europeana has prioritized these disciplines in their effort to engage users, also because these fields are actively developing adjoining European initiatives such as DARIAH and CESSDA.

Though the description of work is very clear about the disciplines to be included in Europeana Cloud, it is not as precise about what is meant by a community. This term appears to have been used rather loosely and therefor needs to be more clearly defined here. In principle, one could compile endless lists including bigger and smaller groups of researchers working for instance on in the same field, on the same project, within the same institute etc. To increase the focus and to give the definition more value for Europeana Cloud we took into account that Europeana provides digital resources and that Europeana Cloud will offer cloud computing technologies[6] to approach these. Thus, potential users should be familiar with, or interested in using digital content and using computational methods to work with digital resources. Applying the Rogers Adoption/Innovation curve on the varying familiarity with and intensity of using ICT tools, the target audiences consist of the early adaptors and innovators (Rogers 1995).[7]

The term 'method' broadly refers here to all the techniques and tools that are used to gain new knowledge in the various academic fields. A method is computational if it is either based on ICT (e.g. database technology), or critically dependent on it (as in the case of statistical analysis).[8]

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[6] *Europeana Cloud. Description of Work*, 5.

[7] Dutton & Meyer (2009) found that only few percent of social scientists now report a sceptical or critical attitude toward e-social science. But it has also been observed that social scientists are particularly slow when it comes to embracing e-science (Ackland 2009). Related to this is also Halfpenny and Procter's (2010) categorization of social scientists based on their disposition toward digital technology. By this classification, most social scientists would still be regarded as members of the category termed 'unengaged'.

[8] This definition has been taken from: arts-humanities.net; *Methods,* http://www.arts-humanities.net/ictguides/methods.

Following this we define in this report a community as:

A group of researchers working in a common subject domain that is either part of the humanities or social sciences, who use similar computational methods to create, analyse and disseminate a certain content type of a digital resource.

Taking computational methods and resource or content types as reference points in defining communities will help us to identify researchers' needs and user requirements of the platform Europeana Research. Identifying methods that are commonly used (in the humanities) and fundamental types of resources (in the socials sciences) will assist Europeana Cloud in developing a sustainable focus and in selecting both the methods and digital resources types that should be incorporated. Thus, communities in this report can be existing groups, for instance if they work together on a project or within an institution. But at the same time it can also refer to (virtual) constructs of researchers grouped together while using the same methods.

Given the wide scope of humanities and social science research, the fields defy attempts to arrive at uncontested classification and rubrifications. Several scientific traditions, funding organizations and science foundations adhere to divergent definitions of what main types of research should be placed under such 'umbrella terms'. For the social sciences, Borgman (2007) points out that the field "tends to be defined only by listing the academic fields that it incorporates" and mentions anthropology, economics, political science, sociology, and psychology as common disciplines found in such listings (202).

According to the sociologist Wallerstein (1999) globalization has changed our (research) universe to such a degree that older disciplinary boundaries are increasingly perceived as archaic, unnecessary and obstructive. Having come to fruition within nation-state milieus, the social science disciplines are fundamentally challenged in formulating understandings of this global, borderless or transnational age. Moreover, interdisciplinary research is emphasized increasingly, pooling expertise, ideas and methodological competences across social science disciplines, as with the natural sciences and the arts and humanities. As a result, social science disciplines have become fractured and specific fields of study, new departments or units in academic institutions, and new professional bodies, such as migration studies or geocomputation were created (also see Backhouse and Fontaine 2010).[9]

We may conclude that there is a fuzziness to the fields, which is made no less indistinct by national and even regional differences. In fact, the UK research agency for the Arts and Humanities (AHRC) and its counterpart for Economic and Social Sciences (ESRC) recently released a joint statement on subject coverage interfaces between their respective domains.[10] Given the need to operationalize the inventories and reporting in this document, we have made various decisions in placing (sub-)disciplines under the two 'umbrella terms'; to an extent, such choices remain contentious and arbitrary.

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[9] The authors are indebted to Rob Kitchin for directing us to this discussion and the references.

[10] In 'Interfaces between the Arts and Humanities and the Social Sciences; A Joint Statement by the AHRC and the ESRC', the agencies identified the following fields where they "share interests and responsibilities" (in alphabetical order): Area Studies, Communications, Cultural and Media Studies, Cultural Policy and Management, Education, Gender Studies, Human Geography, History, Librarianship and Information Science, Linguistics, Law, Philosophy, Religious Studies, and Social Anthropology. See:
http://www.esrc.ac.uk/_images/Joint_AHRC_ESRC_Statement_on_Subject_Coverage_tcm8-2637.pdf [n.d.].

2.1 Subject domains – Humanities

As this report intends to guide WP1 in their work to approach communities within the humanities to assess their needs we chose six large subject domains within the humanities as a starting point in identifying the computational methods that are used. These domains were selected as the outcome of discussions at the kick-off meeting of Europeana Cloud, March 4-5 2013. The selection reflects an attempt to include: a) a wide variety of types of (re)sources used in humanities research; and b) subject domains that are sufficiently distinct from each other, so as to avoid high degrees of overlap between them. Consequently, this report will focus on:

- Archaeology
- History
- Law
- Linguistics
- Musicology
- Philosophy

The prime sources that we have consulted in order to identify computational methods within these subject domains are:

- arts-humanities.net[11]: a hub for research and teaching in the digital arts and humanities, developed and managed by the Centre for e-Research (CeRch)[12] at King's College London (KCL). It was formed in 2008 by merging two existing projects: the ICT Guides database of projects and methods (led by Sheila Anderson, development of the taxonomy of research methods by Reto Speck and Sheila Anderson), and the AHRC ICT Methods Network[13] (led by Lorna Hughes and developed by Torsten Reimer);

- Monica Bulger, Eric T. Meyer, Grace de la Flor, et al., *Reinventing research? Information practices in the humanities* (2011);

- Angelis Stavros, Andreas Aschenbrenner, Agiatis Benardou, et al., *DARIAH Technical Report— Overview Summary* (2010).

2.1.1 Disciplines and research communities; Humanities[14]

The idea of what constitutes a discipline within the broader field of the Arts and Humanities has always been rather hazy, and largely depends on different institutional structures in various schools, universities and countries. Traditional disciplines, such as archaeology, history, classics, music, philosophy, literature, performing arts and others may or may not be represented in some universities, whilst some of them may also be taken to resort under the Social Sciences or other Faculties. Moreover, Arts and Humanities disciplines are divided into various specialisms and subspecialisms, which may or may not be represented in all institutions (Terras 2010).

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[11] http://www.arts-humanities.net/
[12] http://www.kcl.ac.uk/innovation/groups/cerch/index.aspx
[13] http://www.methodsnetwork.ac.uk/
[14] After *Preparing DARIAH* Public Technical Report.

In the course of the empirical research conducted in the context of *Preparing DARIAH*, an attempt was made to cover the best part of the conventional Arts and Humanities disciplines, from classical and field archaeology to ethnomusicology, material culture and art history. More specifically, the project sought to approach and include researchers working in those fields in which disciplines could fall into one or more of the following categories (Dallas 1998):[15]

1. Hermeneutic research, dealing with complex, agglomerative structures of argument manifested in the *corpus* of earlier scholarship, rather than experimental, dealing directly with the empirical domain viewed as a closed system,

2. Narrative, textual and rhetorical research; value-laden and judgmental (as, for instance, in historical disciplines); and idiographic — interested in individual facts or stories — rather than nomothetic,

3. Research in which arguments cannot be reduced to formal syllogisms (laws, explanations), as prescribed in positivism. On the contrary, central questions often come in the form of "what is?". From language studies to history and archaeology, descriptions do matter in humanistic research, often more than explanations. As noted by Grabar (1993), "establishing facts depends on clear and known procedures, which become the object of training to enter any field in the humanities".

4. Research situated in the practice of the isolated, Humboldtian author, in which its practitioners acquire their skills through apprenticeship, rather than adherence to a methodology — a fact leading some authors to label this form of research "intuitive rather than deductive" (Kolker and Schneiderman 1996).

Along those lines, it was opted to focus on researchers engaged in research which followed similar thematic subjects and methodologies complying with the aforementioned points, attempting to cover, to the extent that this was possible, the best part of Arts and Humanities principles.

Taking guidance from these principles, we compiled a detailed inventory of projects from the arts-humanities.net website, adding projects suggested by specialists in the subject domains Achaeology and Musicology. This resulted in an elaborate matrix for the (e-)Humanities, listing research projects according to main discipline, content types of research material, research methodologies and applied methods.[16] Allocation of main disciplines to either the Humanities or the Social Sciences will, to some degree, remain a somewhat arbitrary activity: whether or not Archaeology, Linguistics and Law should be listed under the Humanities will remain a matter of debate.

The 36 projects in the spreadsheet represent prime candidates for outreach activities by various participants and work package groups of Europeana Cloud. We also believe that entry into these projects and their respective researchers, leadership and board networks will generate contacts in adjoining research projects and subject matters. Both in methodologies, time periods and geographic areas covered, the listed projects present a welcome spread and diversity.

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[15] Arguably, this excludes quantitative empirical research. Whilst this kind of research is expected to become more prominent in the near future, it is currently not strongly represented.

[16] See the associated Excel-file, 'D.1.1_Communities_Table_Humanities'.

2.2 Subject domains – Social Sciences

For the social sciences, six large subject domains were identified by examining projects that had been awarded funding by national grants committees. Within each discipline were then identified projects that employ digital methods in their analysis of material corresponding to Europeana's content types.

In the course of our desk research, the Project Database of the Swedish Research Council and the Research Catalogue of the UK Economic and Social Research Council were used to provide an intimation of what disciplines or sub-disciplines may find Europeana most useful for research activities.

From the Swedish Research Council's database were extracted all approved funding applications from 2007 through 2012 in the Humanities and Social Sciences. These encompassed some 800 applications within the social sciences; numbers are approximate as all applications were not committed to either one field or the other but to "Humanities and Social Sciences Generally". From the social science applications were then taken projects that were deemed, from their title, to have possible use for Europeana material in particular or European cultural heritage material in general. These 69 projects belong to the various social science disciplines as follows (a further 13 applications were classified as Humanities and Social Sciences Generally and were multi-disciplinary or not easily classifiable for other reasons):

Discipline or Sub-discipline[1]	Number of applications[2]
Economic History	25
Gender Studies	7
Political Science	7
Sociology	5
Cultural Geography	4
Peace and Conflict Research	4
Anthropology	3
Media and Communication Studies	3
Multidisciplinary studies of Democracy	3
Research and Policy Studies	2
Democracy and Public Life	1
Environmental Science	1
Human Ecology	1
Museology	1
Psychology	1
History of Health	1
Total	**69**

1. Note that the subject area ("ämnesområde") of the application has been used rather than the applicants' departments, as many departments comprise several disciplines in various combinations. It is also possible for a researcher belonging to one department to apply for funding for a project in a (nominally different) discipline, for instance as part of an interdisciplinary collaboration.

2. Awarded funding, and to with Europeana/cultural heritage material is conceivably useful.

Of these sub-disciplines, some can readily be subsumed under their main disciplines, yielding the following list of six disciplines most likely to find use for Europeana material in their research:

Discipline	Number of applications	% of relevant applications (N=82)
Economic History	25	30
Political Science	13	16
Gender Studies	7	9
Sociology	5	6
Cultural Geography	4	5
Peace and Conflict Research	4	5
Total	**58**	**71**

It is hardly surprising that economic history dominates the list, as cultural heritage material to a large extent is of a historical nature. Any discipline that includes a historical aspect is more likely to find the Europeana material useful for research purposes, although the material's usefulness is not limited to historical analyses.

A similar approach was adopted for the research catalogue of the (UK) Economic and Social Research Council. Here, too, some 800 approved applications were extracted, and the projects were then, again, deemed to have possible use for Europeana material on the basis of their titles and short descriptions. 57 projects were included, of which 55 were grouped into one of 17 disciplines within the social sciences (the remaining two applications were too multi-disciplinary to be easily classifiable).

Discipline or Sub-discipline	Number of applications
Economic & Social History	13
Sociology	12
Social Anthropology	4
Social Policy	4
Human Geography	3
Political Science	3
Psychology	3
Socio Legal Studies	3
Criminal Law & Criminology	2
Area & Development Studies	1
Demography	1
Economics	1
Education	1
International Studies & Relations	1
Post-colonial Studies	1
Religion	1
Science and Technology Studies	1
Total	**55**

Collapsed into the top six disciplines gave the following list:

Discipline	Number of applications	% of relevant applications (N=57)
Sociology	19	33
Economic & Social History	13	23
Political Science	5	9
Social Anthropology	4	7
Human Geography	3	5
Psychology	3	5
Total	**47**	**82**

There are some discrepancies between the top six disciplines for Sweden and the UK but it is worth noting the similarities first: Sociology, Economic (& Social) History, Political Science, Cultural/Human Geography all made the list in both countries (albeit under slightly different names). This is hardly surprising, as these are disciplines that are firmly associated with the social science field. The occurrence of Gender Studies and Peace and Conflict Research on the Swedish list is indicative of the relative prominence of these areas in some Swedish universities; on the UK list, we find a further two rather "typical" social science disciplines: Psychology and Social Anthropology, which both appear on the Swedish "long list", although further down.

An attempt to broaden this analysis to a few more European countries and funding agencies gave less encouraging results, not because they pointed in other directions but because of scarcity of available data. The Netherlands Organisation for Scientific Research (NWO) lacked a comprehensive database of funded projects, but a quick inventory of their web site (http://www.nwo.nl/) gave 15 recent social science programmes and (postdoctoral) research projects that may find use for cultural heritage material, tabulated below:

Discipline or Sub-discipline	Number of applications
Political Science	3
Sociology	3
Economic Geography	2
Law	2
Political Geography	2
Pedagogy	1
Policy and management	1
Social and Organizational Psychology	1
Total	**15**

Although this sample contains a limited number of projects, it can be noted that again, Political Science, Sociology, and (Economic and Political) Geography made their appearance, supporting the Swedish and UK cases.

An attempt to carry out a similar investigation of two major funding agencies in Germany (Deutsche Forschungsgemeinschaft [DFG] and Fritz Thyssen Stiftung) resulted in no social science projects that suggested possible use for cultural heritage material of the kind found in Europeana.

Combining the characteristics of all relevant projects that we have identified gives the following table of six large(r) disciplines or subject domains that qualify as prime target communities within the social sciences for Europeana Research:

Discipline/Subject domain

Economic & Social History
Sociology
Political Science
Human/Economic/Political/Cultural Geography
Gender Studies
(Social) Anthropology

It should be pointed out that our inventory yielded the same number of projects that related to various legal studies disciplines as to anthropology. Markedly, law is one of the disciplines that is counted both to the Social Sciences and to the Humanities, In D1.1, we have arbitrarily decided to place it under the Humanities.

2.2.1 Disciplines and research communities; Social Sciences

In the course of our desk research for the social sciences section, unfortunately we have been unable to identify a single comprehensive resource (akin to arts-humanities.net for the humanities section) that could provide accrued project information. Applying a proper methodological alternative, we have instead searched information through research publications and their reference chains, and aggregated searches. More precisely, once the six main research communities had been identified, we next applied a desk research approach focusing on finding research articles employing computational methods relevant for the various content types of Europeana: *text*, *image*, *video*, and *sound*. The fifth content type (3D visualizations or constructs) was deemed less interesting, partly because of the relative scarcity of such material in Europeana and partly because few social science projects appeared to use such material as primary material. Instead, we have added the category *metadata*, as there were certain methods that would rely as much or more on the metadata of particular objects (for instance their geo-spatial information) than on the actual content. This seems all the more fitting, since Europeana heralds enhanced metadata to the portal's content as one of its principal areas of improvements.

For the social sciences section of this report this has resulted in a table, listing 35 research projects, organized by their published output and associated methodological approaches, pertinent to the aims of this report.[17]

It soon became apparent that for many researchers, the content of the material rather than the fact that it was digital (or digitized) was central to the analytical process. For them, tools that could aid them with their analyses, in a broad sense, would be valuable even though such tools did not constitute a digital or computational method in and by themselves. Examples would include ways to facilitate sorting, comparison, linking, and mark-up of material as well as various kinds of "editing layers" where a single researcher or a

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[17] See the associated Excel-file, 'D.1.1_Communities_Table_SocialSciences'.

group of collaborators could save pertinent information regarding the object(s). (See also milestone 1.4, "Desk Research: Digital research practices state of the art"**;** section "Reading and Writing".)

Still, it can be observed that most social sciences use data similar to that in Europeana -- the qualitative data tradition is very strong, analysing pictures, video, diaries, art, performance, etc -- but much of that data is contemporary and for reasons of data ethics in trusted digital repositories rather than open ones. As a consequence social science qualitative data is more likely to be held in national data archives (e.g., UK data archive hosted in Essex, Irish qualitative data archive) and subject to barriers to entry and codes of practice around re-use. Fundamentally, social science is concerned with people and society and researching them raises ethically issues, especially when personally identifiable and sensitive information is being analysed. It is not that social scientists are inherently not interested in Europeana data, but it is most likely from a historical rather than contemporary perspective due to ethics issues.

In addition, social scientists use the same kinds of methods as humanities in analysing qualitative data but also use others such as social network analysis. A large amount of qualitative data analysis is performed using software, especially if the dataset is large. One of the reasons that there is no recognizable 'digital humanities' equivalent in the social sciences is that they have been using software to manage and analyse data for a much longer time period than their peers in the Humanities, so its use may not be seen as anything new or in need of a separate label (Halfpenny & Procter 2010, p 3766).

3.0 Summary and recommendations

Using two differing approaches and sets of parameters, as presented in sections 2.1 and 2.2 above, we identified six subject domains in both the social sciences and the humanities as prime candidates to be supported via Europeana Cloud:

Humanities	*Social Sciences*
Archaeology	(Social) Anthropology
History	Social/Human/Economic/Political/Cultural Geography
Law	Gender Studies
Linguistics	Economic & Social History
Musicology	Political Science
Philosophy	Sociology

As indicated earlier, in order to narrow these categories further down, by research methods and research communities, inventories were made of research projects. In subject matter, geographic scope, time periods, engagement with content/resource types and in digital methods, the 71 research projects (Humanities: 36, Social Sciences: 35) that constitute these communities present a welcome diversity and spread. For the

social sciences we plotted research methods in a matrix consisting of disciplines and content types.[18] As with the humanities, one project (here: a research publication) may occur in multiple places in the matrix. For the social sciences it can be observed that:

- half of the projects (17) that we inventoried deploy *mining techniques* (text and (spatial) data); such projects have a relatively high presence in the fields of Political Science (7) and Sociology (3);

- a sizeable number of the research projects (8) is occupied with (social) *networks* and sociograms;

- *visualization* and *visual analysis* occur with some frequency (6), mostly in Political Science and Social Geography.

For the **humanities**, an area where the term Digital Humanities has already developed more into a trademark of some sort, we developed a more elaborate spreadsheet, in which the organizing terminology of the arts-humanities.net initiative was applied.[19] In their use or creation of five main types of digital sources (text, image, etc.), the 36 projects 'scored' 194 applications of 'methods' from the art-humanities.net listing. Based on that matrix, we can report that:

- the inventoried research projects most commonly deploy 'methods' that are part of the following overarching 'method categories' (arts-humanities.net): data analysis (81 applications of method), strategy and project management (46), communication and collaboration (25), data structuring and enhancement (23), and data capture (18);

- at the sublevel of 'methods' (arts-humanities.net), the deployment through the projects is diverse, with many labels not appearing more than seven (7) times. Exceptions to this pattern are: collating (28), content analysis (8) and record linkages (8), all three from the category data analysis; audio interaction (17) and resource sharing (8), both from the category communication and collaboration; various types of text encoding (15), from the category data structuring and enhancement; and 2nd scanning and photography (8), from the category data capture;

- the subject domain History has clearly developed as a prime example of the Digital Humanities, showcasing projects in all method categories and methods; these projects interact with and perform research on all of Europeana's (prospective) resource types, with the sole exception of 3D objects;

- the subject domain Law presents the same status, with the exception of two resource types: moving images and 3D objects;

- the subject domain Archaeology shows a considerable number of suitable e-projects; it is the main subject domain listing projects that engage with 3D objects and apply the associated methods 3D-modeling and spatial analyses[20];

- the subject domain Linguistics showcases projects, engaging with almost all resource types, but the spread is very thin;

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[18] Again, see the associated Excel-file, 'D.1.1_Communities_Table_SocialSciences'.

[19] Again, see the associated Excel-file, 'D.1.1_Communities_Table_Humanities'.

[20] For convenient listings of such projects, see the website of the international Computer Applications and Quantitative Methods in Archaeology (CAA) conferences; http://caaconference.org/proceedings/online (accessed 20 July 2013).

- the subject domain Musicology constitutes an area of burgeoning Digital Humanities projects, with a growing number of method categories covered;

- the number of identified and allocated projects has remained very small in the inventory for the subject domain Philosophy. The same holds for the resource type moving image. We recommend additional inventorying activities for these main disciplines and resource types.

It is recommended that within the Expert Fora of WP1, specific attention is devoted to inventory the tools and content that Europeana Cloud needs to accrue and offer in order to cater to the specific needs and requirements of the targeted communities. Moreover, the steps that are required to increase compatibility between these communities and the dedicated Research Platform should be an integral component of the WP's final Expert Forum, set to deliver Future Recommendations for the entire project.

More so than humanists, social scientists often combine quantitative and qualitative data from multiple sources, especially when studying current events, such as elections. Arguably, Europeana Cloud is oriented predominantly to the aggregation of qualitative data. Whether the project should invest in creating provisions for social scientists to tap into corpora of both quantitative and qualitative data might be a matter of debate in several Work Packages of Europeana Cloud. A pertinent sub-question in this matter is whether research tools in general are perceived to be an integral part of the services to be made available in Europeana Research, or if the use of such instruments is left to the choice of researchers after they transfer data from eCloud into their research environment. In general, having data (textual and other) available in different export formats would enable and enhance quantitative analysis by researchers.

Europeana Cloud should make concerted efforts to reach out and engage with projects on both a larger and a smaller scale, where scholars and scientists are actively developing and reshaping their e-research practices. This report aims to present the first pathways for doing so.

Especially given the highly specialized nature of the vast majority of contemporary research activities, the descriptors used in the Europeana's most recent content analysis report[21] are generic to such a degree as to impede formulating informed connections between on the one hand current assemblages of content groupings and relevant corpora of research data on the other hand. Developing more meaningful connections in this regard will rely on increased granularity of Europeana's content analysis and description, both on Europeana's own account and within the framework of further activities in Work Package 1 and adjoining work packages. In turn, this will feed discussions relating to gap analyses of Europeana. It can be observed, for instance, that while our report (and its associated inventories) identifies Musicology as a burgeoning e-research community, Europeana's content report concludes that in 'text' and 'sound' collections, music content is weakly represented. Also, the content report contains the finding that in terms of 'image' collections, content for the field of Economy is underrepresented. A more positive matching can be found for historians and textual scholars, as Europeana's offerings of 'text' and 'image' collections are relative strong for periods starting as early as the sixteenth century.

Obviously, the projected growth of Europeana's content as presented in the DoW[22], deriving from both existing and new aggregators, will significantly increase eCloud's offerings to various research communities identified in this report. Should these envisioned content uptakes into Europeana indeed be implemented, e-

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[21] Europeana Content Analysis; Content available through Summer 2010.
[22] DoW, section B.2.1b. "Underlying content", 68-92.

researchers in for instance the field of Political Science stand to gain access to notable collections of primary sources. This pertains specifically to collections from the Université Libre de Bruxelles, the German Central and Eastern European Online Library and the Biblioteca de Catalunya. Similarly, social scientists from many research communities will welcome the projected inclusion of datasets from CenterData (Dutch) and CESSDA.

For these additions to comply with the needs and requirements of various research communities, one of the key challenges for Europeana will be to develop enhanced calibration of the metadata of individual items and entire research collections with relevant resource descriptors and identifications of possible deployment in humanities and social science research.

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Note: this excludes the literature listed in one of the Excel-files associated with this report, 'D.1.1_Communities_Table_SocialSciences'.

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