ANNUAL PROGRESS REPORT
and Deliverable D7.5

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Project acronym: **Europeana Cloud**
Project title: **Europeana Cloud: Unlocking Europe's Research via The Cloud**
Project type: □ Pilot A □ Pilot B □ TN √ **BPN**
Periodic report: 1st □ 2nd √ year 3rd □ 4th □
Period covered: from 1 February 2014 to 31 January 2015

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All deliverables are available from:

http://pro.europeana.eu/web/europeana-cloud/results/-/document_library_display/p6BV/view/2240207

DECLARATION BY THE PROJECT COORDINATOR

I, as coordinator of this project and in line with my obligations as stated in Article II.2 of the Grant Agreement declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;

- The project (tick as appropriate):

    ☐ has fully achieved its objectives for the period;

    ☑ has achieved most of its objectives for the period with relatively minor deviations;

    ☐ has failed to achieve critical objectives and/or is deviating significantly from the schedule.

- The public Website is up to date;

- *[this point only applies to projects with actual cost reimbursement]* To my best knowledge, the information contained in the financial statement(s) submitted as part of this report is in line with the actual work carried out and consistent with the reported resources and if applicable with the certificates on financial statements.

Name and position of Coordinator: ALASTAIR DUNNING, THE EUROPEAN LIBRARY / EUROPEANA FOUNDATION

Date: 17 / 2 / 15

Signature:

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PUBLISHABLE SUMMARY

Europeana Cloud: Unlocking Europe's Research via the Cloud

Europeana Cloud aims to provide the Europeana ecosystem, and in particular the aggregators of libraries, archives, and museums data, with a new infrastructure for sharing, accessing and using metadata and digital objects. Currently, metadata travels in one direction from data providers to Europeana. The Europeana Cloud infrastructure will help replace this system, allowing for the two-way exchange and enrichment of metadata, and for experimentation in digital object storage.

Backed by a sustainable business model, this infrastructure should save time and costs, and allow for the greater exploitation and dissemination of data. Reinforcing one of the potential use cases, the project provides tools that allow research communities in the digital humanities to work with the metadata and objects in Europeana Cloud.

Main Objectives

The project has three main objectives:

INFRASTRUCTURE: To build a sustainable cloud-based infrastructure providing cost efficiencies for storing, sharing and accessing cultural heritage, with a legal framework for the access and re-use of the material.

CONTENT: To source, prepare and add new data (5m content items and another 2.4m metadata records, along with existing data from Europeana, The European Library and the Polish Digital Libraries Federation) to the Europeana Cloud infrastructure.

USE: To engage innovators and developers to build third-party services and tools so that audiences (in this case, humanities and social sciences researchers) can access, work on and share the content via platforms such as Europeana Research.

Significant Achievements

The significant achievements of the year are:

- Key aspects of the technical architecture of Europeana Cloud are up and running. This includes the metadata and content service; the unique identifiers service; the data look-up service; the asynchronous messaging service; the logging service; and the authentication and authorisation service. The storage cloud of Europeana Cloud is also in place.
- The establishment of a long-term business plan featuring the precise value propositions and customer segments of Europeana Cloud, with details of the products and services being created.
- A partial reformulation of the project to adapt to the changing landscape of the ecosystem of data providers and aggregators and to Europeana being established as a Digital Service Infrastructure.
- An exhaustive piece of work charting the research potential of the data made available via Europeana.
- Metadata ingestion is ahead of schedule - c.88% of metadata has been ingested. Requests for content have proven greater than expected: we will choose 5m from more than 7m content items offered from partners as part of the Content Ingestion Plan.

- A successful prototype research tool, the Early Music Finder, developed on top of Europeana data.

Critical Points

The critical points for the year are:

- Late publication of some deliverables in response to the changing nature of the project and the changing position of Europeana.
- Rearrangement of the project management in response to the departure of MDR Partners; delays in documentation and related project management.

Work Packages

WP1 - *Assessing Researcher Needs in the Cloud and Ensuring Community Engagement,* Agiatis Benardou (Digital Curation Unit, Athens)

WP2 - *Developing the Infrastructure for Europeana Cloud*, Pavel Kats (Europeana Foundation, The Hague)

WP3 - *Exploiting Europeana Cloud with services and tools for researchers*, Erik Duval (University of Leuven, Belgium)

WP4 - *Ingestion of Content and Metadata Development*, Marian Lefferts (Consortium for European Research Libraries, The Hague)

WP5 - *Sustaining the Europeana Cloud: Legal, Strategic and Economic Issues*, Julia Fallon (Europeana Foundation, The Hague)

WP6 - *Dissemination and Networking*, Martin Moyle (University College London)

WP7 - *Project Management*, Els Jacobs (Els Jacobs Advies & Onderzoek, Netherlands)

europeana
cloud services
what is it and why
is it good for you?

sketch 6.0

Progress during the Second Year

Infrastructure

During the first year of Europeana Cloud, we concentrated on developing a shared technical infrastructure for the three aggregators in the project. In the second year, we focused on how the project's outputs will develop into a sustainable service on its completion in early 2016. The publication, in July 2014, of the *Europeana Strategy 2015-2020* played an important role in our thinking, as did the decision of the European Commission to fund Europeana as a Digital Service Infrastructure (DSI) under the Connecting Europe Facility (CEF).[1]

The evolving cloud infrastructure is now at the heart of Europeana. As mentioned in the CEF proposal, 'The Europeana DSI consortium (…) will innovate the aggregation infrastructure, moving away from the linear delivery of data into a central repository towards a distributive, technology driven architecture, giving unobstructed access to the digital objects, according to the conditions applied by the rights holders.'[2]
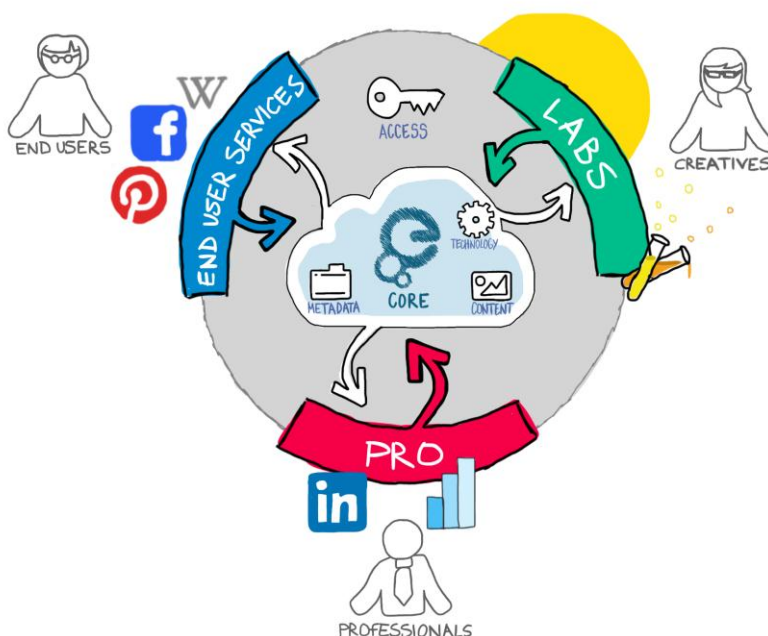
Europeana as a 'multi-sided' platform[3]

It is hard to manage 'scope creep' as technology moves apace and more and more cultural heritage organisations are reviewing the mechanisms for the storage and distribution of material. Europeana Cloud is therefore now considering how it can serve a full range of stakeholders within the Europeana ecosystem from 2016 onwards. This complements the work proposed in the first Europeana DSI project, in which Europeana serves not only end-users but creative re-users (in research or the creative industries) as well as professionals within the cultural heritage sector.

Work Package 5 - Sustaining the Europeana Cloud: Legal, Strategic and Economic Issues, leads these changes for the project and two new deliverables have been added to the work done: D5.6, Europeana Cloud Business Model and D5.7, Product & Service Requirements

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[1] http://strategy2020.europeana.eu/ Details of the call for funding for Europeana within the Connecting Europe Facility: -http://inea.ec.europa.eu/en/cef/cef_telecom/apply_for_funding/2014_cef_telecom_call_-_europeana.htm

[2] Taken from Europeana Foundation submission for funding to Connecting Europe Facility, September 2014.

[3] http://strategy2020.europeana.eu/

for implementing Europeana Cloud Services. The business model, in particular, helps develop the shared vision for the project and provides a clear path for the the service once the project funding finishes. The deliverables are based on research undertaken with some of the key aggregators in the Europeana ecosystem, examining the ongoing problems they face.

As detailed in D5.6, we will first focus on established aggregators who are keen to make use of Europeana Cloud as part of the Connecting Europe Facility. Many of them have already expressed an interest in using the Cloud. We will then expand our membership base, drawing in other aggregators and finally other data providers from individual cultural heritage institutions.
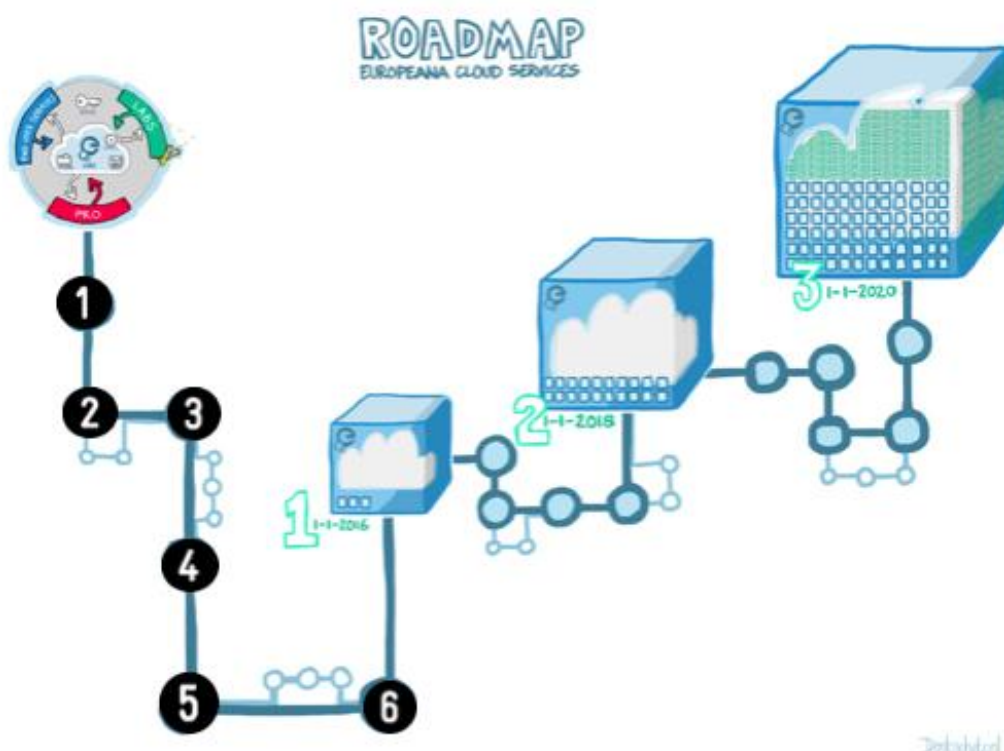
Europeana Cloud Roadmap.
The service is aimed first at aggregators included in the Connecting Europe Facility (2016),
then other aggregators (2017-8) and then individual data providers (2020)

The research has demonstrated the need not just for a shared infrastructure but for tools that make the task of harvesting and uploading content easier. The product requirements document (D5.7) also includes specifications for user-friendly tools to make the process of sharing content in Europeana Cloud much easier.

Elsewhere, development work on the Europeana Cloud technical architecture has continued. D2.4, merged with D2.5, describes the ongoing development of the technical architecture outlined in D2.2. Within the computational cloud (the part of the cloud that manages data), several of the individual services are now up and running. These are: the metadata and content service; the unique identifiers service; the data look-up service; the asynchronous messaging service; the logging service; and the authentication and authorisation service. The storage cloud is also in place.

The systems have been installed at one of the partners in the project, the Poznan Network and Supercomputing Center. A first tranche of security tests have been performed and minor

tweaks to the firewall were made. Initial performance measurements have also been taken on the key user-facing services. There were no significant performance issues with any of the services, except when uploading large files. This issue will be remedied in the final year of the project.

Finally, migrations of test samples of content were performed on data from the Polish Digital Libraries Federation and the UK's Open University. These largely worked well, but they raised issues about how future members of Europeana Cloud will export their content to the shared system. Two issues will need to be addressed in the work packages related to technology development (Developing the Infrastructure for Europeana Cloud, WP2) and business planning (Sustaining the Europeana Cloud: Legal, Strategic and Economic Issues, WP5). Firstly, how metadata is converted from the data model used in the original system to the data model in Europeana Cloud and secondly, how performance restrictions of the exporting system will be managed.

Content

Work package 4 - Ingestion of Content and Metadata Development, has continued to aggregate metadata from the various project partners in accordance with the Metadata Ingestion Plan. 2,237,786 metadata records have now been aggregated from the various project partners and converted from their disparate native formats into the Europeana Data Model (a full list of data aggregated is in the WP4 section of this report). This is a significant increase from year one, in which 845,711 records were processed with 6,449 appearing in Europeana.

Issues with data supplied by the academic sector aggregators have resulted in only 1,421,276 records being published on the Europeana portal so far. BASE (Bielefeld Academic Search Engine), DANS (Data Archiving and Networked Services) and OAPEN (the aggregator of open access books) have many digital objects without a clear rights statement. So while it is easy to technically ingest the metadata, the lack of a clear rights statement means it does not pass the policy for placement in the Europeana portal. This problem will be addressed in year three of the project. The Europeana Research Content Strategy (D1.6) will explore the issues raised by these datasets and see how the data can be improved and incorporated.

The Content Ingestion Plan (D4.2) indicates how content (full-text, images etc.) will be harvested from partners to Europeana Cloud. Sample content has already been ingested from two of the partners. Meanwhile, Milestone 21 begins to unpick how the Europeana Data Model (EDM) can be modified to deal with the ingestion of content into Europeana Cloud.

Use

Use of the content is covered by two work packages: Work Package 1 - Assessing Researcher Needs in the Cloud and Ensuring Community Engagement; and Work Package 3 - Exploiting Europeana Cloud with services and tools for researchers.

In the *Europeana Strategy 2015-2020*, 'Re-Use' is a major market focus for the platform's data and tools. Just as Europeana Labs is being developed as a place for the re-use of data within the creative industries, so Europeana Research, supported by Europeana Cloud, is being created for the digital humanities research communities.

Deliverable 1.4, Content priorities for Humanities and Social Sciences research communities, is a result of extensive work to gauge the direction that Europeana Research should be taking. We investigated the current Europeana and The European Library datasets and looked at their suitability for research according to geographic, chronological, disciplinary and format filters. We looked at the strengths and weaknesses of the Europeana dataset,

particularly in relation to the research need for fuller metadata and access to actual content, e.g. full text, images or audio-video files.

In D1.4, we created a series of recommendations and discussion points. For example, the recommendation that Europeana Research should consider delivering full text and more content from Eastern European countries. These recommendations will be resolved within D1.6, Content Strategy Report. Valuable points were also raised about the mechanisms for disseminating data - while APIs and downloadable data dumps provide ready access to data aggregated by Europeana, the use of APIs is far from being part of standard practice within the research community. These points will guide the actual development of Europeana Research and its related content strategy (scheduled for year three).

Wireframes have been created for the Europeana Research website. An introductory site should be in place in early 2015 and will evolve during the lifespan of the project.

Some preparatory wireframes for Europeana Research

Working with specific users and datasets, we have explored how Europeana data can be used meaningfully by research communities. In the first year, the focus was on early modern philosophy. In the second year, it was musicology, bringing scholarly experts together with Europeana data and the developers in WP3, Exploiting Europeana Cloud with services and tools for researchers.

The output was a prototype system tailored to the usage of Europeana data. Rather than one individual tool, it presented researchers with a series of tools that allow one piece of data from Europeana to flow through numerous different operations, for example, searching through relevant data, representing the data on a 'time map', putting the related musical score through the process of Optical Music Recognition (OMR) and then using another tool,

Music21, to analyse the output of the OMR. As documented in D3.3, the system was considered by musicologists to have '*great value in for answering research questions about a complete collection or generating new questions for such a collection'.*

Regular updates made to the website and the related blog and various dissemination activities have taken place (as outlined later in this report) under the auspices of WP6. The Europeana AGM (in Madrid, October 2014) was an opportunity to test some of the core messaging about the Europeana Cloud services, including a video (https://vimeo.com/114241258). We have deliberately held back on communications on Europeana Cloud outside of the consortium to be sure the messages are based on solid products and services. We are now closer to a clear business plan and to being able to deploy the Communications Plan for Promoting Europeana Cloud (D6.4).

Following changes at The European Library and the withdrawal of MDR Partners as project managers, Nicole Emmenegger (Europeana Foundation) has taken on the role of Project Coordinator, with Alastair Dunning (The European Library) switching to Scientific Coordination. Els Jacobs Advies & Onderzoek (EJA) is now leading WP7 Project Management.

To conclude: the third year of Europeana Cloud will carry forward the momentum developed in the first two years. The technical infrastructure will be completed and the datasets of Europeana, the Polish Digital Libraries Foundation and The European Library will be migrated to Europeana Cloud - a significant evolution in working practice for all three aggregators.

The final elements needed to offer Europeana Cloud as a sustainable service will be put in place. The services offered via Europeana Cloud will be a key part of Europeana becoming recognised as a Digital Service Infrastructure. The governance structure, cost model and revised licencing framework will be completed as part of the project and contribute to the support Europeana gives to the cultural heritage sector.

Finally, the Europeana Research platform will offer a new way for the research community to interact with the data ingested by Europeana. Just as the related Europeana Creative project produced Europeana Labs to target the creative industries, so researchers in the humanities will be able to make innovative use of the data aggregated, processed and stored in Europeana Cloud.

For more information:

The project website at: http://pro.europeana.eu/web/europeana-cloud

Scientific Coordinator: Alastair Dunning

Project Coordinator: Nicole Emmenegger

Project Manager: Els Jacobs

[end of publishable summary]

RESPONSE TO RECOMMENDATIONS FROM FIRST YEAR

There were five project recommendations from the project review in early 2014 of the first year. The projects' responses are listed below.

1) The financial reports, as part of Work Package 7, are presented in full within 30 days from the date of the review

This was done. Updated financial reporting for Year 2 will be prepared in time for the review in March 2015.

2) A formal schedule for the rectification of delays in Work Package 4 should be submitted to the Commission within 30 days from the date of the review.

This was done. There is updated metadata ingestion plan (Milestone 20) that reflects the current state of metadata ingestion in the project.[4]

3) The project should re-tune its key objectives to prioritise the use of the new technology platform to introduce new potential revenue streams for Europeana.

This recommendation would require more than a re-tuning for the project and we believe is outside of its stated scope. Rather, we urge that the project is considered in the light of the broader Europeana Foundation strategy for 2015 to 2020, which has clear plans to use the new technology platform to introduce new potential revenue streams for Europeana.

Under the new financial instrument of the European Union, the Connecting Europe Facility, Europeana will operate as a Digital Service Infrastructure. Guidelines for the CEF demand funded initiatives to 'become self-sustainable' after only a couple of years of funding. This is the context that the Europeana Foundation is working towards.

Europeana Strategy 2015-2020 focuses on developing a business model that includes the generation of funds from member states and growing a commercial arm that develops an incubator and labs network promoting and reaping the benefits of reuse of cultural heritage data and tools. Other projects funded by EU (for example, Europeana Creative, Europeana Space and Europeana Food and Drink, and the resulting Europeana Labs service) are all addressing the issue of earning revenue streams and feeding into this.

Europeana Cloud is a core part of this broader strategy; it is creating an infrastructure that will allow the European ecosystem of aggregators and data providers to share data much more efficiently, and provide the opportunity to build services on top of them. Re-tuning the key objectives of the Europeana Cloud project would imperil the ability to deliver this fundamental aspect of the project. The project needs to focus on providing a core technical infrastructure for the ecosystem, that others can then build services for revenue generation on top of, rather than trying to develop revenue streams by itself.

Certainly, Europeana Cloud should ensure that the way it is constructed allows for commercial exploitation. Indeed it is essential that Europeana Cloud can be used as core infrastructure upon which commercial and non-commercial tools are based upon. We will therefore ensure that the architecture being developed is sufficiently flexible to

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[4] https://www.dropbox.com/s/a3os33kpnc8sn1o/ECloud_MS20_Updated_metadata_ingestion_plan.pdf?dl=0

allow us to create revenue streams from both new suppliers using the Europeana Cloud infrastructure and from new users in the Creative industries.

The first of these is exemplified in the new Europeana Labs http://labs.europeana.eu which will use the back end infrastructure being developed under Europeana Cloud as soon as it is fully deployed. The project is therefore integral to the Europeana Strategic Plan 2020. The project will work continue closely with other relevant projects to deliver on the Strategic Plan. This is already partly done via the Cloud Coordination Group in WP7; but the Europeana Foundation proposes that it strengthens the work of WP7.1 to create further synergies with the projects focusing on revenue generation. Interaction from those project will guarantee that there is strategic alignment of Europeana Cloud with forthcoming business model of the Europeana Foundation.

4) **The project must generate credible and meaningful Key Performance Indicators (KPIs) for all major measurable outcomes that are part of the Project's deliverables. These should be provided to the Commission at least 6 months prior to the next Project Review.**

The updates Key Performance Indicators are included in this Annual Report.

5) **In the light of the first year's completed work, revisit the Project Risk Plan and make any changes and/or additions necessary. An updated Risk Assessment should be provided to the Commission at least 6 months prior to the next Project Review.**

The Executive Board reviews the risk register regularly at its meetings. A Risk Register is also included in this Annual Report.

PROJECT PROGRESS

Work Package 1: Assessing Researchers' Needs in the Cloud and Ensuring Community Engagement

Agiatis Benardou, Digital Curation Unit, Athens

Work Package 1 provides a link between the technical developments of the project and research community in the humanities and social sciences. A key ouptut of this year has been Deliverable 1.4 - Content Priorities for Humanities and Social Sciences Research Communities, guiding the content development for Europeana Research.

Task 1.1 Humanities and Social Sciences Research Communities Advisory Board

DANS, the co-ordinator of this Task, organized a virtual meeting with the RCAB members on February 5th, 2014, in which all developments within WP1 were discussed. As of December 2014, Prof. Lorna Hughes is a member of the RCAB. The Terms of Reference document has been revised accordingly. The RCAB have received all milestones and deliverables due within the reporting period for comments and suggestions.

A virtual meeting for 2015 is being scheduled in January 2015, expected to take place in February 2015.

Task 1.2 Developing a Content Strategy for Europeana Research

Deliverable 1.4 - Content Priorities for Humanities and Social Sciences Research Communities was the main focus of the work within this task, which was given a six-month deadline extension (from M18 to M24).

CERL and Athena RC met in The Hague in July 2014 to discuss the best ways to match research communities to the existing content, and the final draft was forwarded to the RCAB for review and comments in December 2014. It was revised accordingly and officially submitted before the end of January 2014.

Based on this analysis and what was learnt about scholarly content use, recent research into user requirements and the expectations of the target audience, this deliverable presented its conclusions in the form of further recommendations for the content strategy and the future development of Europeana Research:

- Target audience: exactly define the intended user group in order to determine the service level to be provided by Europeana Research.

- Content strategy:, provide information about the selection policy and an exact definition of what (type of) content and metadata the service will contain.

- Content: source high quality content with comprehensive metadata. Preferences for certain types of content re a) Resource type, b) Geography, c) Chronology and d) Subject were distilled:

  a) Resource type: text: in addition to the traditional text and image aggregation, users of Europeana Research especially value full-text, sound and video.

  b) Geography: the material currently available is rich and diverse. Its potential could be enhanced by including more material from Eastern European countries.

c) Chronology: actively aggregate content from the 19th and 20th centuries to ensure Europeana Research offers unique research material, not readily available in other digital resources.

d) Subject: it is likely that research communities interacting with Europeana Research will require tailored research corpora with critical mass focused on specific subjects. Readily available content for the humanities includes: history, musicology and philosophy. For the social scientists: political science, world politics, ideology and propaganda; social history, sociology, (popular) culture, religion, possibly genealogy.

- Tools: the data in Europeana Research will be accessible via an API, which makes it likely that Europeana Research will mostly be used by teams of academics who can harness some technical resources. The report identifies a substantial risk in this, as the common perception of API development would be a programmer's, rather than that of a researcher.

The report concludes that the target audience for Europeana Research is fluid with ever changing research questions being asked by interdisciplinary groups of scholars in an ever changing mix of academic disciplines (historians and economists, or art historians and scientists, or social sciences and sociology students, etc.), and with an ever evolving set of skills, including those related to data mining.

Meanwhile, discussions on the Content Strategy Development (Task 1.2.3) started. The report, which is due at the very end of the Project, will build on work currently conducted within the Europeana Foundation and will take into account the needs of identified research communities.

Task 1.3 Research User Requirements for Europeana: digital research practices, tools, and content.

Task 1.3.5 [Identification and Creation of Humanities and Social Sciences Case Studies] was undertaken by TCD, UGOT and Athena RC, and submitted a report on February 28th, 2014. The report, which had been reviewed by the RCAB, was titled "Exploring Innovative Tools in Research" and consisted of three main case studies (Education and *Transana* / Art History and *HyperImage* / Sociology and *NodeXL*) and satellite cases (Education and *NVivo*, *Voyant*).

The purpose of this report was to investigate what researchers use innovative digital tools for when they work with the types of material that a future Europeana will contain. To this end, we analysed actual cases of how researchers within three disciplines work with three innovative digital tools.

This case study report complemented other tasks within Work Package 1, providing insights into how the Europeana collection could be utilised by researchers within the humanities and social sciences. More precisely, we examined the functionality and application of some innovative digital tools for research in the fields of Sociology, Education Studies, and Art History. This report also offers a few novel suggestions regarding the nature of a future Europeana.

The case study provides the following key recommendations for future Europeana:

- Provide import and export functionality for a wide variety of formats (awareness of different formats and the problems they bring with them is important).
- Functionality that enables addition, import, export, and collaboration metadata for Europeana records should be flexible and easy to use.

- Functions for mark-up, organization, and collaboration in My Europeana would be highly useful.
- Provide *basic* analytic functionality and the possibility of documenting research decisions.
- Support for (the creation of) multilingual data and metadata would greatly increase the material's usefulness.

Moreover, in the course of the year, this task has been attempting to make sense, combine and analyse various findings of the first year of the project, that is the state of the art reports on digital research practices, tools and content, the web survey, the expert fora and the first evaluation workshop. This interim report was submitted in November 2014 as a milestone and will be further developed to form Deliverable 1.3 - Use requirements analysis and case studies report.

Task 1.4 Research Community Engagement: Expert Forums.

No expert forum was planned during the second year of the project, however in January 2015 saw the start of discussions on the final expert form (Task 1.4.4: Future Recommendations Workshop), due to take place in Athens in April/May 2015, which will be followed by a final deliverable on the experts forums, D.1.5 - Expert Forums with reports, due in June 2015.

Task 1.5 Research Community User Evaluation

The second evaluation workshop took place in The Hague in December 17th 2014.[5] The aim of this workshop was to deliver an event to demonstrate the potential for API usage to non-technical members of the eCloud and NeDiMAH key researcher cohorts and to gather further detail on perceived barriers and possible solutions. We invited researchers and developers to talk about their research practices; and non-technical researchers in Humanities and Social Sciences to tell us whether they find the potential interesting and/or the skills required too difficult. This workshop further investigated the workflows surrounding API use. In doing so, we were in a better position to determine the current state of the art of API use, the barriers, practices and justifications, and develop a workflow that non-technical as well as technically competent humanists can follow in order to obtain big data sets using web services and APIs.

The workshop was attended by WP3, who presented their work on an annotation tool for Musicologists. The discussion which followed was part of the iterative development cycle and close co-operation between WP1 and WP3 in the context of the formative and summative evaluation of user tools developed by WP3.

The workshop revealed that the majority of users of cultural heritage APIs are still developers and computer scientists, although there is a small group of Humanities and Social Science researchers who are re-using the data they can obtain through a web-service or API. Who is doing the extracting of that data, however makes the difference. In the case of some exemplar digital humanists, they are making use of developers to make the calls to the APIs and obtain the data they need. They have the expertise to know what they can do with the data when they get it, but they don't 'dirty their hands' by writing the call to the API themselves. On the other hand, we have developers who not only write the code to call the API themselves, but also maintain the content for the API. We might call these people the 'data evangelists', as they showcase what can be done with a particular Cultural Heritage Institution's API and data.

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[5] A report on the workshop is available here:
https://www.dropbox.com/s/p4vv9h6r50h5igd/API%20Workshop%20Report.pdf?dl=0

Work Package 2: Developing the Infrastructure for Europeana Cloud

Pavel Kats, Europeana Foundation

General

In 2014 the WP2 team, responsible for creating the technical infrastructure of Europeana Cloud, had two main goals: firstly, to continue the development of the Europeana Cloud software. Secondly, to bring to maturity and install a working instance of the system so as to accommodate the migration of the partners' data in 2015.

Both goals were achieved and are reported in deliverable D2.4. The deliverable D2.2, created in 2013, presents a detailed design of the developed software. The deliverable D2.4 describes the instance of the system using this software and project computational resources and installed in Poznan Supercomputing and Networking Center (PSNC). Now D2.4 is complete, Europeana Foundation and partners can proceed with migrating their data to Europeana Cloud.

Ideally, the system would have had full testing within a live environment. Within WP2, it had been hoped that the system would be integrated into the environments of the partners by the end of the second year to allow this evaluation. However, the aggregators still needed more time to consider how adopting Europeana Cloud would change their strategic direction and day-to-day organisational processes.

This will continue in Year 3, allowing the final migration of all data to the Cloud in M31 to M36 (as scheduled for D2.7).

The report below goes through individual tasks specified in work package. Further detail can be found in the deliverables.

Task 2.1.1 Create and Iterate Architectural Design Document

In 2014 there were no changes to the [Architectural Design Document D2.2](#) whose first version was released in 2013. The system was designed according to the principles laid out in this document and there was no need for significant revisions of the design. Should there will be a critical mass of changes to this design in the future, an update version of this document will be released.

Task 2.2 Prototype Development for Metadata Cloud

The development of the metadata prototype, started in 2013, continued full speed in 2014. We developed most of the services described in the architectural design document and integrated components for interoperability between the services and monitoring them. A production deployment of the prototype was created by PSNC, as specified in the next task.

Task 2.3 Prototype Development for Content Cloud

The data model of Europeana Cloud is designed in such a way that the system is agnostic to differences between textual descriptive metadata and digital representations of cultural heritage objects. Therefore, in terms of the API, supported by the system and its underlying architecture, there is no difference between storing and sharing metadata and storing and sharing digital content.

Of course, operational requirements of metadata storage can be very different from content storage with the latter usually requiring more storage space per unit of data, higher performance capacity and resource consumption. We addressed the difference between the

two by creating a test scenario which highlights the differences between two types of data (Task 2.3.2)

Task 2.3.1 Integration of sample content documents into the cloud [M7-M12]

Two tests with different sets of data from different institutions (data from the CORE repository of scholarly material at the Open University and Polish cultural heritage material from the Polish Digital Libraries Federation, which is based at the Poznan Supercomputing and Networking Center) were developed and executed in order to assess the difficulty of integration of new content sources into Europeana Cloud and the performance of the system during such an integration task.

The integration process consists of three main parts: modelling, development and implementation. In the modelling part, the data model underlying the source content is mapped onto the data model of Europeana Cloud. In the development part, a software program for migrating the data is developed. The task of the program is to read data from the source, applies necessary mapping steps and then uploads the data on Europeana Cloud. In the implementation part, the program is run and the systems are monitored to ensure stable progress of the transferal of data. Sometimes, changes to the program or to the system setup have been required. The detailed description of both tests is available in the deliverable D2.4.

Task 2.3.2 Adaptation of content cloud to meet performance and scalability requirements for large amounts of content

Besides the integrations tests undertaken in Task 2.3.1 we have independently tested that the system meets performance and scalability requirements to handle large amounts of content. These tests are also described in detail in D2.4. Tests have suggested the system to be robust and fast enough to meet the requirements of the three aggregators within the project (Polish Digital Library Federation, The European Library and Europeana itself). However, this suggestion can be verified only after the system is put to test in production in 2015 when it is integrated into the pipelines of the partners.

Task 2.4 Bidirectional Metadata and Content Access API [M7-30]

The Metadata and Content Service developed by PSNC is the de-facto uploading and downloading mechanism of Europeana Cloud. It is coupled with the Data Lookup Service, which allows the searching of records by a set of criteria, commonly referred to as Europeana Cloud's administrative metadata. These services have now been built and incorporated into the Cloud. The exact design and specification of these services, which allow access to metadata and content, can be found in the deliverable D2.2 and in the specification of the Europeana Cloud API.

Task 2.5 Service Platform and Execution API [M12-36]

Aggregation workflows undertaken by aggregators (eg. cleaning, mapping and standardising data) will use the Data Processing Service, developed by the team at ISTI, and consist of two parts. The first one is a standard component Apache Storm. This system (also used by Twitter) can process multiple tasks simultaneously by distributing and managing them over multiple computational resources. The second one is an API that allows interaction with the first system. The actual aggregation workflows will be implemented separately. The transformation between XML records (undertaken via an XSLT transformation) is already working as a sample workflow and soon we will ensure that more workflows are supported out-of-the-box by the system.

Work Package 3: Exploiting Europeana Cloud with Services and Tools for Researchers

Erik Duval, University of Leuven

The text below covers the two main tasks in Work Package 3 for Year 2

Task 3.1 Personas, Scenarios and Use Cases

Task 3.2 Iterative design, development and evaluation of tools [M1-36]

The central activity in WP3 in Y2 of the project was a new iteration over the "Iterative design, development and evaluation of tools".

The main goal of this work is to experiment with advanced tools and services, of the kind that Europeana Cloud will be able to offer towards the end of the project. As these services are still under development in WP2, we take shortcuts in the technical infrastructure that we use in WP3 and rely on mash-ups of existing tools and services.

The main focus is on evaluating with end users, i.e. researchers, typically in digital humanities, that make use of Europeana content in their research work. The evaluations are exploratory in nature at the start, where we try to understand how the researchers work, what their main problems and challenges are and how an advanced research platform could help to address these. We then build a digital prototype that enables us to evaluate the issues below. As the number of end users in each group is small, the evaluation is of a qualitative rather than a quantative nature.

1) *perceived usability: how well do the researchers think that the prototype can be used?*
   The researchers involved in Year 2 were satisfied with basic usability, though they did point out some areas that could be improved.

2) *perceived usefulness: how much value do the researchers believe they can derive from the use of such prototype?*
   This was the strongest point in the evaluation: all participants agreed about the added value that such a prototype could provide for their research.

3) *potential for further development: what kind of additional tools and services would researchers want to have available?*
   There were several suggestions, including a less linear use of the tools involved, and the submission of results (for instance transcripts) back into the Europeana infrastructure. This should be feasible once the Cloud API is fully operational.

At the start of Year 2, we scoped the work by identifying a relevant mix of content, tools and users – if a critical mass of one of these three is not available, then it is very difficult to do any meaningful evaluation work.

We eventually decided to work with musicologists that focus on early music, i.e. music that dates before Monteverdi.

In terms of **content**, this material is interesting, because it includes non-text documents. In fact, some of the more interesting content is composed of medieval manuscripts that have their own, non-standard notation for polyphone music. We had originally anticipated that researchers would also work intensively with audio recordings of performances of the relevant music. Somewhat to our surprise, this turned out not to be the case.

Through interviews with the musicologists, we identified the following **tools** as of particular relevance for their purpose:

- Aruspix is a "software application for the optical recognition, the superimposition and the collation of early music prints" (http://www.aruspix.net/).
- Music21, "a set of tools for helping scholars and other active listeners answer questions about music quickly and simply" (http://web.mit.edu/music21/).

In addition, we verified the continued relevance of the tools we used in Year 1 (AriadneFinder for basic search and retrieval, TimeMapper for geo-visualization and timeline visualization of results, as well as ActivityStreams for collective awareness of research activities: the instantiations of these tools for Year 2 can be found at http://greenlearningnetwork.com/cmme-finder/#/, http://timemapper.okfnlabs.org/anon/l2s4kd-early-music and http://as-ecloud.appspot.com respectively) for this new audience of musicologists. That tool set was well received by the musicologists and thus the existing prototype turned out to be a good basis for further development.

The basic idea is that the new tools add functionality close to "Optical Music Recognition", which allows for automatic transcription of music scores, or search within the music content. Thus, musicologists can carry out research that is difficult to do when that functionality has to be implemented through laborious manual work that involves physical visits to libraries that hold the relevant content.

In terms of **users**, we worked with a small but very active group of "old Music" musicologists from Utrecht University, Oxford University, RISM and City University London.

As in Year 1, we used personas and scenarios to define specific relevant potential use contexts. This year, we did not use paper prototyping because the digital prototype of Year 1 was more useful to trigger feedback from the musicologists. (The dynamic nature of visualizations like TimeMapper provides makes paper "implementations" notoriously difficult.) Both through face-to-face as well as virtual sessions, the musicologists helped shape the tools mashup and evaluated the results in early January.

Work Package 4: Ingestion of Content and Metadata Development

Marian Lefferts, Consortium of European Research Libraries (CERL)

The main aims of this Work Package are to ingest both metadata (2.4 million items) and content (5 million objects), to review the Europeana Data Model to ensure it continues to be fit-for-purpose, and, finally, to explore the relationship between data in the Europeana Cloud so as to to improve the contextualisation of the objects they represent.

Task 4.1 Ingestion of Metadata into Europeana [M1-30]

Ingesting Metadata

The project partners' metadata sets are being harvested and processed by The European Library as per the Metadata Ingestion Plan (available via Europeana Cloud website[6]). By the end of the year just under 90% of all metadata to be ingested during the project had been processed by The European Library. Unfortunately, only 63.5% thereof was subsequently ingested in the Europeana portal. The reason Europeana could not ingest the data was either a) a lack of full and consistent rights labelling, or b) the data was missing direct links to digital contents. In particular, the project partners who themselves work as aggregators (and harvest content from a wide variety of sources), and then share the data in this project are experiencing great difficulties in complying with the demand for full and consistent rights labelling.

Both issues are being addressed in the Europeana Research Content Strategy work (task 1.2.3). This will explore how Europeana Content Strategy and related policies are updated to incorporate material with these problems. All records processed during this process and held in the database of The European Library will be available in the Europeana Cloud infrastructure and will therefore in principle available for the Europeana Research facility for scholars, academics and researchers that is developed in this project.

		TEL	**Europeana**	**Comments**
Q2 2013	OAPEN	**4.730** *TEL Collection ID* a1139 (*Number of records* 2.293) a1193 (2.478)	**4.637** *Europeana Collection ID* 9200234 (*Number of records* 2.252) 9200235 (2.385)	Contradiction between dc:rights and edm:rights in the source data causes the discrepancy in numbers. Regular updates
Q3 2013	BASE	**758.248** a1141	**0**	Over 36,000 strings with (incomplete/wrong/absent) rights statements that cannot be checked as they are aggregated from many contributors. Proposal to adopt 'unknown' is not acceptable in Europeana portal.
	DANS	**31.469** a1161 (26.513) a1162 (2.143) a1163 (2.813)	**0**	Restricted rights records with no previews to digital objects were excluded from Europeana Portal

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[6] http://pro.europeana.eu/documents/1414567/28d56a17-a984-412c-88c9-4d13ae8c64d7

	VU Amsterdam	**4.752** a1150 (18) a1151 (18) a1152 (749) a1154 (1487) a1155 (1547) a1156 (329) a1157 (292) a1159 (82) a1160 (230)	**4.592** 9200243 (18) 9200245 (18) 9200247 (749) 9200246 (1328) 9200249 (1547) 9200250 (329) 9200244 (292) 9200248 (82) 9200242 (229)	Regular updates and inconsistency with Europeana publication process may result in discrepancies no of records.
Q4 2013	University of Edinburgh	**13.584** a1169 (339) a1170 (701) a1171 (27) a1172 (1.335) a1173 (374) a1174 (693) a1175 (192) a1176 (53) a1177 (1.061) a1178 (2.576) a1201 (2.001) a1202 (136) a1203 (3.030) a1204 (66) a1205 (884) a1206 (71)	**13.583** 9200259 (339) 9200260 (701) 9200261 (27) 9200262 (1.335) 9200263 (374) 9200264 (692) 9200265 (192) 9200266 (53) 9200267 (1.061) 9200268 (2.576) 9200269 (2.001) 9200270 (136) 9200271 (3.030) 9200272 (66) 9200273 (884) 9200274 (71)	Regular updates ongoing
	Université libre de Bruxelles	**420** a1182 (29) a1183 (160) a1184 (38) a1185 (157) (a1185a-129; a1185b-28) a1186 (36)	**417** 9200326 (29) 9200327 (158) 9200328 (38) 9200329 (128) 9200330 (28) 9200331 (36)	Regular updates
Q1 2014	Dialnet	**4.512** a1190 (2.364) a1191 (2.148)	**4.086** 9200362 (2.101) 9200363 (1.985)	Not all records have links to digital objects, so these were invalidated by Europeana
	NL Wales	**36** a1166	**36** 9200382	
	Questa	**76.335** a1142 (51.207) a1143 (23.056) a1144 (2072)	**0**	3 sets in acceptance, but dc:language is missing, plus issues with isShownAt / ShownBy. We would need a new export, but response from provider is lacking
	Tilburg	a1165		Need to clarify their IPR statement. Postponed to Q2 2015
	VU Amsterdam	**356** a1153 (96) a1158 (269 in acceptance)	**96** 9200315 (96)	Regular updates

	BSB München	**1.032.004** a1194	**1.027.736** 9200386	BSB delivered complex MARC21 format and TEL worked on delivering their data in EDM at best possible, which was time consuming but helped TEL improve the mapping for library data. Finally an issue around the correct EDM labelling of multiple copies for the same imprint, resolved in autumn 2014, caused further delays. Some issues e.g. missing date of expiration for Out of Copyright material are outstanding.
Q2 2014	Sibiu	**187** a1145	**187** 9200340	
	Patras	(1,327 in preparation)		Postponed until Q1 2015
	NL Denmark	**336.743** a1218	**336.741** 9200343	
	National Library of Technology in Prague	**228** a1147 (119) a1148 (103) a1149 (6)	**228** 9200370 (119) 9200380 (103) 9200358 (6)	
	UCL	**16.757** a1196 (797) a1197 (1.189) a1198 (14.771)	**797** 9200341 (797)	Disagreement on correct rights label for Bentham collection (a1198), and a smaller set with restricted access (a1197), both not accepted in Europeana Portal
Q3 2014	Croatian Academy of Sciences and Arts	**10.784** a1167a (393) a1167b (20) a1167c (429) a1167d (3.641) a1167e (69) a1167f (3.963) a1167g (738) a1167h (49) a1167i (527) a1167j (955)	**6.405** 9200344 (393) 9200345 (20) 9200346 (429) 9200347 (69) 9200348 (3.963) 9200349 (49) 9200350 (527) 9200351 (955)	Further sets scheduled for Q4 2014 and in 201. a1167d&a1167g to be processed by Europeana
	Patras	**22.576** a1138	**22.576** 9200381	
	VU Amsterdam	**92** a1310 (85) a1311 (7)	**92** 9200371 (85) 9200372 (7)	

Q4 2014	CESSDA			Change in management. Rescheduled for Q3 2015
	Sibiu	**53** a1146	**53**	To be published in Europeana with the next publication (21.02) live mid March
	Croatian Academy of Sciences and Arts	**797** a1167o (43) a1167p a1167r (4) a1168a (30) a1168b (10) a1168c (66) a1168d (78) a1168e (32) a1168f (205) a1168g (164) a1168i (5) a1168j (60) a1168k (100)		To be published in Europeana with the next publication (21.02) live mid March
	University of Leuven	**6.851** a1179 (3.128) a1180 (291) a1181 (3.432)		To be published in Europeana with the next publication (21.02) live mid March
	Totals[7]	**2.321.514**	**1,422,262**	

Scheduled for 2015 is the ingestion of at least 143,377 metadata records[8], which would bring the total of metadata records processed in this project 2,381,163 records. The target for the project was 2.5 million, and in the final year of the project we will comfortably make up the small shortfall of some 119k records from the extra contributions by the National Library of Denmark (see footnote), as well as the metadata accompanying the content ingested in Year 3 of the project (currently estimated at 7 million full-text pages - see below).

In addition, in a direct upload to the Europeana Cloud, The Open University is aiming for a total upload of 24 million metadata items, accompanied by 2.2 million full-text, preview and text items.

A blog about the ingestion of metadata and content was prepared and circulated via Europeana Pro, highlighting the rich variety of content in the data sets recently ingested, drawing attention to the fact that Europeana in the final year of the Europeana Cloud project (and in departure from current practice), will ingest actual content and inviting Europeana partners to contribute.

The Metadata Ingestion Plan was updated (as Milestone 20), indicating which datasets in the DoW have been ingested to date, and which are scheduled for 2015.[9]

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[7] As per 31 January 2015.
[8] Patras – Pasithee 1,327 / Questa 76k / Sibiu – around 200 / VU Amsterdam – 3,5k / UB Tilburg – 150 / UB Leuven – 20,5k / UB and NL of Debrecen – 26k / Kansallisarkisto – estimated 3,200 / Croatian Academy of Sciences and Arts – 12,5k) / NL Denmark - Archive of Danish Literature and Articles from the Tidsskrift.dk
[9] https://www.dropbox.com/s/a3os33kpnc8sn1o/ECloud_MS20_Updated_metadata_ingestion_plan.pdf?dl=0

4.1.2 Organise Metadata Ingestion Clinics [M6-24]

After the second round of Metadata Ingestion Clinics held in Year 1, in which all relevant project partners participated, it became clear that no further ingestion clinics were required. The general issues were clear to the project partners and data specific issues were dealt with in one-on-one conversations between the ingestion team of The European Library and the content provider. It is currently being reviewed whether a Ingestion Clinic for Content Providers (to be held at the time of the Annual Meeting in June 2015) would be desirable.

Task 4.2 Ingestion of Content for Research directly into the Cloud [M12-36]

In reference to Milestone 4.6 in Task 4.2.1: in a direct upload to the Europeana Cloud The Open University added 66,391 records (xml and json), 5,584 full texts (pdfs), 3,776 texts and 3,632 previews.

In September 2014, all partners contributing metadata to the project were asked whether, additionally, they would be interested in contributing content to the project. Six project partners (OAPEN, National Library of Technology Prague, UCL with the Bentham Project, the National Library of Wales, VU Amsterdam, and Istituto Luce – Cinecittà) indicated that their content would be available for ingestion. For each of these offers we have mapped what type of content is offered in what format, what the size of the contribution will be and what the appropriate rights statement will be. The data shows a great variety, as it includes monographs and maps, manuscripts and transcripts, journals and newspapers and newsreels, in the form of images in JPG, JP2000, TIFF, and texts in PDF or TXT, and film in H.263/H.264, and metadata in DC, Mods, METS, (EAD) XML.

In addition, the Swedish Open Cultural Heritage has indicated its willingness to contribute content, and, as mentioned above, several libraries have indicated their interest in contributing their newspaper content.[10] These institutions were associated with the Europeana Newspapers project but could not have their data ingested under that umbrella – they are extremely pleased that their content can be ingested, after all, under the auspices of the Europeana Cloud project. The newspaper content is currently estimated at 7 million full-text pages, and the project partners plus SOCH and NL Scotland will bring in at least one million objects, so that the target of 5 million objects will comfortably be met.

In terms of workflow, The European Library has gained much experience with ingesting newspaper data in the course of the Europeana Newspapers project. The workflow of ingesting the metadata and content via the normal The European Library procedures, and then exporting it to the Europeana Cloud infrastructure is the most appropriate. The other types of content will be ingested directly into the Cloud, via the Europeana Cloud API. This process will start once the Cloud infrastructure becomes available.

At the time of writing, D4.2 Content Ingestion - Initial Plan is in preparation, and will be made available to project partners via Basecamp, as well as on Europeana Pro.

4.4.1 Recommendations for Europeana Data Model [M5-30]

The task 4.4.1 was introduced in the Description of Work to ensure that the Europeana Data Model (EDM) was continually assessed against the needs of the project and its outputs. The first round of metadata aggregation from Europeana Cloud into Europeana has been done without triggering new requirements in terms of data modelling.

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[10] The National Libraries of Spain, Luxembourg, Iceland, Wales and Belgium.

WP4 has therefore (in MS21) proposed changing the scope of the deliverable 4.4 and to use it to examine two issues that are highly relevant for the future development of the Cloud-based aggregation infrastructure the project is putting in place:

• Extend the EDM to support the ingestion of content in Europeana Cloud.
• Extend the EDM to model the data flows defined within the Europeana Cloud infrastructure.

The milestone was shared with the project partners via Basecamp, and was published on Europeana Pro. The document was also discussed with the Work Package leaders to ensure that any relevant issues that occur in their work packages are shared with WP4.

Work Package 5: Sustaining the Europeana Cloud

Julia Fallon, Europeana Foundation

Overview

Work package 5 aims at resolving the legal, social and economic issues related to running Europeana Cloud as a sustainable service. During the work that was undertaken in the first half of Year 2 it became evident that the project and this Work Package had refine its vision so as to incorporate the wider place of Europeana as a Digital Service Infrastructure.

This included creating a business model (D5.6) to guide the further development of the technology as well as the strategic frameworks underpinning the Cloud. Using the insight gained during this process we used the opportunity to draft a Product Requirements specification (D5.7) to add more definition to the high level objectives and value propositions described in the Business Model.

Working closely with WP2, we were able to test the services developed so far within the project to ensure it continued to meet the needs of the project. In addition, following due consideration and consultation with our project partners and the Commission we took the decision to postpone the delivery of key deliverables. This allowed us the time to refine our vision, ensuring that the project deliver a technical and strategic infrastructure that is fit for purpose, and stands the test of time by being responsive to the changing landscape within which the Europeana Foundation operates.

As there is much overlap in the tasks in WP5, they have been addressed conceptually rather than individually.

Strategic and Practical Requirements

As mentioned above, a key feature of WP5 work has been to consider Europeana Cloud in the context of not just the aggregators within the project, but the broader Europeana ecosystem. Throughout the year, WP5 has organised a number of events and workshops, both with internal and external partners, to refine the requirements for Europeana Cloud

An early event was the presentation of Europeana Cloud to the participants of the Europeana Aggregator Forum. The forum explored what aspects of the service would support the work of aggregators.

The overall response was positive, in particular to the general benefits of a shared storage system, improved workflows and reduced duplication in the publication process for cultural heritage data.[11] However, it was clear that further buy-in was reliant on a clearer picture of the benefits, costs and policies that determined access to the data.

The Europeana Foundation hosted a series of three workshops with relevant members of WP2 and WP5 to explore how best to respond to this challenge. Run by an external facilitator, they workshops addressed the technical infrastructure, the legal framework and the management principles of cloud, with the overall aim of refocusing and redefining the common vision for the services offered by Europeana Cloud.

The workshops allowed the project to better understand where a common approach existed. They also highlighted the differences of the three aggregating partners. For example there were mixed views on what level of granularity a provider can manage to give access to their data, or who should be responsible for running the services post-project.

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[11] See the report at http://pro.europeana.eu/web/europeana-cloud/blog/-/blogs/how-europeana-cloud-will-address-aggregators%E2%80%99-challenges-and-issues

Key recommendations from the workshops were to work together on a coherent business model. Relatedly, more closely defined product and service requirements were needed. Finally, it was recommended that this should happen before the licencing framework ,cost model and Europeana Cloud Handbook should be developed to ensure they fully deliver the vision of the business model.

Accordingly, WP5 sought and received permission from the Commission to delay D5.2 (Handbook for the Europeana Cloud participants) and D5.3 (Revised Europeana Licensing Framework), and also introduce two new deliverables (D5.6, Business Model for Europeana Cloud and D5.7, Product Requirements for Europeana Cloud). MS 29 (Cost Model) was also delayed but some initial work in this area was done in D5.6. A draft of 5.2 will be available for the time of the Year 2 review.

The workshops highlighted the need to work quickly and iteratively towards a clear Business Model. To do this we chose to adopt the lean start up methodology – continuously testing, refining and building a Minimum Viable Product (MVP), so the Europeana Cloud Services would be more closely tied to aggregator requirements.

To test the first version of the MVP a series of interviews were then set up with aggregating partners of Europeana, covering technical, legal and organisational aspects of the proposed Europeana Cloud services. Interviews were held with the European Film Gateway, Cultura Italia, Apex, Europeana Fashion and Deutsche Digitale Bibliothek, as well as further discussions from the aggregators in the project.

The interviews were completed by the end of September. Broadly the MVP was well aligned with the needs that the Aggregators described in their interviews. However it became clear that the Aggregators had a need that was currently not prioritised in the MVP. While storage facilities in the Cloud were appreciated, a key requirement was also the development of user-friendly, robust tools to upload and download data. Usage of basic APIs by technical staff to access Europeana Cloud would not be enough.[12]

A second refinement of the MVP was then tested at the Europeana AGM. Potential members were clear on what the cloud services would offer. The feedback they gave was focused on wanting a better understanding of the long term sustainability of the services as well as a clear business model they could use to influence decision makers in their organisations.

Taking the feedback from the AGM workshops, we developed the Business Model presented in Deliverable D5.6 and the Product and Service Requirements in D5.7.

Deliverable 5.6 outlined the vision, potential customer segments, It also outlined the value propositions for Europeana Cloud
- Easy storage and hosting of metadata and content
- Tools & services to enrich the quality of data
- The ability to put data in the cloud and have it reused by third parties - 'Create once, publish everywhere'

Deliverable 5.7 provides further detail on the exact nature of the products and service to be offered. These are defined as
- The ability to upload and download metadata and content via an API;
- Each partner will be able to control and manage user authentication, access permissions & terms of (re)use of their data;

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[12] See report at http://pro.europeana.eu/web/europeana-cloud/blog/-/blogs/what-aggregators-think-about-europeana-cloud

- Possibility to allow others (other partners or third parties) to enrich / annotate data, while keeping the original data unchanged;
- More efficient ways for delivering cultural heritage data to Europeana than currently is the case;
- Infrastructure for supporting the data processing tasks needed as part of a standard aggregation workflow

These documents give WP5 a secure platform for the final year. In assistance with WP6 (with whom WP5 created the Promoting Europeana Cloud deliverable), WP5 will follow up the with its key stakeholders to define the cost model and refine the business plan as required. Work will also continue on the aggregator handbook, governance and licencing framework tasks - work done in Year 2 is highlighted below.

Aggregator Handbook

Task leaders Europeana developed a draft aggregator handbook to inform future aggregators how they can interact with the services offered by Europeana Cloud. To ensure it is aligned with the Business Model and Product Requirements and in agreement with the Commission, the Deliverable is delayed to Year 3.

Licensing

Task leaders Kennisland held a workshops at the plenary in March. The workshop was to explored the legal requirements of project partners when storing and sharing their data in through the Europeana Cloud infrastructure.   This would feed into the development of the Access Framework which defines the set of rules and requirements that govern who has what kind of access to the collections and records in Europeana Cloud.

The workshop used an interactive questionnaire to respond to a number of scenarios where a provider may wish to manage the access to metadata or a digital object. The results were presented back to the workshop for further discussion which revealed that partners held broad views on what permissions they should be allowed to manage if given the option.

The feedback from this session was used to produce a draft Access Framework. However, following the workshops described above, and with the consent of the Commission we agreed to delay the final Deliverable D5.2 Revised Licensing Framework. This will allow the framework to be finalised in light of the requirements of Business Model and following a final round of partners consultation.

Governance

Task leader Europeana held a workshop at the plenary in March. The purpose of the workshop was to identifies areas where partners held a common approach to the governance of the Europeana Cloud services. The High Level Principles and Minimum Requirements have already established the need for the services to be run in a cooperative manner using commons based values. The outputs of the workshop would feed into the basis of a governance model for cloud services.

This workshops explored what participants expected from a cooperative and commons based governance structure. The workshop looked addressed decision making, responsibilities and the composition of such a structure. The workshops revealed that when given the choice, most participants preferred a hierarchical governance structure but were open to bottom up community led structure.

The feedback from this workshop is used in the planning for Deliverable D5.4 Model and Governance Structure [M28].

Work Package 6: Dissemination and Networking

Martin Moyle, University College London (UCL)

Task 6.1. Stakeholder Engagement and Infrastructure Plan (M1-36)

The Stakeholder Engagement Plan (D6.1) was completed in year 1, but by identifying the key stakeholders and high-level messages of the project, it laid the foundations for all the dissemination and networking to follow. The four key messages about the project were that

- the Europeana Cloud infrastructure will be transformative for Europeana and its ecosystem;
- the metadata and content surfaced by the project were high quality academic resources;
- the Cloud approach would enable the delivery of innovative new tools and services;
- the resulting Europeana Cloud service would be sustainable, founded on consensus within the cultural heritage sector.

Several stakeholder groups were identified, but those with the highest priority for engagement were agreed to be aggregators, research infrastructures and the project partners. RI engagement was taken forward in Task 6.2 (see below); engagement with aggregators and data providers is the over-riding theme of year 3 and is being taken forward in Task 6.4 (see below).

Task 6.2. Sustainable Communications between Research Infrastructures

Year 1 established the Europeana Research Coordinators Group (ERCG) and delivered a communication plan for its members (D6.2). The ERCG is intended to be a long-term forum for strategic partnership between European Research Infrastructures. The Group enables participants to share knowledge and experience, and to facilitate more efficient and effective strategic positioning among its members. It has representation from 8 Research Infrastructures.

D6.2 identified ways in which Europeana Cloud could be enhanced by harnessing the experience of the ERCG members; the key approach was to hold 'themed meetings' of the Group linked to project deliverables, and these are now being executed. For instance, a meeting discussing the use of APIs in Research Infrastructures was held with colleagues from WP3 in M17. The next themed meeting is due to build on the major business and sustainability deliverables from WP5, due at start of year 3.

Task 6.3. Researcher Communication Plan

The Researcher Communication Plan (D6.3) was delivered punctually in M18. Work on D6.3 was led by WP1. The Plan lays out the communication strategy for Europeana Research, guided by the Stakeholder Engagement Plan (D6.1) and based on requirements work carried out within WP1 concerning researcher engagement with digital content, tools and services across disciplines. Whereas D6.2 focussed on Research Infrastructures, D6.3 concerns direct contact with researchers. The plan steps back from the challenges of tailoring communications to different research disciplines, in favour of a disciplinary-neutral characterisation of stakeholder researchers in terms of their appetite for technological engagement. In these terms, researchers may be thought of as 'resistant traditionalists', 'novices', 'learners' or 'experts'. Key messages and methods of outreach are identified for each stakeholder group: for instance, experts are informed about Europeana Cloud's programmable APIs, while, at the other end of the spectrum, the traditionalists are encouraged to make use of the Europeana Portal. Many conference opportunities and mailing lists, through which researchers can be 'accessed', are identified in the plan.

Task 6.4. Promoting the Europeana Cloud

Task 6.4 delivers and implements a Plan (D6.4) to promote the Europeana Cloud to the Europeana Network. An early draft was prepared, guided by the principles and messages identified in the Stakeholder Engagement Plan (D6.1). The timing of deliverable D6.4 was re-negotiated to enable the project to reflect on and the changing strategic context for Europeana Cloud and ensure that this was acknowledged in the Europeana Cloud Product Requirements (D5.7) and Business Model (D5.6). The plan will focus particularly on aggregators, data providers, developers and the EC, to encourage buy-in and participation to the values and services of Europeana Cloud.

Task 6.5. Dissemination of project results

A Working Group of WP6 comprising members of UCL, DANS and LIBER overhauled the web presence, with clearer delineation of content for internal and external audiences, re-focussing the site as a primarily public-facing service, with the information aimed at project partners now separated from the rest of the content of the site, as well as some cosmetic improvements, such as a new banner and more prominence given to news and tweets.

In late 2014, migration of the website to the new Europeana Pro site began; at the time of writing, the content is in transition and is scheduled to happen in the last week of February 2015. Several members of WP6 have or are scheduled to receive training in the new Europeana Pro. The blog remained the main vehicle for insights into project thinking and progress; 15 blog posts were published in this period, with representation from all the Work Packages.

A complete log of dissemination activities for Year 2 is in Appendix 2.

PROJECT MANAGEMENT

= *Work Package 7: Els Jacobs, Els Jacobs Advies & Onderzoek (EJA)*

General

Year 2 of Europeana Cloud was a difficult period for the project management. MDR's Project Coordinator fell serious ill at the end of Year 1. A few months later MDR, as a company responsible for managing the project, had to stop its activities and left the Consortium on short notice. Setting up a new qualified team coordinating the project took much longer than anticipated. The validation procedure of the new Consortium Partner Els Jacobs Advies & Onderzoek (EJA) was not completed until Mid-October 2014. The European Library (TEL), one of the three main aggregator partners in the project and providing the Scientific Coordinator, was in the process of becoming an independent legal entity – a process that was eventually abandoned. Administrative paperwork suffered.

However the project management has continued under the Scientific Coordinator (TEL-EF) and Work Package leaders. As detailed below, some tasks and deliverables were delayed, notably D5.2 (Handbook for the Europeana Cloud participants), D5.3 (Revised Europeana Licensing Framework) and D7.1 (Consortium Agreement). Overall, the project remained on track achieving its objectives and outcomes. No significant incidents occurred, demonstrating the collaborative spirit of the Consortium and the long standing competency of the Partners running Europe wide innovative projects.

Starting 1 January 2015, a new team of three, collaborating closely, is in charge of managing the Europeana Cloud project. The Europeana Foundation carries out the duties of Scientific Coordinator (Alastair Dunning) and Project Coordinator (Nicole Emmenegger). Els Jacobs Advies & Onderzoek acts as the Project Manager. In addition, Els Jacobs will work to support embedding the outcomes of the project in the Europeana Digital Service Infrastructure, and thus helping towards Europeana Cloud becoming a sustainable service. At the time of writing this Annual Report, the new project team is in the process of assessing the current state of affairs and catching up any delayed issues.

Task 7.1.1 Ensure the Effectiveness of Communications

In Year 2 the Consortium Partners, and the Work Package leaders in particular, employed effectively the information distribution and communication mechanisms set up in M1 (on Basecamp).

Task 7.1.2 Executive Board Meetings

The Executive Board met monthly (mostly virtual via Skype). All papers, agendas and minutes were made available to all Consortium Partners on Basecamp. The Project Coordinators, representatives of TEL and Europeana, and three of the WP leaders are operating from the same building, aiding excellent communication and project cohesion.

Task 7.1.3 Project Meetings

An informative and constructive Plenary Meeting was held in Athens in March 2014 attended by most Consortium Partners. Each Work Package ran their own break out groups along with general presentations on the progress of the project, with particularly discussion paid to the development of the Licencing Framework for Europeana Cloud. Documents and presentations are available on Basecamp for the project. Arrangements are being made for a third Plenary Meeting in June 2015.

A number of other meetings have been held by specific Work Packages and groups as detailed in the Section on Work Packages above.

Task 7.2.1 Sign Consortium Agreement

Signing and thus submitting the Consortium Agreement (D7.1) was delayed due to the difficult situation managing the project as explained above. By the time the new team started completing this task, several Consortium Partners had nominated new statutory representatives, whose names and titles had to be checked and rectified. Mid-January 2015, the complete and final version of the Consortium Agreement was presented to the Partners for signing. At the time of writing this Annual Report, most Partners have signed the agreement. The original documents are in the mail on their way to the Project Coordinator.

Task 7.2.2 Supply Commission with necessary reports

Deliverables and progress reports have been submitted to the Commission as required.

Task 7.2.3 Organising Payments

The Europeana Foundation, replacing former Project Coordinator MDR, circulated guidance to partners and ran six-monthly use-of-resources reporting exercises to ensure all partners understand the process in preparation for submitting Cost Statements prior to further payments being made by the EC (See also 7.3.2 below).

Task 7.3.1 Quality Assurance Arrangements

The Executive Board employed effectively the arrangements (set up in M2) for the review of all project deliverables involving Consortium Partners and where appropriate by external experts.

Task 7.3.2 Ensure Regular Progress Monitoring

Replacing former Project Coordinator MDR, the Scientific Coordinator (TEL-EF) and Work Package leaders monitored progress. The Europeana Foundation coordinated the six-monthly reporting exercises to monitor progress of all partners to date. Report templates were circulated to partners at M18 and M24.

A cumulative overview of the Project hours and budget spent will become available in the last week of February 2015 and will be included in this Annual Report in the Section on Use of Resources. The forecast of Year 3 will be part of the overview.

Task 7.4.1 Monitoring Project Progress

The Executive Board reviewed progress against the Description of Work (tasks, deliverables, milestones, risks) monthly.

The Scientific Coordinator (TEL-EF) and the Work Package Leaders paid special attention to areas of overlap between different Work Packages. In particular, this includes the close relationship between WP2 and WP5 - where business needs inform the technical infrastructure which then has a subsequent effect on costs and governance; between WP3, where prototype tools have been created and then evaluated via WP1.

Task 7.4.2 Risk Register and Key Performance Indicators

In close collaboration with the WP leaders, the new project team completed the task of assessing and updating the Key Performance Indicators (KPIs) and Risk Register.

Task 7.5 Sustainability of the Project

Els Jacobs Advies & Onderzoek (EJA) will work with EF and WP Leaders to encourage embedding the outcomes of the project in the Europeana Digital Service Infrastructure, and thus helping towards Europeana Cloud becoming a sustainable service. This is closely tied to the work of WP5.

Key Performance Indicators (KPIs)

Indi-cator No.	Relating to which project objective / expected result?	Indicator	Method of measurement	Expected Progress		
				Year 1	Year 2	Year 3
1.1	Increase knowledge of Europeana amongst researchers	Greater knowledge of Europeana amongst sample of researchers	User survey [M12,36]	*Target*: 20% of users surveyed have knowledge of Europeana *Actual*: 47%	n/a	Target: 90%
1.2	Increase use of Europeana amongst researchers	Greater satisfaction of use Europeana amongst sample of researchers	User survey [M12,36]	*Target*: 10% of those who have Europeana use it. *Actual*: 59%	n/a	Target: 50%
2.1	Cloud-based infrastructure for Europeana data created	Development of Europeana Cloud infrastructure	Measured against D2.2 (Technical Architecture of Europeana Cloud)	*Target*: First prototype available and tested by 3 aggreg-ators *Actual:* Used	*Target*: Developed service meet spec-ifications in D2.2 / Full capacity prototype in place *Actual*: in place	Final service functioning and used by 3 aggreg-ators
2.2	Aggregation of existing Europeana datastore into Europeana Cloud	Number of records in Europeana	via eCloud API	-	*Target*: 10m records *Actual*: tbc by 6 March 2015	30m records

Indi-cator No.	Relating to which project objective / expected result?	Indicator	Method of measurement	Expected Progress		
3.1	Successful interaction between 3rd party tools and Europeana content	Acceptance by WP3 partners	Evaluation by WP3 partners [M12,24,36]	*Target*: First evaluation of tools *Actual*: Passed	*Target*: Second evaluation of tools *Actual*: Passed	Third evaluation of tools
3.2	Personas and scenarios for the Europeana Cloud tools and services	Acceptance of deliverable [M12,24,36]	Deliverable	*Target:* 8 *Actual:* 8	not used in Year 2	not used in Year 3
3.2	Number of connections between external tools and services and Europeana cloud services	Acceptance of deliverable [M12,24,36]	Deliverable	n/a	n/a	Target: 5
3.3	Completion of European Research Platform	Acceptance of deliverable (D3.4) by M36	Successful evaluation via RCAB of Europeana Research	n/a	*Target:* Prototype in place *Actual:* Prototype in place by 6 March 2015	*Target:* Final platform in place
4.1	Increase the extent and range of overall metadata aggregated to TEL	Number of metadata records pertaining to items	Each metadata record in TEL portal is counted	*Target*: 0.5m *Actual*: 0.8m	*Target*: 2.0m *Actual*: 2.23m	2.4m
4.2	Increase the extent and range of overall metadata available via Europeana	Number of metadata records pertaining to items	Each metadata record in Europeana portal is counted	*Target*: 0.2m *Actual*: 0.8m	*Targe*t: 1.0m *Actual*: 1.4m	2.4m
4.3	Increase in research-focused content in Europeana	Number of individual digitised objects ingested into Europeana Cloud	Each individual digital object in Europeana Cloud will be recorded	n/a	n/a	5m

Indi-cator No.	Relating to which project objective / expected result?	Indicator	Method of measurement	Expected Progress		
5.1	Successful Business Plan for Europeana Cloud	Validation of documents relating to Business Plan	Internal and external review	High Level Principles validated by current and future eCloud members *Actual*: Met	Cost Model and Operating Handbook validated by current and future eCloud members *Actual*: Delayed[13]	Overall Business Plan validated by current and future eCloud members
5.2	Clear alignment of business requirements with strategic and technical outputs	Approval of product requirements by external reviewers	Deliverable	n/a	Delivered and reviewed by external reviewers *Actual*: Met	Evaluated and revised by external reviewers
5.3	Project partners engaged with the strategic development of the Cloud Services	Consultation on develop-ment of key deliverables: governance, legal and strategic deliverables	Number of workshops held with project partners to explore strategic issues	*Target*: 3 *Actual*: 3 workshops held	*Target*: 6 *Actual*: 8 workshops held	*Target:* 8 workshops held
5.4	Increase in awareness of Business plan by Aggregators	Developing relationships between Cloud Services and Aggregators (outside project partners)	Number of meetings held each year to discuss individ-ual aggregator plans to join Cloud	n/a	*Target:* 5 *Actual*: 5 Aggregators	*Target* 10 Aggregators
6.1	Dissemination: website	Average number of page views per month	Google analytics	*Target*: 1,000 *Actual*: 1,193	*Target:* 1,500 *Actual* 1,182	2,000
6.2	Dissemination: Twitter @europeana _cloud	Number of followers	Twitter	*Target*: 300 *Actual:*349	*Target*: 500 *Actual*: 606	700
6.3	Dissemination: Twitter @europeana _cloud	Number of tweets made (cumulative)	Twitter	*Target* 100 *Actual*: 113	*Target*: 200 *Actual*: 156	200
6.4	Dissemination: Blog	Number of posts made (cumulative)	Project website	*Target*: 12 *Actual*: 12	*Target*: 12 *Actual*: 27	36

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[13] Cost Model and D5.2 (Europeana Cloud Handbook) were delayed to Month 28 of the project. Two new deliverables D5.6 (Europeana Cloud Business Model) and D5.7 (Product and Service Requirements) were put in their place and have been delivered.

Risk Register

Date	Up-dated	Owner	Risk	Outcome	Current Proba-bility	Current Impact	Score	Mitigation
	Feb 2014	PMB	Aligning Cloud Comms objectives and planning with those of Europeana generally	Stakeholders received mixed messages	4	4	16	Careful organisation of events; insistence on strategic alignment across Europeana Foundation
Dec 2012		WP2, PMB	Aggregators do not take up service because costs are too high	eCloud not used	3	5	15	Refine cost model for M28
Feb 2015		PMB, WP5	Aggregators dont take up service because lack of trust	eCloud not used	3	5	15	Build with (not for) aggregators, Write case studies and build evidence for usage. Ensure consensual governance.
Nov 2014	Feb 2015	PMB, WP5, WP2	Aggregators do not take up service because transition costs to high	eCloud not used	3	5	15	Use CEF funding to help with transition; use tools from WP2 to help with metadata mapping
Dec 2012	Apr 2014	WP3, PMB	Europeana Research not aligned with rest of Europeana products.	Reputation of Europeana harmed / Project misses key deliverable	3	4	12	Needs Cross-team established in Europeana and allied to external partners in project
Dec 2012		PMB	Project builds competing services with similar projects	Inefficiencies and confusion created within ecosystem	3	4	12	Utilise Cloud Coordination group and other means of communication
Dec 2012		PMB	Staff changes	Project slows down - deliverables missed	3	4	12	Be aware of potential changes. Move quickly. Be flexible
Dec 2012	Feb 2015	WP5, WP6	Aggregators do not take up service because planned service not fit for purpose	eCloud tools and services not built to needs; eCloud not used	2	5	10	WP5 and WP6 continue to talk to aggregators in 2015
Apr 2014	Feb 2015	PMB, WP5	Value and purpose of eCloud not detailed enough	Lack of understanding amongst stakeholders	2	5	10	Ensure good communication of business plan
Dec 2012		WP1, WP4	Researcher community has lack of knowledge of API development	Europeana Research does not attract high numbers	5	2	10	Accept that Europeana Research is cutting edge rather than mainstream

Date	Up-dated	Owner	Risk	Outcome	Current Proba-bility	Current Impact	Score	Mitigation
	April 2014	PMB, WP2, WP3	Relationship between Europeana Cloud and Europeana Research not clear enough	Cloud and Research do not work well together	2	4	8	Better definition of Europeana Research; more communication between WP2 / WP3
	May 2014	PMB	WP6 / Comms role underplayed	Too little communications about eCloud	2	4	8	Use D5.6, D5.7 and D6.4 as springboards
May 2013	Feb 2014	PMB	TEL / Europeana roles unclear in light of TEL demerger	Confusion over staff roles in projects impairs delivery	2	4	8	Push for clear guidance from CENL, Europeana
Dec 2012		WP5, PMB	Unlcear success criteria	Argument for sustaining eCloud in long term is weakened	2	4	8	Develop success criteria as part of WP5
Dec 2012		PMB, WP6	Research community is massive ... very difficult to disseminate information to all of them	Only superficial engagement with research community	3	2	6	Build on existing WP1 work; do not overreach in ambitions; focussed content strategy
Dec 2012	Nov 2013	WP1	Getting input from researchers	Researchers' needs not fully understood	2	3	6	Careful consideration of attendees and questions for meetings etc
Dec 2012	Nov 2013	PMB, WP7	Project dependent on external factors, particularly development of Europeana	Project deliverables swayed by Europeana's fortunes	1	5	5	Maintain ongoing channel of conversation between project and Europeana management; get precise understanding of Europeana's requirements
Dec 2012		WP5	Difficult to strike balance between balance between regulation Cloud and openness of Cloud	Cloud does meet needs	1	4	4	Careful understanding of stakeholder needs in WP5
Dec 2012	Nov 2013	WP1	Logistics of combining events	Research community not fully consulted	1	2	2	Careful organisation of events

Deliverables Table

No.	WP	Title	Partner	Delivery Month	Delivery Date	Nature	Level	Comments
D2.1	WP2	Create Development Environment	EF	3	Apr 2013	O	PP	
D4.1	WP4	Initial Metadata Ingestion Plan	EF	4	May 2013	R	PU	
D1.1	WP1	Research communities identification and definition report	KNAW	6	Jul 2013	R	PU	
D2.2	WP2	Initial Version of Architectural Design Document	PSNC	6	Jul 2013	R	PP	
D6.1	WP6	Stakeholder Engagement & Infrastructure Plan	UCL	6	Jul 2013	R	PU	
D7.1	WP7	Consortium Agreement	EJA	6	Jul 2013	R	PP	delayed to M26 – Mar 2015
D7.2	WP7	Periodic progress report	MDR	6	Jul 2013	R	PU	
D6.2	WP6	European Research Coordinators Group Plan	KNAW	7	Aug 2013	R	PU	
D1.2	WP1	State of the art report on digital research practices, tools and scholarly content use	CERL	9	Oct 2013	R	PU	
D5.1	WP5	Minimum requirements for the cloud	EF	10	Nov 2013	R	PU	
D3.2	WP3	Tools and services	KU LEUVEN	12	Jan 2014	R	PU	
D3.3	WP3	Evaluation Report	EF	12	Jan 2014	R	PU	
D2.3	WP2	Prototype of Metadata Cloud	EF	12	Jan 2014	P	PU	
D7.3	WP7	Annual report	MDR	12	Jan 2014	R	PU	
D2.4	WP2	Prototype of Content Cloud	EF	18	Jul 2014	P	PU	delayed to M24 – Jan 2015
D6.3	WP6	Researcher Communication Plan	Athena RC	18	Jul 2014	R	PU	
D7.4	WP7	Periodic progress report	EF	18	Jul 2014	R	PU	
D5.6	WP5	Europeana Cloud Business Model	EF	23	Dec 2014	R	PU	Additional deliverable; delayed to M24 - Jan 2015
D5.7	WP5	Product Specifications	EF	23	Dec 2014	R	PU	Additional deliverable; delayed to M24 - Jan 2015
D1.4	WP1	Content priorities for Humanities and Social Sciences research communities	CERL	24	Jan 2015	R	PU	delayed from M18
D2.5	WP2	Prototype of Metadata Cloud and Core Services	EF	24	Jan 2015	P	PU	merge D2.4 + D2.5 informed Project Officer

No.	WP	Title	Partner	Delivery Month	Delivery Date	Nature	Level	Comments
D3.2	WP3	Tools and services	KU LEUVEN	24	Jan 2015	R	PU	Also versions in M12-M24-M30
D3.3	WP3	Evaluation Report	EF	24	Jan 2015	R	PU	Also versions in M12-M24-M36
D4.2	WP4	Content Ingestion Plan	EF	24	Jan 2015	R	PU	
D6.4	WP6	Stakeholder Engagement & Infrastructure Plan	EF	24	Jan 2015	R	PU	delayed from M18
D7.5	WP7	Annual report	EJA	25	Feb 2015	R	PU	
D5.2	WP5	Handbook for the Europeana Cloud participants	EF	28	May 2015	R	PU	Draft M24 - Jan 2015; v2 M28 - May 2015; FInal version M34 - Nov 2015
D5.3	WP5	Europeana Cloud Legal Framework	KL	28	May 2015	R	PU	renamed Revised Licensing Framework. v1 M28 - May 2015 v2 M34 - Nov 2015
D5.4	WP5	Model and Governance Structure for Europeana Cloud	EF	28	May 2015	R	PU	
D5.5	WP5	Europeana Cloud Partner Roadmap	EF	29	Jun 2015	R	PU	
D2.6	WP2	Metadata and Content Cloud Delivered	EF	30	Jul 2015	P	PU	
D3.2	WP3	Tools and services	KU LEUVEN	30	Jul 2015	P	PU	Also versions in M12-M24-M30
D1.3	WP1	User requirements analysis and case studies report	Athena RC	30	Jul 2015	R	PU	
D1.5	WP1	Expert Forums with Reports	TCD	30	Jul 2015	R	PU	
D3.1	WP3	Document on personas, scenarios and use cases	KU LEUVEN	30	Jul 2015	R	PU	Also versions in M6-M18
D4.4	WP4	Recommendation for enhancing EDM to support research-orientated content	CERL	30	Jul 2015	R	PU	
D7.6	WP7	Periodic progress report	EJA	30	Jul 2015	R	PU	
D3.4	WP3	Europeana Research Portal	EF	36	Jan 2016	D	PU	Renamed Europeana Research Platform
D4.5	WP4	Research metadata and content available in the Europeana Cloud	EF	36	Jan 2016	O	PU	

No.	WP	Title	Partner	Delivery Month	Delivery Date	Nature	Level	Comments
D2.7	WP2	Migration/Upload of metadata and content analyzed	EF	36	Jan 2016	P	PU	
D1.6	WP1	Content Strategy Report	CERL	36	Jan 2016	R	PU	
D1.7	WP1	Research Community Evaluation Report	Athena RC	36	Jan 2016	R	PU	
D3.3	WP3	Evaluation report	EF	36	Jan 2016	R	PU	Also versions in M12-M24-M36
D4.3	WP4	A report and a plan on future directions for improving metadata in the Europeana Cloud	CERL	36	Jan 2016	R	PU	
D7.7	WP7	Final Report	EJA	36	Jan 2016	R	PU	

Milestones Table

No.	WP	Title	Partner	Due Month	Due Date	Comments
MS1	WP1	Research Communities Advisory Board established	KNAW	1	Feb 2013	
MS30	WP6	Creation of Europeana Research Coordinators Group	KNAW	2	Mar 2013	
MS31	WP6	Project website, blog constructed	EF	2	Mar 2013	
MS26	WP5	High Level Strategic Requirements	EF	3	Apr 2013	
MS28	WP5	Europeana Cloud Strategic Organisation workplan	EF	4	May 2013	
MS2	WP1	Desk research on Scholarly Content use complete	CERL	6	Jul 2013	
MS7	WP2	Decision on the use of underlying cloud storage system	OU	6	Jul 2013	
MS27	WP5	Strategic Requirements Check	EF	6	Jul 2013	M6-M12-M18-M30
MS3	WP1	Web survey complete	Athena RC	7	Aug 2013	
MS8	WP2	First Prototype made available to other WPs - implementation with multiple nodes, sites and more tha	EF	8	Sep 2013	
MS4	WP1	Desk research on Digital Research Practices complete	NLW	9	Oct 2013	
MS9	WP2	Content and metadata loaded and accessible through test API from prototype.	EF	9	Oct 2013	
MS6	WP1	Evaluation workshops and write-ups complete	Athena RC	10	Nov 2013	Also M21-M30
MS5	WP1	Research Communities Advisory Board meetings complete	TCD	12	Jan 2014	Also M24-M36

No.	WP	Title	Partner	Due Month	Due Date	Comments
MS14	WP3	First version of tools and documentation	KU LEUVEN	12	Jan 2014	
MS32	WP7	Successful project review at end YR 1	EF	12	Jan 2014	
MS10	WP2	Second Prototype made available to other WPs – improvements on stability and performance	EF	18	Jul 2014	
MS11	WP2	Content and metadata loaded and accessible through Beta API from prototype	EF	18	Jul 2014	
MS12	WP2	Performance evaluation on improvements and limitations.	EF	18	Jul 2014	
MS23	WP4	Sample Content ingested into Cloud	EF	18	Jul 2014	
MS21	WP4	Report with recommendations for enhancing EDM – first draft	CERL	22	Nov 2014	
MS15	WP3	Second version of tools and documentation	KU LEUVEN	24	Jan 2015	
MS22	WP4	Metadata and content ingestion clinics	CERL	24	Jan 2015	
MS33	WP7	Successful project review at end YR 2	EF	24	Jan 2015	
MS29	WP5	Cost Model	EF	28	May 2015	delayed from M18
MS13	WP2	25% of available metadata available in cloud	EF	30	Jul 2015	
MS16	WP3	Third version of tools and documentation	KU LEUVEN	36	Jan 2016	
MS17	WP3	Europeana research Portal	EF	36	Jan 2016	
MS18	WP4	Periodic reports on meta data ingestion	EF	36	Jan 2016	
MS19	WP4	2.4 million metadata records from project partners available in Europeana	EF	36	Jan 2016	
MS20	WP4	Update reports on content ingestion	EF	36	Jan 2016	due on regular basis, also M24
MS24	WP4	Additional enrichment plugins to enrich Cloud data as part of the content ingestion workflow	CNR	36	Jan 2016	
MS25	WP4	Additional plugins to enrich Cloud metadata as part of the content ingestion workflow are ava	EF	36	Jan 2016	
MS34	WP7	Successful review at end of project	EF	36	Jan 2016	

Problems That Have Occurred and How They Were Solved or Envisaged Solutions

The project encountered two significant problems in Year 2. Firstly, there were the practical problems arising from the cessation of MDR Partners' involvement in the project and the time required to reformulate the project coordination and management. Secondly the context surrounding the work of Europeana has changed since the conception of the project. Europeana is now considered by the Europeana Commission as a Digital Service Infrastructure under the Connecting Europe Facility (CEF), with attendant changes in the funding model for Europeana Foundation (and partners). The governance structure for Europeana is also being updated.

Given these changes, the European Cloud opted to take a broader view of the services it can offer to the Europeana ecosystem of aggregators and data providers, expanding beyond what was originally envisioned in the project. Extra tasks were undertaken in WP5 to research not just the potential of a cloud system for aggregators to Europeana but also to understand their current technical and strategic challenges in the context of the Europeana DSI and the changing aggregation infrastructure.

This additional knowledge has resulted in Europeana Cloud taking a broader approachto creating a sustainable service for the ecosystem; providing aggregators and data providers not just with a file storage system but reliable scalable tools to interact with this cloud system.

A number of deliverables were delayed to allow the project to reformulate in this light and new deliverables were added. A document was sent to, and then approved, by the Commission in October 2014. This outlined the changes to existing deliverables and the new ones to be added (see Appendix 1 - Changes to Delivery Schedule) [14]

Impact of possible deviations from the planned milestones and deliverables, if any

As documented in the section above, a number of deliverables were delayed as the project reformulated in a broader context. The updated timetable demonstrates the changed timetables. Some of the delayed deliverables have now been submitted (eg. D6.4 Promoting Europeana Cloud, D1.4 Content priorities for Humanities and Social Sciences Research communities) and two new deliverables added (D5.6 Business Model, D5.7 - Product and Service Requirements). Other deliverables were rescheduled for 2015 as agreed with the project officer. After discussion in the Executive Board, a draft of D5.2 (Handbook for the Europeana Cloud participants) is still work in progress, and will be published in late March 2015.

The more general impact of this has to slow it down the project, but also give it a much more secure base for post-project sustainability. As outlined above a number of deliverables have been rescheduled. However, now the business plan has been defined and a clear idea of Europeana Cloud's place as a service within the Digital Service Infrastructure is in place. The project is on a secure footing to complete its deliverables within the final year of the project.

Impact of possible deviations from the planned resources

Based upon the M18 reporting, it is anticipated that Consortium partners did not spend their full project resources in Year 2. Staff leaving and not being replaced, data providers working quicker than anticipated and budget savings due to the delayed building up of the new project management team created an underspend which is analyzed in detail in the Section on Use of Resources. The Executive Board decided to reallocate resources to PSNC to add a developer to the development team and increase its travel budget. The Board identified

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[14] Delayed Deliverables for Europeana Cloud,
https://docs.google.com/document/d/1EzEoNK8ZgHw1pjyxmUL8HnrlNt9VvangyNNtQpj1rAc/pub

other tasks in the project which would benefit from additional resources and will prioritize reallocations based upon the cumulative overview of M24.

Changes in the Consortium, if any

In Year 2, the major change in the Consortium was the resignation of MDR, as the company responsible for managing the project. MDR's responsibilities ended in April 2014. Semantika; and Els Jacobs Advies & Onderzoek joined the Consortium as new partners. As of 1 November 2014, Semantika contributes to developing the technical infrastructure of Europeana Research. Starting 1 October 2014, Els Jacobs Advies & Onderzoek first participated in WP5, but took up project management in the course of November since support was more urgent there. In Year 3, Els Jacobs Advies & Onderzoek will also contribute towards Europeana Cloud becoming a sustainable service.

In Year 2, no changes occurred to the legal status of any of the beneficiaries. It had been planned that The European Library (TEL), part of the Europeana Foundation legally but strategically separate unit, would become fully independent, with the result that an extra partner would be required to be added to that Consortium. However, in December 2014, the boards of TEL and Europeana Foundation agreed that the legal and financial risks of separation were too great. The European Library thus remains a separate unit under the legal aegis of the Europeana Foundation. This has been communicated with the European Commission.

KEY PIECES OF WORK IN YEAR 3 - 2015

Work Package 1
- Developing Content Strategy for Europeana Research
- Evaluation of WP3 tools and Europeana Research Platform
- Ongoing communications with research communities

Work Package 2
- Completion of Europeana Cloud technical infrastructure
- Migration of metadata and content from three participating aggregators into Europeana Cloud

Work Package 3
- Development of third set of tools based on content within Europeana Cloud
- Full development of Europeana Research platform

Work Package 4
- Completion of all metadata ingestion
- Completion of all content ingestion
- Align Europeana Data Model with data model for Europeana Cloud
- Explore potential for metadata enrichment

Work Package 5
- Updated version of Europeana Cloud Business Plan
- Completion of Revised Europeana Licensing Framework
- Creation of Europeana Cloud Aggregator Roadmap
- Completion of Europeana Cloud Handbook; Governance Structure and Cost Model

Work Package 6
- Ongoing dialogue with key aggregators / potential members of Europeana Cloud
- Engagement of other key stakeholders outlined in Promoting Europeana Cloud
- Engagement of key stakeholders for Europeana Research

Work Package 7
- Assessing, updating and monitoring all project management issues proactively.

USE OF RESOURCES

Analysing the cumulative overview of the Use of Resources presented below, it is apparent that partners spent the assigned Person Months on the project according to plan: after completing two-third of the project they have spent 63% of the PMs.

In financial terms, the figures show an underspend of 22%, mainly due to partners reporting lower personal rates than initially estimated. At the start of the project, partners found it difficult to assess precisely the level of expertise required to perform the assigned tasks. In some EU Member States labour rates were lowered substantially as a consequence of the economic crisis. Also, the project budget which MDR left unspent after its withdrawal had not yet been fully reallocated.

The YR3 financial Forecast reveals that roughly € 190,000 is available for reallocation between partners, after the Consortium lost € 150,000 as a consequence of MDR's bankruptcy. The available funds will be employed to strengthen key outcomes of the project, following the strategic recommendations by the reviewers at the Technical Review in early March 2015. Funds will be applied to reinforce tasks supporting the sustainability of Europeana Research and improving the tools related to the Europeana Cloud service, thus enhancing its value.

Overview Person-Month Status (cumulative) Europeana Cloud up to year 2

	Consortium	WP1		WP2		WP3		WP4		WP5		WP6		WP7		TOTAL		
Nr	short name	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	in %
1	EF	2,10	5,00	38,96	64,00	6,69	13,00	19,85	17,00	19,10	46,00	9,52	8,00	6,42	13,00	102,63	166,00	61,8%
2	Ariadne	-	-	-	-	10,60	12,00	-	-	1,02	1,00	0,38	1,00	0,41	1,00	12,41	15,00	82,7%
3	Athena RC	19,17	33,00	-	-	-	-	-	-	1,04	1,00	1,00	1,00	1,00	3,00	22,20	38,00	58,4%
4	BSB	-	-	-	-	-	-	2,03	3,00	0,85	1,00	0,28	1,00	0,89	1,00	4,05	6,00	67,5%
5	CEEOL	-	-	-	-	-	-	7,68	3,00	1,34	1,00	1,01	1,00	0,57	1,00	10,60	6,00	176,6%
6	CERL	19,15	6,00	-	-	-	-	1,61	12,00	0,74	1,00	0,39	3,00	1,07	3,00	22,97	25,00	91,9%
7	CNR	-	-	16,32	24,00	-	-	-	6,00	0,47	1,00	0,63	1,00	0,53	1,00	17,96	33,00	54,4%
8	DE	-	-	-	-	-	-	3,01	3,00	1,00	1,00	0,82	1,00	0,48	1,00	5,31	6,00	88,5%
9	DIALNET	-	-	-	-	-	-	2,90	3,00	0,89	1,00	1,86	3,00	0,69	1,00	6,34	8,00	79,3%
10	HAZU	-	-	-	-	-	-	8,38	9,00	0,76	1,00	0,77	1,00	0,67	1,00	10,58	12,00	88,2%
11	KB DK	-	-	-	-	-	-	1,67	3,00	0,23	1,00	0,32	1,00	0,46	1,00	2,68	6,00	44,7%
12	KL	-	-	-	-	-	-	-	-	16,08	24,00	1,22	1,00	0,13	1,00	17,42	26,00	67,0%
13	KNAWS	6,77	12,00	-	-	-	-	-	-	0,22	1,00	4,54	6,00	0,43	1,00	11,95	20,00	59,7%
14	KU Leuven	-	-	-	-	16,14	24,00	9,40	3,00	-	1,00	-	1,00	-	3,00	25,54	32,00	79,8%
15	LIBER	2,29	6,00	-	-	-	-	-	-	1,14	1,00	5,14	5,00	0,45	1,00	9,02	13,00	69,4%
16	LUCE	-	-	-	-	-	-	3,87	3,00	1,05	1,00	1,00	1,00	1,14	1,00	7,05	6,00	117,6%
17	MDR									0,33	0,33		-	8,25	8,25	8,58	8,58	100,0%
18	NAF	-	-	-	-	-	-	-	-	0,95	1,00	-	1,00	0,54	1,00	1,49	3,00	49,6%
19	NLW	13,25	14,00	-	-	-	-	2,95	3,00	0,75	1,00	0,52	1,00	0,84	1,00	18,31	20,00	91,6%
20	NTK	-	-	-	-	-	-	0,93	3,00	0,41	1,00	0,13	1,00	0,52	1,00	1,98	6,00	33,0%
21	OAPEN	-	-	-	-	-	-	0,58	3,00	0,07	1,00	0,09	1,00	0,50	1,00	1,23	6,00	20,6%
22	OKF DE	-	-	-	-	14,29	16,00	-	-	-	-	3,73	5,00	0,67	1,00	18,70	22,00	85,0%
23	OU	-	-	13,98	35,00	-	-	4,17	12,00	0,34	1,00	0,25	1,00	0,34	1,00	19,08	50,00	38,2%
24	PSNC	-	-	32,04	58,00	-	-	-	-	0,59	1,00	-	1,00	-	1,00	32,64	61,00	53,5%
25	TCD	12,67	12,00	-	-	0,03	-	-	-	0,36	1,00	0,64	1,00	1,72	1,00	15,42	15,00	102,8%
26	TILBURA	-	-	-	-	-	-	0,76	3,00	0,01	1,00	0,08	1,00	0,22	1,00	1,08	6,00	18,0%
27	UCL	-	-	-	-	-	-	2,09	3,00	0,59	1,00	6,72	10,00	1,74	3,00	11,14	17,00	65,5%
28	UEDIN	0,23	2,00	-	-	-	-	3,58	3,00	0,29	1,00	-	1,00	1,50	1,00	5,60	8,00	70,0%
29	UGOT	13,94	15,00	-	-	-	-	0,05	1,00	0,17	1,00	0,09	3,00	0,32	1,00	14,56	21,00	69,3%
30	ULB	-	-	-	-	-	-	1,35	2,00	-	1,00	-	1,00	0,31	1,00	1,65	5,00	33,1%
31	UNIBI	-	-	-	-	-	-	0,59	3,00	-	1,00	-	3,00	-	1,00	0,59	8,00	7,4%
32	UPAT	-	-	-	-	-	-	0,64	3,00	0,71	1,00	-	1,00	-	1,00	1,36	6,00	22,6%
33	VUA	-	-	-	-	3,74	5,00	1,61	3,00	0,42	1,00	0,06	1,00	0,69	1,00	6,51	11,00	59,2%
34	EJA	-	-	-	-	-	-	-	-	0,60	2,00	-	-	1,30	8,00	1,90	10,00	19,0%
35	SEM	-	-	-	-	-	9,00	-	-	-	-	-	-	-	-	-	9,00	0,0%
	TOTAL	89,56	105,00	101,30	181,00	51,48	79,00	79,69	107,00	52,51	101,33	41,16	69,00	34,78	68,25	450,49	710,58	63,4%
			85%		56%		65%		74%		52%		60%		51%		63%	

	Overall financial report Europeana Cloud							24 months - end Year 2				
Particip ant No.		Short Name	Coun try	Total personnel €	Sub-contracting €	Other Incl travel €	TOTAL BUDGET €	Budget per 24 months to Jan 2015	Costs reported for Year 2 to Jan 2015	Costs reported for 2 Years to Jan 2015	under / over budget 2 Years to Jan 2015	% under / over budget
1	Europeana Foundation	EF	NL	880.268	30.000	176.618	1.086.886	€ 724.591	€ 363.820	€ 667.684	-€ 56.907	-7,85%
2	Ariadne Foundation	Ariadne	BE	90.000		3.000	93.000	€ 62.000	€ 44.268	€ 56.104	-€ 5.896	-9,51%
3	Athena Research and Innovation (Digital Curation Unit-DCU)	Athena RC	GR	171.000		19.500	190.500	€ 127.000	€ 58.931	€ 106.097	-€ 20.903	-16,46%
4	Bayerische Staatsbibliothek / Bavarian Library Consortium	BSB	DE	37.800		4.500	42.300	€ 28.200	€ 12.070	€ 25.342	-€ 2.858	-10,13%
5	Questa.Soft Central and Eastern European Online Library	CEEOL	DE	30.000		4.500	34.500	€ 23.000	€ 19.760	€ 45.861	€ 22.861	99,39%
6	CERL	CERL	UK	162.500	16.240	12.000	190.740	€ 127.160	€ 54.265	€ 93.437	-€ 33.723	-26,52%
7	Onsiglio Nazionale delle Ricerche (ISTI- CNR)	CNR	IT	198.000		5.250	203.250	€ 135.500	€ 68.835	€ 93.566	-€ 41.934	-30,95%
8	Debrecen Egyetem	DE	HU	12.000		4.500	16.500	€ 11.000	€ 7.344	€ 13.341	€ 2.341	21,28%
9	Fundación DIALNET	DIALNET	ES	33.600		6.000	39.600	€ 26.400	€ 19.395	€ 30.509	€ 4.109	15,56%
10	Hrvatska Akademija Znanosti i Umjetnosti /Academy of Sciences & Arts	HAZU	HRV	42.858		4.500	47.358	€ 31.572	€ 15.996	€ 36.157	€ 4.585	14,52%
11	National & Copenhangen University Library	KB DK	DK	42.000		4.500	46.500	€ 31.000	€ 13.705	€ 18.325	-€ 12.675	-40,89%
12	Stichting Nederland Kennisland	KL	NL	184.600		11.250	195.850	€ 130.567	€ 49.980	€ 84.678	-€ 45.889	-35,15%
13	Koninklijke Nederlandse Akademie van Wetenschappen -Knaw (DANS & NIOD)	KNAWS	NL	120.000		26.500	146.500	€ 97.667	€ 25.448	€ 74.302	-€ 23.365	-23,92%
14	KU - Leuven	KU Leuven	BE	200.000		9.000	209.000	€ 139.333	€ 82.879	€ 149.221	€ 9.888	7,10%
15	LIBER	LIBER	NL	78.000		6.000	84.000	€ 56.000	€ 31.689	€ 58.982	€ 2.982	5,33%
16	Cinecitta Luce SPA-Istituto Luce-Cinecitta SRL	LUCE	IT	30.000		3.000	33.000	€ 22.000	€ 8.067	€ 10.690	-€ 11.310	-51,41%
17	MDR Partners	MDR	UK	195.495		3.680	199.175	€ 132.783	€ 6.033	€ 48.582	-€ 84.201	-63,41%
18	Kansallisarkisto / National Archives of Finland	NAF	FIN	15.300		3.000	18.300	€ 12.200	€ 6.014	€ 9.082	-€ 3.118	-25,56%
19	National Library of Wales	NLW	UK	147.987		4.500	152.487	€ 101.658	€ 23.228	€ 123.324	€ 21.666	21,31%
20	Narodni Technicka Knihovna / National Technical Library	NTK	CZ	11.256		4.500	15.756	€ 10.504	€ 2.105	€ 6.331	-€ 4.173	-39,73%
21	Stichting OAPEN / Open Access Publishing In European Networks	OAPEN	NL	40.632		4.500	45.132	€ 30.088	€ 3.675	€ 8.303	-€ 21.785	-72,40%
22	Open Knowledge Foundation Deutschland	OKF DE	DE	156.400		4.500	160.900	€ 107.267	€ 52.363	€ 107.251	-€ 16	-0,01%
23	The Open University	OU	UK	276.650		6.750	283.400	€ 188.933	€ 70.564	€ 97.945	-€ 90.988	-48,16%
24	Instytut Chemii Bioorganicznej Pan / Poznan Super Computing	PSNC	PL	286.700		25.250	311.950	€ 207.967	€ 86.234	€ 137.472	-€ 70.495	-33,90%
25	Trinity College Dublin	TCD	IRL	117.544		12.000	129.544	€ 86.363	€ 40.210	€ 72.732	-€ 13.631	-15,78%
26	Stichting Katholieke Universiteit Brabant Universiteit Van Tilburg	TILBURA	NL	45.000		4.500	49.500	€ 33.000	€ 4.637	€ 8.561	-€ 24.439	-74,06%
27	University College London	UCL	UK	163.557		12.000	175.557	€ 117.038	€ 44.140	€ 82.768	-€ 34.270	-29,28%
28	The University of Edinburgh	UEDIN	UK	55.499		4.500	59.999	€ 39.999	€ 9.635	€ 35.021	-€ 4.978	-12,45%
29	Goeteborgs Universitet / University of Gothenburg	UGOT	SE	155.904		14.250	170.154	€ 113.436	€ 10.478	€ 77.851	-€ 35.585	-31,37%
30	Universite Libre De Bruxelles / Free University of Brussels	ULB	BE	51.277		4.500	55.777	€ 37.185	€ 15.500	€ 18.831	-€ 18.354	-49,36%
31	Universitaet Bielefeld (BASE)	UNIBI	DE	40.000		6.000	46.000	€ 30.667	€ 2.054	€ 4.133	-€ 26.534	-86,52%
32	University of Patras	UPAT	GR	12.000		4.500	16.500	€ 11.000	€ 5.962	€ 9.650	-€ 1.350	-12,27%
33	Stichting VU-VUMC Amsterdam	VUA	NL	61.468		4.500	65.968	€ 43.979	€ 18.341	€ 37.597	-€ 6.382	-14,51%
34	Els Jacobs Advies	EJA	NL	95.200		4.000	99.200	€ 66.133	€ 18.156	€ 18.156	-€ 47.977	-72,55%
35	Semantika	SEM	SI	33.300		1.500	34.800	€ 23.200	€ 0	0	-€ 23.200	-100,00%
	Total			4.273.795	46.240	429.548	4.749.583	€ 3.166.389	€ 1.295.781	2.467.885	-€ 698.503	-22,06%

Particip ant No.	Europeana Cloud financial overview	Short Name	Coun try	Forecast Year 3				
				Budget per 36 months to Jan 2016	Forecast reported for Year 3 to Jan 2016	Forecast reported for 3 Years to Jan 2016	under / over budget 3 years to Jan 2016	% under / over budget
1	Europeana Foundation	EF	NL	€ 1.086.886	€ 555.000	€ 1.222.684	€ 135.798	12,49%
2	Ariadne Foundation	Ariadne	BE	€ 93.000	€ 36.133	€ 92.237	-€ 763	-0,82%
3	Athena Research and Innovation (Digital Curation Unit-DCU)	Athena RC	GR	€ 190.500	€ 76.500	€ 182.597	-€ 7.903	-4,15%
4	Bayerische Staatsbibliothek / Bavarian Library Consortium	BSB	DE	€ 42.300	€ 16.958	€ 42.300		
5	Questa.Soft Central and Eastern European Online Library	CEEOL	DE	€ 34.500	€ -	€ 45.861	€ 11.361	32,93%
6	CERL	CERL	UK	€ 190.740	€ 55.490	€ 148.927	-€ 41.813	-21,92%
7	Onsiglio Nazionale delle Ricerche (ISTI- CNR)	CNR	IT	€ 203.250	€ 111.000	€ 204.566	€ 1.316	0,65%
8	Debrecen Egyetem	DE	HU	€ 16.500	€ 3.159	€ 16.500		
9	Fundación DIALNET	DIALNET	ES	€ 39.600	€ 9.200	€ 39.709	€ 109	0,28%
10	Hrvatska Akademija Znanosti i Umjetnosti /Academy of Sciences & Arts	HAZU	HRV	€ 47.358	€ 7.700	€ 43.857	-€ 3.501	-7,39%
11	National & Copenhangen University Library	KB DK	DK	€ 46.500	€ 27.200	€ 45.525	-€ 975	-2,10%
12	Stichting Nederland Kennisland	KL	NL	€ 195.850	€ 66.000	€ 150.678	-€ 45.172	-23,06%
13	Koninklijke Nederlandse Akademie van Wetenschappen -Knaw (DANS & NIOD)	KNAWS	NL	€ 146.500	€ 26.376	€ 100.678	-€ 45.822	-31,28%
14	KU - Leuven	KU Leuven	BE	€ 209.000	€ 59.779	€ 209.000		
15	LIBER	LIBER	NL	€ 84.000	€ 25.100	€ 84.082	€ 82	0,10%
16	Istituto Luce-Cinecitta SRL	LUCE	IT	€ 33.000	€ 22.100	€ 32.790	-€ 210	-0,64%
17	MDR Partners	MDR	UK	€ 199.175	€ -	€ 199.175		
18	Kansallisarkisto / National Archives of Finland	NAF	FIN	€ 18.300	€ 6.014	€ 15.096	-€ 3.204	-17,51%
19	National Library of Wales	NLW	UK	€ 152.487	€ 4.700	€ 128.024	-€ 24.463	-16,04%
20	Narodni Technicka Knihovna / National Technical Library	NTK	CZ	€ 15.756	€ 4.899	€ 11.230	-€ 4.526	-28,73%
21	Stichting OAPEN / Open Access Publishing In European Networks	OAPEN	NL	€ 45.132	€ 4.939	€ 13.242	-€ 31.890	-70,66%
22	Open Knowledge Foundation Deutschland	OKF DE	DE	€ 160.900	€ 53.124	€ 160.375	-€ 525	-0,33%
23	The Open University	OU	UK	€ 283.400	€ 179.068	€ 277.013	-€ 6.387	-2,25%
24	Instytut Chemii Bioorganicznej Pan / Poznan Super Computing	PSNC	PL	€ 311.950	€ 174.478	€ 311.950		
25	Trinity College Dublin	TCD	IRL	€ 129.544	€ 39.950	€ 112.682	-€ 16.862	-13,02%
26	Stichting Katholieke Universiteit Brabant Universiteit Van Tilburg	TILBURA	NL	€ 49.500	€ 35.000	€ 43.561	-€ 5.939	-12,00%
27	University College London	UCL	UK	€ 175.557	€ 28.916	€ 111.684	-€ 63.873	-36,38%
28	The University of Edinburgh	UEDIN	UK	€ 59.999	€ 7.250	€ 42.271	-€ 17.728	-29,55%
29	Goeteborgs Universitet / University of Gothenburg	UGOT	SE	€ 170.154	€ 92.303	€ 170.154		
30	Universite Libre De Bruxelles / Free University of Brussels	ULB	BE	€ 55.777	€ 36.946	€ 55.777		
31	Universitaet Bielefeld (BASE)	UNIBI	DE	€ 46.000	€ 35.000	€ 39.133	-€ 6.867	-14,93%
32	University of Patras	UPAT	GR	€ 16.500	€ 5.300	€ 14.950	-€ 1.550	-9,39%
33	Stichting VU-VUMC Amsterdam	VUA	NL	€ 65.968	€ 18.325	€ 55.922	-€ 10.046	-15,23%
34	Els Jacobs Advies	EJA	NL	€ 99.200	€ 81.044	€ 99.200		
35	Semantika	SEM	SI	€ 34.800	€ 34.800	€ 34.800	€ 0	0,00%
	Total			€ 4.749.583	€ 1.939.751	€ 4.558.229	-€ 191.354	-4,03%

APPENDICES

1. Changes to Deliverable Schedule

Europeana Cloud - Proposed Changes to Description of Work / Changes to Deliverable Schedule

Alastair Dunning, Project Coordinator, October 2014
Approved Marcel Watelet, October 2014. Adjustments requested are included

The existing plan

1.1 A principal aim of the Europeana Cloud is to develop a shared technical infrastructure for the European ecosystem of aggregators and data providers

1.2 Numerous steps have already been carried out to define this infrastructure, following the steps laid out in Deliverable 2.2

1.3 While the technical underpinnings of Europeana Cloud remain intact, the strategic context surrounding the work of Europeana has changed since the conception of the project. For instance, Europeana is now considered by the Europeana Commission as a Digital Service Infrastructure under the Connecting Europe Facility (CEF), with attendant changes in the funding model for Europeana Foundation (and partners). The governance structure for Europeana is also being updated; there are significant changes elsewhere such as the forthcoming move by The European Library to become a legal entity separate from the Europeana Foundation.

1.4 Just as importantly, work occurring in other projects is also affecting the strategic context of Europeana Cloud. For example, the development of the content Reuse Framework in Europeana Creative is redefining the recommended standards for publication of content by cultural heritage organisations. Meanwhile, the review of the aggregation infrastructure and the associated development of aggregation tools in Europeana Version 3 suggests completely new ways in which the constituent parts of the Europeana ecosystem interact with one another.

Additional work

2.1 Given these changes, the European Cloud has opted to take a broader view of the services it can offer to the Europeana ecosystem of aggregators and data providers, expanding beyond what was originally envisioned in the project.

2.2 Extra tasks have been undertaken in WP5 to research not just the potential of a cloud system for aggregators to Europeana but also to understand their current technical and strategic challenges in the context of CEF funding and the changing aggregation infrastructure

2.3 These extra tasks have demonstrated that Europeana Cloud needs to take a broader approach in creating a sustainable service for the ecosystem; providing aggregators and data providers not just with a file storage system but reliable scalable tools to interact with this cloud system.

Proposed Changes to Deliverables

3.1 Given the discoveries of this research, the Europeana Cloud project is proposing changes to some of deliverables and the addition of new ones.

3.1.1 New Deliverable D5.6 - Business Model. This business model will outline the key aspects of the final Europeana Cloud business model. It will articulate the key partners, value propositions, revenue streams, resources to be used, customer segments and other aspects. It will work according to the Business Model Canvas[15] This document will provide the basis for exploring more detailed issues to be fleshed out in WP5, eg the governance structure and cost model. It will be delivered by WP5. This will be delivered in M23 (Dec 2014)

3.1.2 New Deliverable D5.7 - Product Requirements. These product requirements will list the required aspects of the Europeana Cloud service being delivered to its customers - in the first instance this will be the aggregators in the Europeana ecosystem. This will be delivered in M23 (Dec 2014). It will be led by WP5, but will also involve much input from WP2

3.2 At the same time, Europeana Cloud wishes to delay some existing deliverables as cited in the table below

<table>
<tr><td colspan="6">PROPOSED SCHEDULED FOR DELAYED DELIVERABLES</td></tr>
<tr><td>Del. no.</td><td>Deliverable name</td><td>Lead partici pant</td><td>Due delivery date from Annex I</td><td>Actual / Forecast delivery date</td><td>Comments</td></tr>
<tr><td>1.4</td><td>Content priorities for Humanities and Social Sciences Research communities</td><td>6 CER L</td><td>18</td><td>M24 (Jan 2015)</td><td>Extension already agreed to by Commission</td></tr>
</table>

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[15] http://www.businessmodelgeneration.com/canvas/bmc

5.2	Handbook for the Europeana Cloud participants	1 EF	18	Draft M24 (Jan 2015) Version 2 - M28 (May 2015) FInal Version - M34 (November 2015)	The eCloud handbook is considered a guide for aggregators wishing to join the eCloud service. For the handbook to be successful, other constituent parts of the project need to be in place. A request to delay the handbook until these are ready is being made
5.3	Revised Europeana Licensing Framework	12 KL	18	Version 1 - M28 (May 2015) Version 2- M34 (November 2015)	As well as delaying this deliverable, a request is also made to change its nature. It has becoming apparent during the project that the legal framework required by Europeana Cloud is not an updating of the current licensing framework but a framework that helps govern and administer the Europeana Cloud and its members
6.4	Promoting Europeana Cloud	1	18	M24 (start Feb 2015)	Promoting Europeana Cloud will require the business model (proposed deliverable 5.6) and product requirements (proposed deliverable 5.7) to be completed. Therefore a delay is requested to allow these deliverables to be completed.

3.3 There is also one related milestone to delay. Milestone 29 ('Cost Model') requires the business model and product requirements to be fully defined before it can be articulated. This will be delivered in M28 along with Deliverables 5.2 and 5.3

2. Dissemination Activities Log

Event and Description	Location	Number of Participants	Date	Month	Part-ner
Presentation	Trier, Germany	50	Feb 2014	13	19
Project presentations at internal meetings	Gothenburg, Sweden	30	Feb+May 2014	13+16	29
Monday Meetings in the Academy Library	Zagreb, Croatia	70	Feb+Mar+May+Jul 2014	13+14+16+18	10
Europeana Cloud Plenary	Athens, Greece		Mar 2014	14	12
Participation in the European Data Forum 2014 exhibition, presentation of the eCloud in the exhibition through the Agro-Know booth	Athens, Greece	620	Mar 2014	14	2
CERL Meeting of the Coordinating Committee	Edinburgh, Scotland	20	Mar 2014	14	6
Text in Ljetopis HAZU (HAZU annals) 2014 published in print (March 2014) 593-94		300	Mar 2014	14	10
Europeana Cloud Plenary	Athens, Greece	60	Mar 2014	14	32
Report from Europeana Cloud Plenary meeting	Available in NTK digital repository http://repozitar.techlib.cz/record/732/files/idr-732_1.pdf and also thought link from website http://www.techlib.cz/cs/2983-europeana-cloud	59 500	Spring 2014		20
European Data Forum 2014 / http://2014.data-forum.eu	Athens, Greece	620	Mar 2014	14	22
Preparation of paper for DL2014 conference	London, United Kingdom		Mar 2014	14	24
Paper presentation at the CAA-GR 2014 Conference (in Greek)	Crete, Greece	100	Mar 2014	14	3
Emails to cultural heritage projects requesting information on API use	Online	3	Mar+Apr+May 2014	14+15+16	25
The Fifth International Conference in Romania on "Information Science and Information Literacy" - Sibiu - April 2014	bcu.ulbsibiu.ro/conference	200	Apr 2014	15	
CERL meeting of the Directors	Paris, France	15	Apr 2014	15	6
Presentation about the project main aims and progress made so far at Networkshop 2014 (Pécs, Hungary) / http://nws.niif.hu/ncd2014/	University of Pécs, Hungary	200	Apr 2014	15	8
Presentation at the 4th Festival of Croatian Digitization Projects, Europeana Day conference (V. Juričić: "HAZU and eCloud)	Zagreb, Croatia	100	Apr 2014	15	10
Presentation	St. Andrews, Scotland	100	Apr 2014	15	19
Presentation	Wales, United Kingdom	100	Apr 2014	15	19
Emails to Cultural Heritage Institutions requesting information in the context of the API Usage Task	Online	4	Apr 2014	15	25
Coding Da Vinci 2014 / http://codingdavinci.de	Berlin, Germany	200	Apr+Jul 2014	15+18	22

Event and Description	Location	Number of Participants	Date	Month	Part-ner
Participation in the ARIADNE foundation General Assembly, presentation of the eCloud project and the related work activities	Athens, Greece	10	May 2014	16	2
Participation in the EdReNe 11th Conference	Athens, Greece	24	May 2014	16	2
Communication in Second Dialnet plenary meeting	Logroño. University of La Rioja, Spain		May 2014	16	9
Presentation at Nedimah workshop http://www.nedimah.eu/call-for-papers/downstream-digital-humanities-digital-methods-and-scholarly-communications-ecosystem	Zadar, Croatia	15	May 2014	16	15
Presentation	Wales, United Kingdom	100	May 2014	16	19
Discussion with Head Office of Bavarian Library Network	München, Germany	3	Jun 2014	17	4
Participation in the LIBER conference of heads of European libraries in Riga	Riga, Latvia	25	Jun 2014	17	5
Article in 027.7	Mention of the Europeana Cloud project http://www.0277.ch		Jun 2014	17	6
Promotion of e-cloud at LERU seminar on open scholarship on June 6: http://www.ehumanities.nl/susan-reilly-royal-dutch-library-kb-liber/	Brussels, Belgium	100	Jun 2014	17	15
Presentation of the project objectives	Rome, Italy	40	Jun 2014	17	16
Presentation	Cologne, Germany	40	Jun 2014	17	19
Attendance at a conference with informal discussions about eCloud	Helsinki, Finland	300	Jun 2014	17	23
Preparation of paper for INFOBAZY 2014 conference (to be presented in September 2014)	Gdańsk, Poland.		Jun 2014	17	24
Presentation to inform an expert group of information architects and IT specialists about the main objectives of the eCloud project and to compare the eCloud research-infrastructure (RI) with the EUDAT RI on a number of characteristics.	Utrecht, Netherlands	12	Jun 2014	17	26
BODDy 2014 / http://berlin.opendataday.de/	Berlin, Germany	100	Jun 2014	17	22
Website - migration the content to new version of NTK webpages	http://www.techlib.cz/cs/2983-europeana-cloud	55 000	Summer 2014		20
Website- Europeana Cloud Business Model Workshop	http://www.techlib.cz/cs/2983-europeana-cloud	55 000	Summer 2014		20
Promotion at Reshaping the Research Library Workshop &LIBER Annual Conference	Riga, Latvia	70.450	Jun-Jul 2014	17+18	15
Emails to researchers inviting participation in Skype interviews in context of API Usage Task	Online	19	Jun-Jul 2014	17+18	25

Event and Description	Location	Number of Participants	Date	Month	Part-ner
Skype interviews with researchers, curators at CHIs, developers and 'data evangelists' in context of API task, during which outline of Europeana Cloud / Research was given	Skype calls	9	Jun-Jul 2014	17+18	25
Athena Research And Innovation Centre - presentation of work within WP1 in a poster at DH2014	Lausanne, Switzerland		Jul 2014	18	3
CERL Newsletter	Online	600	Jul 2014	18	6
Europeana Cloud – 3 Strategic Workshops	The Hague, Netherlands	12	Jul 2014	18	12
Workshop	Lausanne, Switzerland	50	Jul 2014	18	19
OK Festival 2014 / http://2014.okfestival.org	Berlin, Germany	600	Jul 2014	18	22
Preparation of a workshop of the twelve leading academic publishers from PL, EE, HU, BG, RO, HR, RS, BiH to take place in Spring 2015		12	July-Aug 2014	18+19	5
Advocating a project of evaluation, survey and development of a forgotten collection of Judaica in Sofia (BG) comprising books and documents from 5 centuries and appr. 12.000 objects as a long term project that should result in having that content digitized and integrated into Europeana Cloud		37	July-Aug 2014	18+19	5
Athena Research And Innovation Centre - Discussion of work on Europeana Cloud with the DARIAH community at the annual DARIAH Consortium Meeting	Rome, Italy		Sep 2014	20	3
iKNOW paper	Graz, Austria,	200	Sep 2014	20	14
Paper at 14th International Conference on Knowledge Technologies and Data-driven Business / http://i-know.tugraz.at/	Graz, Austria	450	Sep 2014	20	22
Writing (as first author) the paper "Studying the history of philosophical ideas: supporting research discovery, navigation, and awareness". Accepted for Iknow 2014, 14th international conference on Knowledge Technologies and Data-driven business, 16-19 September, Graz 2014.	Graz, Austria		Sep 2014	20	33
Athena Research And Innovation Centre - Paper presentation of Europeana Cloud work at the EuroMED 2014 Conference	Limassol, Cyprus		Nov 2014	22	3
Twitter	@MRL57 and @cerl_org	460 followers	Throughout 2014		6
CERL website	http://www.cerl.org/collaboration/projects		Throughout 2014		6
Twitter @dialnet: some tweets about Europeana Cloud	Online	4.400 followers	Throughout 2014		9

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Publication information on Dialnet website / http://dialnet.unirioja.es/	20.8 million visits/year 69.5 million page views/year		Throughout 2014		9
Announcement on the Ministry of Culture web page for aggregation	knjiznica.hazu.hr		Throughout 2014		10
Regular progress to internal staff teams	Edinburgh, Scotland	30	Throughout 2014		28
Info about project to Czech library community using digital library system Kramerius	Czech Republic	50	Date to be confirmed		20
Presentations of data archiving	Sweden	180	Date to be confirmed		29
Presentation at the website of the Swedish National Data Service	http://snd.gu.se/sv/projekt/internationella-projekt		to be confirmed		29