DELIVERABLE

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Deliverable 5.6 - Europeana Cloud Business Model

Revision: 1.0

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Revision History

Revision	Date	Author	Description
0.1	19 DEC 14	Harry Verwayen Jill Cousins Julia Fallon Pavel Kates Alastair Dunning Marcin Werla	First draft for review
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D5.6 Europeana Cloud Business Model

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Introduction

This business model describes the services that the three partners Europeana Foundation, The European Library and the Poznan Supercomputing and Networking Center are developing to host, share and enrich their data using cloud technology. It is meant to (1) guide the actions of the 3 'launching partners' during the next phase of development and (2) to inform potential new partners who want to join the service.

The plan focuses on the key aspects of the service to be developed during 2015 and projects to the period thereafter when the Europeana Cloud project ends.

This plan consciously does not describe all outcomes of the Europeana Cloud *project* but focuses on the *'software as a service'* that will be developed under the Europeana umbrella as a service for aggregating partners. This plan should be considered as the first iteration of our final plan which we expect to deliver at the end of 2015, when we have explored synergies with other initiatives, in particular with the LoCloud project.

Vision

Europeana was conceived as an aggregator of aggregators. This allowed it to scale up quickly using both national initiatives and domain aggregators as conduits in attracting museums, libraries, archives and audio visual collections to share their material on the web and help create a European Digital Library. As a concept this works with 130 direct providers to Europeana contributing material from 3.000 memory institutions. But the world has moved, technology has changed enormously since our launch in 2008 and users are demanding more, bigger, more beautiful images, or videos, or sound recordings or searchable full text that can be zoomed. The aggregation infrastructure that we are all part of ineeds revision. Using the possibilities that cloud technologies give us we propose a more collaborative, commons based approach to sharing the cultural heritage of europe, that shares cost and increases access for all.

Disruptive Technology

The Europeana Cloud vision capitalizes on the idea of a platform. Today platforms transform entire business domains by providing a set of common tools and standard interfaces that can be used to create thriving ecosystems of applications and communities, such as Google Play and Apple App Store for mobile applications or Amazon Web Services for infrastructure management. One of the main functions of these platforms, and specifically of the technical infrastructures underpinning them, is to commodify computational resources needed by end-users so that they are not exposed to complexities of managing them.

"Cloud computing are virtual services...that are commoditized and delivered in a manner similar to traditional utilities such as water, electricity, gas, and telephony. In such a model, users access services based on their requirements without regard to where the services are hosted or how they are delivered..." [1]

Studies have shown that the use of cloud technologies can therefore lead to substantial economic gains in terms of cost reductions and new business opportunities [2].

Changing Aggregation Landscape

The early engagement of cultural heritage institutions with the World Wide Web was in the 1990s. Just as physical heritage institutions had evolved complete workflows for storing, cataloguing and making accessible their collections, so the early digitisation projects implemented similar start-to-finish digital workflows.

In the early enthusiasm of digitisation, individual institutions all developed their own infrastructure or bought in bespoke systems. While this allowed for digital projects to get off the ground and for heritage institutions to reach broader audiences, it came with heavy professional and financial costs. Each institution had to develop the skills and infrastructures for such digital work from scratch. For each museum to do this, whilst also sustaining their traditional services, greatly added to the challenges facing cultural heritage. Since the early days of the Internet therefore, there has been a greater emphasis on shared services and tools that allow for the digital challenges to be met by heritage institutions in a more efficient way.

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[1] Rajkumar Buyya, Chee Shin Yeo, Srikumar Venugopal, James Broberg and Ivona Brandic. Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. In Future Generation Computer Systems Volume 25, Issue 6, June 2009, pages 599–616

[2] In September 2012, the European Commission adopted a strategy for "Unleashing the Potential of Cloud Computing in Europe". The strategy outlines actions to deliver a net gain of 2.5 million new European jobs, and an annual boost of €160 billion to the European Union GDP (around 1%), by 2020. The strategy is designed to speed up and increase the use of cloud computing across all economic sectors. This strategy is the result of an analysis of the overall policy, regulatory and technology landscapes and of a wide consultation with stakeholders, to identify ways to maximise the potential offered by the cloud.

all over Europe aggregators are facing exactly the same.
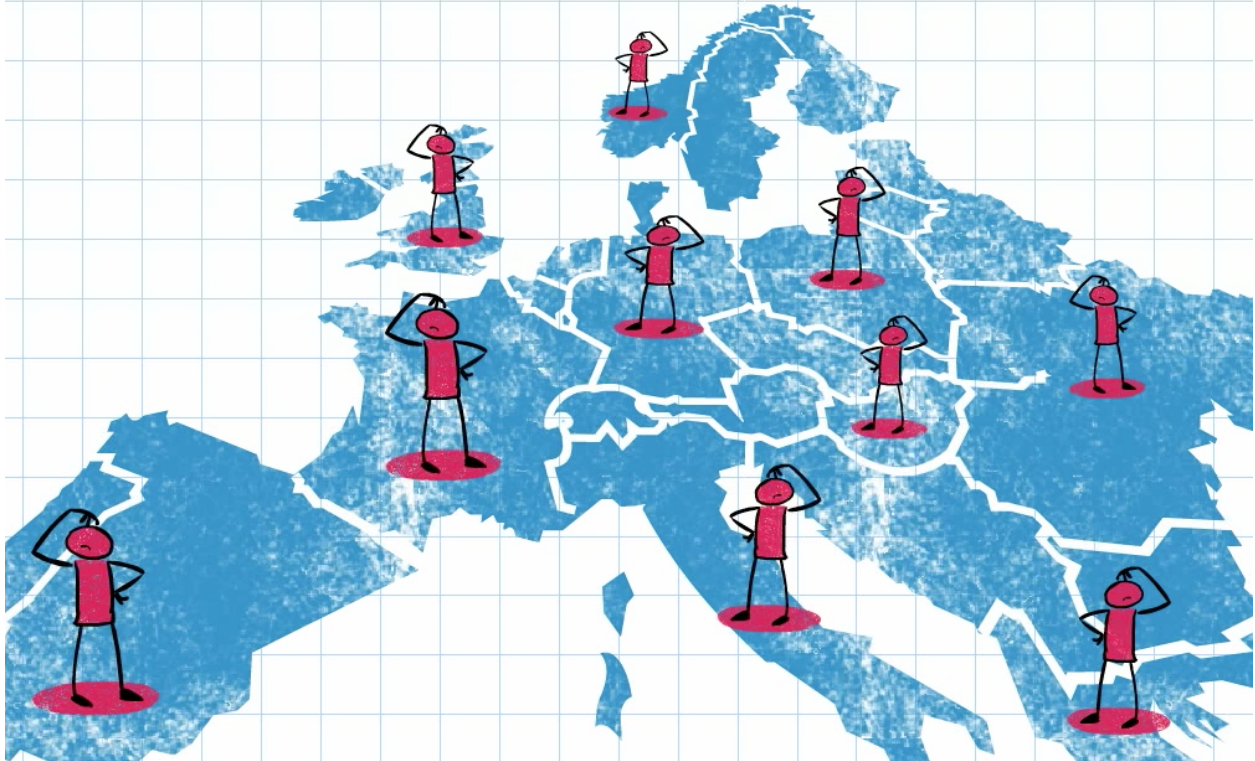
This is particularly true within the context of Europeana, where its continent-wide ecosystem of data providers, aggregators and Europeana itself demands shared services.

Aggregation of cultural heritage materials has proven to be a very resource-intensive business. Recurring cycles of metadata mapping, necessary for publishing metadata on various platforms, indexing often very large datasets for search, analysing high-quality digital objects - these and other activities require a mixture of storage, computational and connectivity resources.

Today, aggregators and memory institutions often don't have either the expertise or scale to build solutions providing this level of resources, nor are there standard solutions at their disposal. They end up opting for building ad hoc niche solutions, that are not sustainable in the long run and proliferate information silos in the sector. The time is ripe for a technological infrastructure, underpinned by a secure financial model,capable of providing the needed scale.

Cultural Clouds

Within the cultural heritage sector, various groupings are being made to exploit cloud technologies. For example:

1. Brabant Cloud : A regional infrastructure to link, preserve and share the combined heritage of over 10 museums in the Dutch area of Brabant. http://www.brabantcloud.nl/

2. The Polish National Library are currently planning a cross-sectoral cloud service for the long-term preservation of digitised objects and hosting of metadata for all Polish cultural heritage institutions.

3. The City of Hamburg is considering its own 'eCulture Cloud' to unite its regional cultural heritage organisations and provide them with shared infrastructure that allows integration of cultural data with the tourist, education and other sectors.

4. In the UK there is the development of the cross-domain Digital Public Space, a shared venture between stakeholders in cultural heritage to enhance discovery, linking and development of digitised collections.

5. LoCloud: An EU funded initiative to provide content and metadata hosting for small and medium institutions in the cultural sector, throughout Europe. There are strong strategic links with Europeana Cloud.

All these initiatives are capitalising on the advantages of cloud computing as a shared infrastructure. Europeana exists as a trusted brand and leader within the pan-European cultural heritage domain. This puts Europeana in an excellent position to set some of the interoperability standards, to create the shared cloud infrastructure that connects the local initiatives, and to establish the necessary policies and governance to underpin this infrastructure.

Europeana Cloud Services are the result of this; it gives the next steps to exploit these shifts in technology on a pan-European scale and allows a significant innovation of the aggregation landscape.

To fund and sustain the Europeana Cloud Services more, Europeana and several partners will use the opportunities in the 2015 Horizon2020 calls for proposal to expand and enrich the Europeana Cloud Services and make sure that other initiatives are aligned with this business plan. There are several calls that are of interest in the development of Europeana Cloud Services: a Pre-Commercial Procurement (H2020-ICT8a - PCP) process that might develop

connections to the Europeana Cloud Services for national and other aggregators. The call H2020-Reflective-6 calls for *innovation actions* that show how digital cultural resources can promote creativity and generate innovation in research. This opportunity can be used to develop regional culture clouds that function as cultural eco-systems (such as the ones above) that connect to the Europeana Cloud Services to integrate and reuse cultural assets for European cultural institutions and heritage, tourism and the cultural and creative industries. Together with partners, we will submit several proposals for this call with the aims of greater impact, adoption and sustainability for the Europeana Cloud Services.

IN SHORT, THIS SERVICE WILL:

1 Make it easier to manage your data storage and hosting requirements

2 Provide you with access to tools and services that you can use to enrich your data

3 lets you share your data with anyone you want, following the C.O.P.E. principle (create once, publish everywhere)

The EU-funded project 'Europeana Cloud' acts as the catalyst for this. It shows how three aggregators can work together, solve the issues of governance and technology to deliver a cloud based platform for the sharing of scarce resources and data. The aim of this plan is to understand better how we can progress from this first 'minimal viable product'[3] towards a cooperatively owned service that joins up all aggregators and cultural institutions across Europe. This service will open up a long-term future for both small and large cultural heritage organisations to do their work more efficiently and effectively – to participate in a European Cloud for Cultural Heritage that can serve better its users, whether that is the schoolchild or the creative.

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[3] See http://theleanstartup.com/principles for an explanation of the methodology behind 'minimal viable products'

SWOT

See the SWOT here: https://canvanizer.com/canvas/Ls08jQf41CA
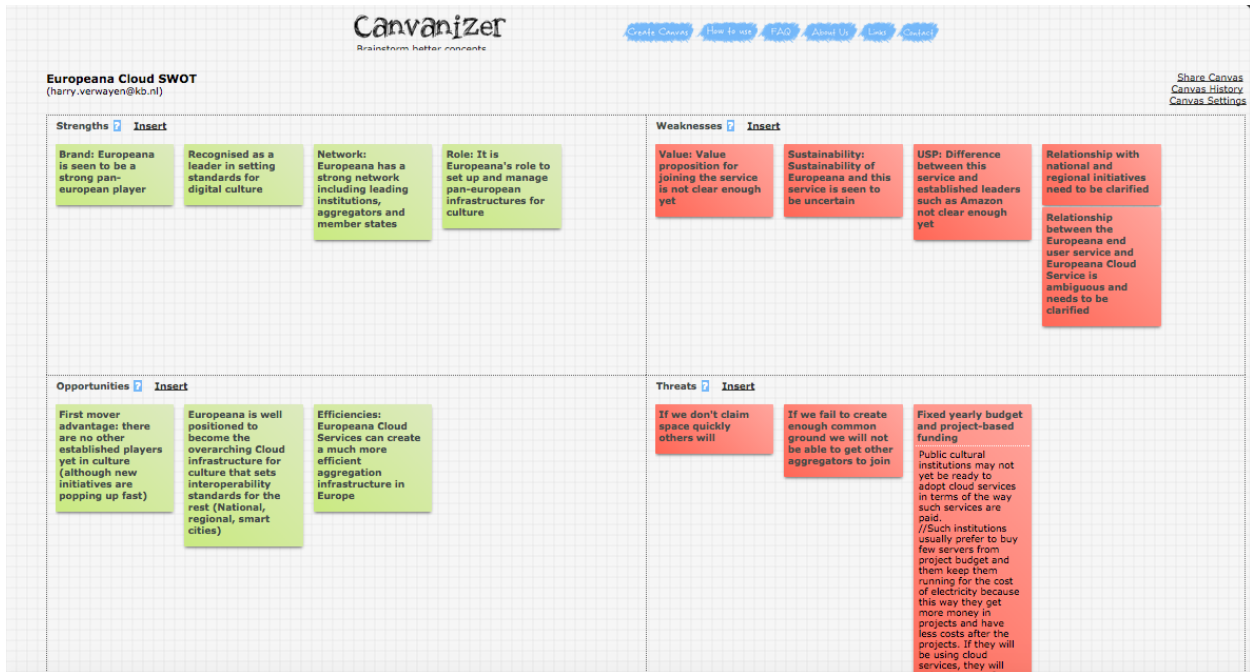
SWOT analysis: The Europeana Foundation and its partners are currently in a good position to leverage the opportunities of cloud computing to the advantage of the sector. While new initiatives are popping up every day, Europeana is still strongly positioned to create and coordinate the overarching pan-European infrastructure for managing, enriching and sharing data between aggregators and institutions. Such a role is seen to be native to Europeana as a Digital Service Infrastructure for cultural heritage. The success of this service however will largely depend on the adoption of the service by the eco-system of aggregators and data providers who will incur transition costs in the switch to new systems and ways of operating. This might be mitigated by joining in one of the proposed EU funded projects.

Business Model

While the advantages of cloud computing on a generic conceptual level are very apparent it has
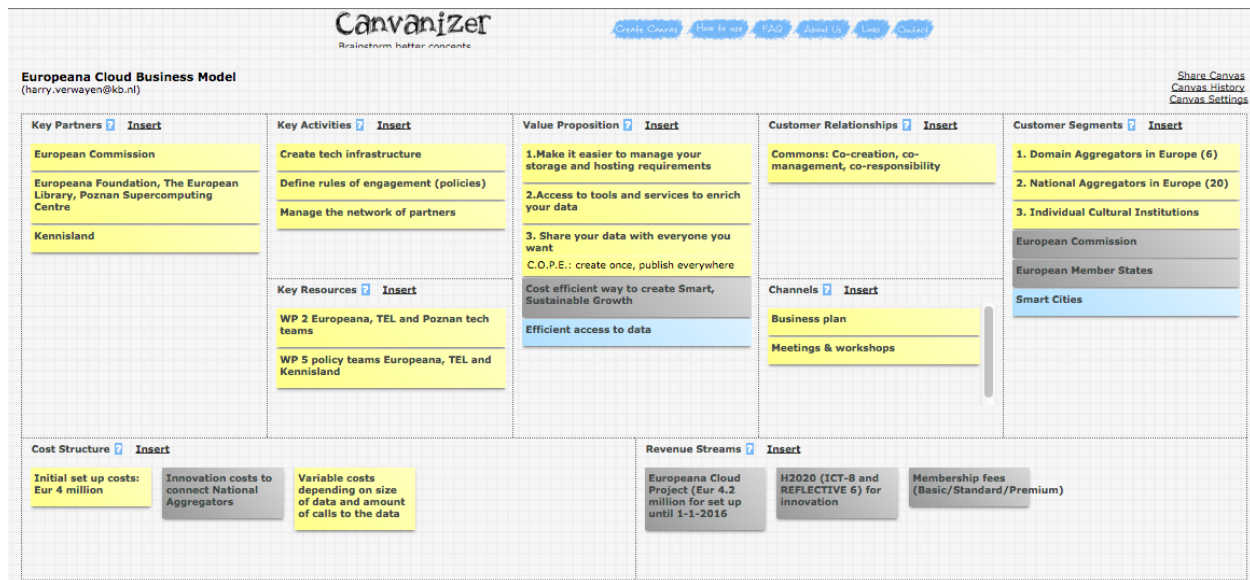
proven quite difficult to nail down the Europeana Cloud Service' main value for aggregators and data providers: What problems does it solve? What would be the main reasons to join this service compared to the current situation? What needs to be 'commoditised' and why?

To understand this better various strands of research have been conducted, culminating in interviews with the aggregators that contribute data to Europeana.[4] The interviews explored the technical and strategic challenges the aggregators faced in performing this role.

Here are the key findings:

- Metadata mapping is currently a slow process, with too many steps, services and discussions required.
- Tools for metadata management are not as reliable as they can be and require technical expertise to use.
- Many aggregators see great possibilities for metadata enrichment, but do not have the tools for it
- Issues related to content storage were less pressing today, but nearly all aggregators saw the issue of content storage as strategically important.

This has led us to redesign our business model to ensure that all these concerns are appropriately addressed.

See the business model canvas here: https://canvanizer.com/canvas/uRRdRxumUvg

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[4] Insert links to documentation , eg https://drive.google.com/file/d/0B62MHlFrzNJCeXF5SWFuUFRJcFU/view?usp=sharing. The results of the aggregator interviews are here -https://docs.google.com/presentation/d/1FEf6rzohE7ozPlNFYdd6yi8MUrvAAbM7abKEEaHDHv0/pub?start=false&loop=false&delayms=3000

Customer segments

In our business model we make a distinction between our primary customer segment- the organisations that will benefit directly from our service and who we want to become partners, our secondary customer segment- financiers who have an interest in facilitating this service, and our tertiary segment- the organisations that we can interact with such as for example smart cities and research networks.

Primary

Domain Aggregators

We consider domain aggregators to be our first target audience for this shared service. For example, APEX (archives), EUscreenXL (Audio-visual), European Film Gateway (Film) and Museu (Museums) are already operating with Europeana Foundation and The European Library as part of the core infrastructure under CEF (Connecting Europe Facility). They have very clear distinct areas of expertise and a significant overlap in workflows. There are about 6-12 of these aggregators if we include the thematic ones like Europeana Fashion.

National Aggregators

National aggregators, such as the Deutsche Digitale Bibilothek, would also be natural partners in a shared ecosystem of cloud services. Not all countries have such an aggregator in place, so we would gauge interest based on their level of development. It may be easier to connect newly set up aggregators such as the one under development in Serbia than already well established aggregators with long term contracts in place. There are about 30 National Aggregators contributing to Europeana currently.

Individual Cultural Institutions

The long term perspective is to allow individual institutions to participate in the service directly. We count around 60.000 of them in Europe, 3.500 who are already data partners of Europeana.

Secondary

European Commission

The European Commission has established a strong vision for the roll-out and facilitation of cloud based services across Europe. The EU expects significant growth in this area, as well as costs savings for participating institutions (in the area of 20%).

Member States

Member States are currently investing in cloud based services in order to keep their industries competitive. They will have an interest in adopting standards (data, technology, IP) that are interoperable with other member states.

Tertiary

Smart Cities

Against the background of economic and technological changes caused by the globalization and the integration process, cities in Europe face the challenge of combining competitiveness and sustainable urban development simultaneously. Many of them (Hamburg, London, Amsterdam, Siena, Florence, Pisa) have contacted us recently with requests to work with Europeana to connect their ambitions to the services Europeana has to offer.

Technology partners

Technology partners such as anynines with a strong proposition in cloud computing can be seen as potential partners in a public-private partnership construction.

Value propositions

Value propositions for the primary user groups

For the primary customer group of the service the hypothesis is that we can deliver value on 3 levels[5]:

1. Easy storage and hosting of metadata and content

All aggregators store metadata and/or content. The disk space and service levels depend on the amount and size of the data (high resolution video takes more space than text) and the amount of calls on the data by users. While Europeana Cloud Services does not intend to host preservation copies (we believe this is better done on a member state level) we do aim to accommodate a wide variety of data formats. This openness will allow aggregators to manage the disparate data formats they receive and and enables its transformation into interoperable formats; for example into EDM for channelling via Europeana's portal and other dissemination services.

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[5] See the animated value proposition here: http://vimeo.com/europeana/review/114241258/0c5f686b39
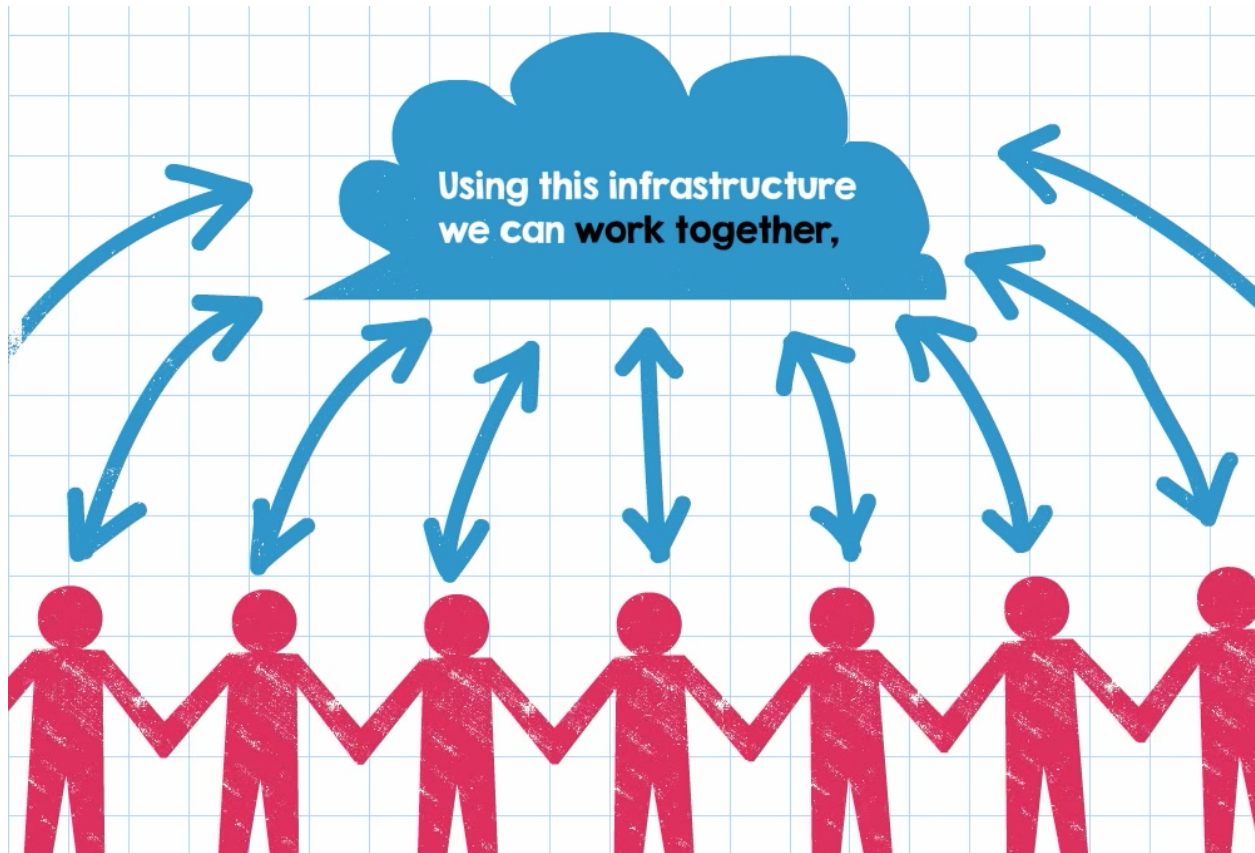
Tools & services to enrich data

For aggregators, the current workflow of harvesting, cleaning and transforming metadata, typically from a native format into EDM, is a complex one. It can involve multiple members of staff, not just data officers, but managers and technical developers. Repeated back-and-forth conversations need to take place not just with the data providers but with the third-party providers of tools. In some cases, these tools are not fit for purpose, lacking reliability and demanding time-consuming input from technical staff.

Europeana Cloud promises to radically simplify this process, saving time and costs for all parties. As part of the Basic Service, members of Europeana Cloud will have access to APIs that will facilitate the harvesting of data from providers and provide means to map and transfer between different formats. With the Basic + service a graphical user interface will be developed so that it can be operated by a data officer without the need for technical assistance.

This graphical interface will evolve from the existing tools used by individual aggregators - shared, sustainable tools that work with the generic data model required by Europeana and the specific formats of individual domains.

More broadly, the extensible nature of Europeana Cloud means that both partners and third parties can be built tools on top of the data. As well as the metadata tools provided as part of the Standards Service, tools can be built for specific enrichments (eg for recognising names or places) that can be used to enrich members' data. This creates fantastic possibilities for Europeana Cloud as a metadata brain.
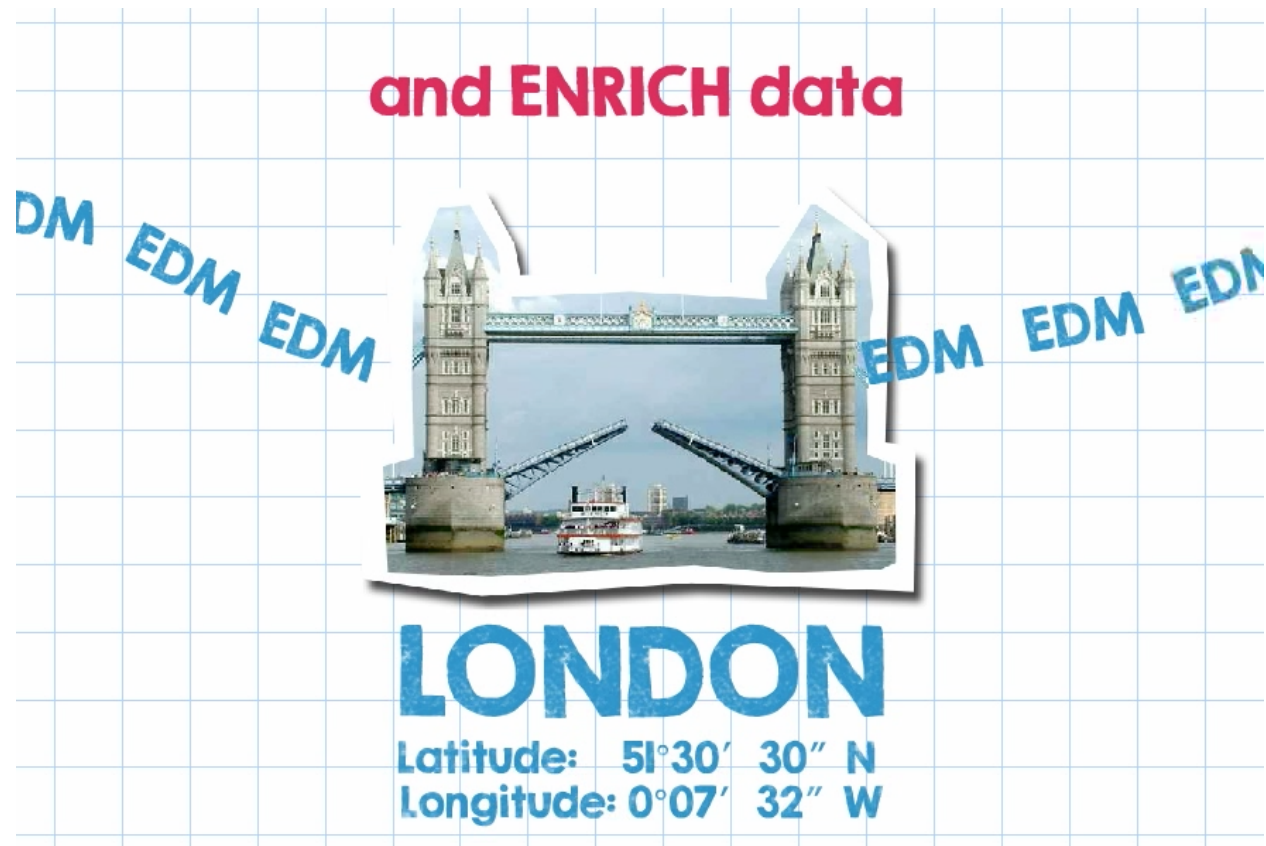
Create once, publish everywhere

Just as Europeana Cloud provides excellent opportunities for enriching metadata, so it allows for greater re-use of metadata and content. Following the dictum of 'create once, publish everywhere', aggregators are offered the chance to deliver their data to Europeana Cloud. Then, in line with the access permissions and terms of re-use, it can be pushed both Europeana and to third parties to develop their own applications, tools, services, drawing on Europeana Cloud. This includes education, research, tourism platforms as well as the Creative Industries.

For third parties, Europeana Cloud offers a single point where they can find a wealth of data with appropriate terms of reuse. For those providing data, Europeana Cloud offers a space to maximise the use and impact of that data.

to start **storing** and **sharing** your **data** in any way that suits you.

Value propositions for the secondary user groups

For the European Commission, Europeana Cloud offers a shared infrastructure that will not only begin reduce the costs of sharing data , but provide a single digital space. Just as the Commission seeks to establish a digital single market, so Europeana Cloud offers a single digital space to share cultural metadata and content across the European Union. For member states, Europeana Cloud offers a channel to position their own national aggregators and reduce costs of transition to the cloud. In several EU states there are national aggregators that bring together data from museums, libraries and archives. For them an easy route to share data at a European level is essential - this is exactly what Europeana Cloud provides.

Value propositions for the tertiary user groups

For other organisations such as cultural consortia within cities, regions or across countries, many of the challenges articulated above remain true. How can data from many separate partners within one group be efficiently aggregated, stored within a shared infrastructure and then re-used by as many third parties as possible. Europeana Cloud offers the platform to make this happen. For Cloud technology providers Europeana Cloud offers direct sales

access to cultural heritage across Europe, potentially enabling services to the cultural heritage sector of Europe through one contract.
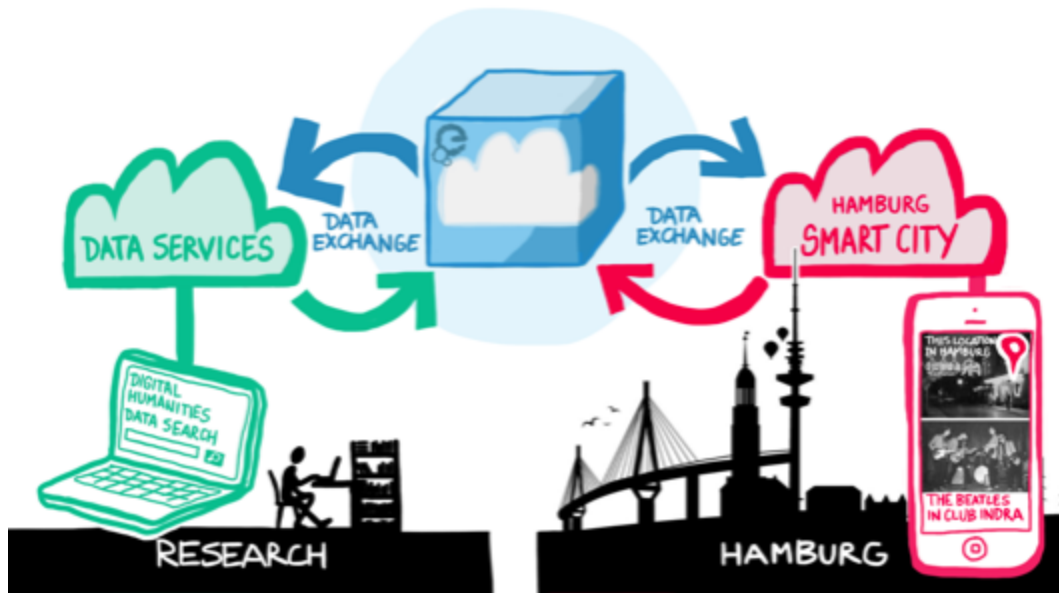
Products & Services

Europeana Cloud offers a shared data service for European aggregators and data providers in the cultural heritage domain. In our vision we will start out with a basic service available for all partners, which would be managed by the consortium of partners and co-ordinated by the Europeana Foundation with a relatively small group of people. Depending on the needs of the partners and the availability of additional funds, additional services can be developed, leading to a 'basic +' and even a 'premium' set of services.

In our current design we have the the following services in mind for each service level:

Basic Service

The basic Service will allow partners to perform the rudimentary functions that can be expected from a cloud environment:
- 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;

- 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;
- Basic Support with interoperability issues;
- Infrastructure for supporting the data processing tasks needed as part of the standard aggregation workflow

Additionally all partners will benefit from trusted policy frameworks that enable continuity of existing standards for sharing data within Cultural Heritage;

Basic +

The Basic + Service would offer all of the Basic Service, but will deliver these via more interactive and user friendly tool.

In particular, the Basic + will allow for the upload and download of metadata and content via a tool with an easy to use graphical user interface. This will make it easy for staff within the aggregators to map, transform and push metadata to Europeana, greatly simplifying a currently complex process.

Premium Service

The Premium Services would offer all the Basic and Basic + services but would enable even more sophisticated ways of caching , checking and versioning content.

For example, this will include a link checker that allows the aggregator to check if the URLs of the   objects related to the metadata they have harvested are still functioning. Other planned tools include one to determine technical features of digitised objects held by data providers - for example, data format (eg jpeg, or mp3), resolution and pixel size of images, sound quality of audio files.

We are currently focussing on delivering a solid 'Basic' service level and will evaluate the other service levels during the course of 2015. Basic + and Premium services would be developed in cooperation with the partners and would be co-financed by the partners.

Tech

Europeana Cloud is developing a new technical infrastructure for aggregation and processing of metadata and content records from aggregators and, in the future, data partners. To realise the long-term challenges of Europeana´s aggregation, outlined above, this infrastructure is

designed to be reliable, scalable and extensible. It conforms to Europeana's principles of open-source development being open source developed and component driven.

The infrastructure strikes a balance between providing a generic solution for storing metadata and content records and addressing specific aggregation of Europeana and its aggregators both in terms of data storage and data processing. On the one hand it has clear advantages over generic storage or processing services offered elsewhere by the market (e.g. Amazon S3, DuraCloud), because it was designed completely with aggregators in mind[6]. On the other it avoids the shortcomings of existing niche aggregation solutions in the sector (e.g. Europeana UIM, MINT), tailored to specific needs, because the technical specification and development is shared by three aggregators using different aggregation systems and supported by other Europeana Cloud technical partners, providing broader view on what is needed in case of such infrastructure.

The infrastructure is designed as as a standalone shared service operated by trusted technical partners on behalf of the Europeana Cloud Consortium. It can be used by partners´ services and end-user products via standard, highly interoperable interfaces (REST API). It is not meant to be a long term digital preservation system, as we believe that such problems are better solved on a national level, especially where there are legal limitations regarding the geographical location of data storage. We designed the system to allow automated geographical replication of data between several data centers, to make sure that the data stored in Europeana Cloud will be available 24/7 and that the traffic generated by users of Europeana Cloud can be served by server clusters distributed all over Europe. This also allows for distributed computation necessary for high performance in the processing of stored data.

Customer relationship: Management/ Ownership / Governance

For the lifetime of the project the product and services being developed are co-owned and governed by the Cloud Project Consortium. After this period the coordination, maintenance and development of the infrastructure will be principally operated by the Europeana Foundation as part of its role as a Digital Service Infrastructure. The Europeana Digital Service Infrastructure belongs, via the Europeana Foundation, to all the cultural heritage organisations contributing to its data and its development.

To support the operation of services in 2016 the three current aggregating partners; Europeana Foundation, The European Library and Poznan Supercomputing Centre have established an in-principle agreement. This agreement shares the responsibility of operating the service and developing the sustainability model for Europeana Cloud Services. This

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[6] See
http://pro.europeana.eu/documents/1414567/1861920/D2.2+Europeana+Cloud+Architectural+Design

cooperative based partnership will initially be managed through an Executive Board within the project comprising the the three current aggregators and will proceed according to commons principles for its further development in Q1 and Q2 of 2015.

Establishing a scalable Governance model

As the customer base grows, the governance structure of Europeana Cloud Services needs to be able to scale to include new partners. In Europeana Foundation we have the legal basis on which to build a cooperative governance of the service that belongs to all its contributors. We are exploring how to accommodate a co-operative founded on commons values: a group of organisations who cooperate for their mutual social, economic, and cultural benefit, that is directly linked to the Europeana Foundation.

In practice this means empowering all partners of the service to collectively take decisions on strategic developments of the service and policies and to assume joint responsibility for its success. Through this cooperative the partners will collectively share the responsibility for overseeing the strategy of Europeana Cloud Services, and will delegate the operations of this strategy to an agreed entity able to manage staff and finances The work on this structure will be completed over the remaining course of the project.
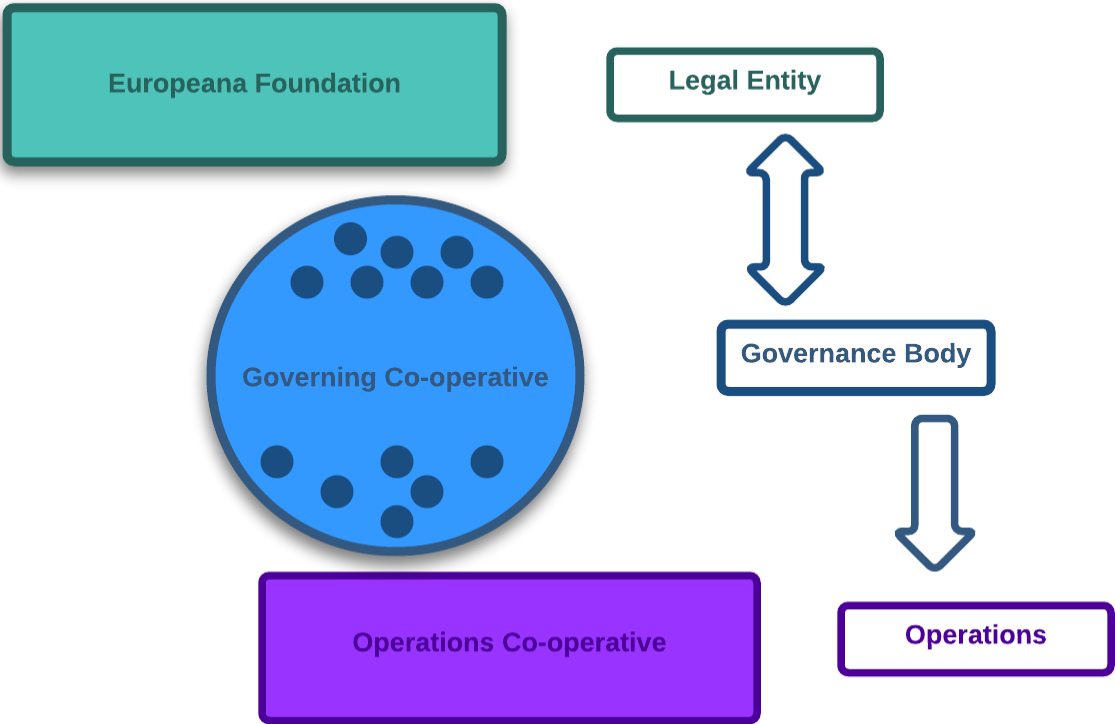
Managing Participation

An Aggregator joining the Europeana Cloud Services will sign up via a service agreement with Europeana Foundation. They will become part of the ECS Governing Cooperative, able to influence strategy and agree budget. The operation of the service will be delegated to a unit/entity or team dedicated to delivery of the service.

The service agreement will formally govern the relationship between Europeana Cloud Service Cooperative, the Europeana Foundation, as supplier of the service, and the Aggregator, as users of the Europeana Cloud Services. It will detail the level of access to services such as storage facilities and tools, as well as define the service levels It will provide the necessary permission for the exchange of metadata and content to underpin the functioning of the services.

The agreement will additionally establish the participation in the governance structure. It will describe the rights and level of participation each partner will enjoy in the executive board (or it's successor).

Key tasks

In order for the service to launch successfully the project needs to deliver a number of key components of the business in 2015. These 6 key milestones further underpin the ability of the Cooperative to attract new partners in 2016.
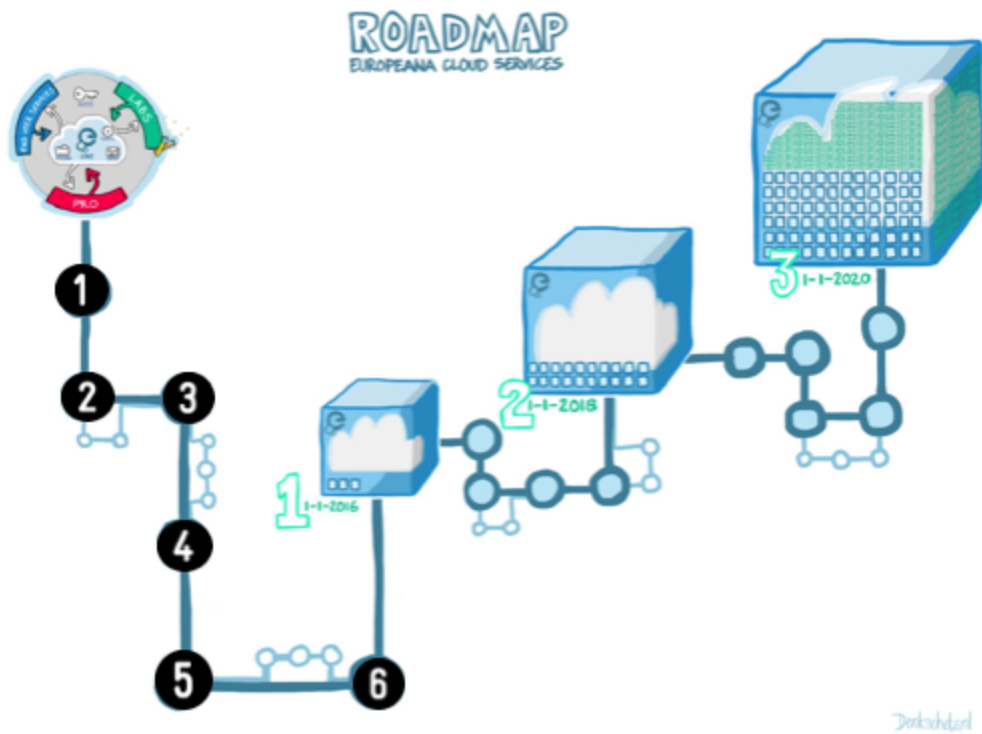
1) **Product Specifications (Dec 2014):** To deliver the business vision we have for Europeana Cloud Services we need to be able to describe the products and services in much more detail. This ensures that the technical, legal and operational requirements we need to meet are developed in synchronisation with the overarching business requirements. This is outlined in the Product Specification Documentation (December 2014) which describes the specificities of the core elements and features of the products and services.

6	··						Aggregator Plan
5	···	Sustainability Model					
4	···	Governance Model					
3	···	Revised Licensing Framework	····································			Revised Licensing Framework	
2	·············	Aggregator Handbook	···············	Aggregator Handbook	····································		Aggregator Handbook
1	Product Requirements						
0	Business Plan	···					Business Plan
	Dec	Jan	Mar	May	Jul	Sep	Nov
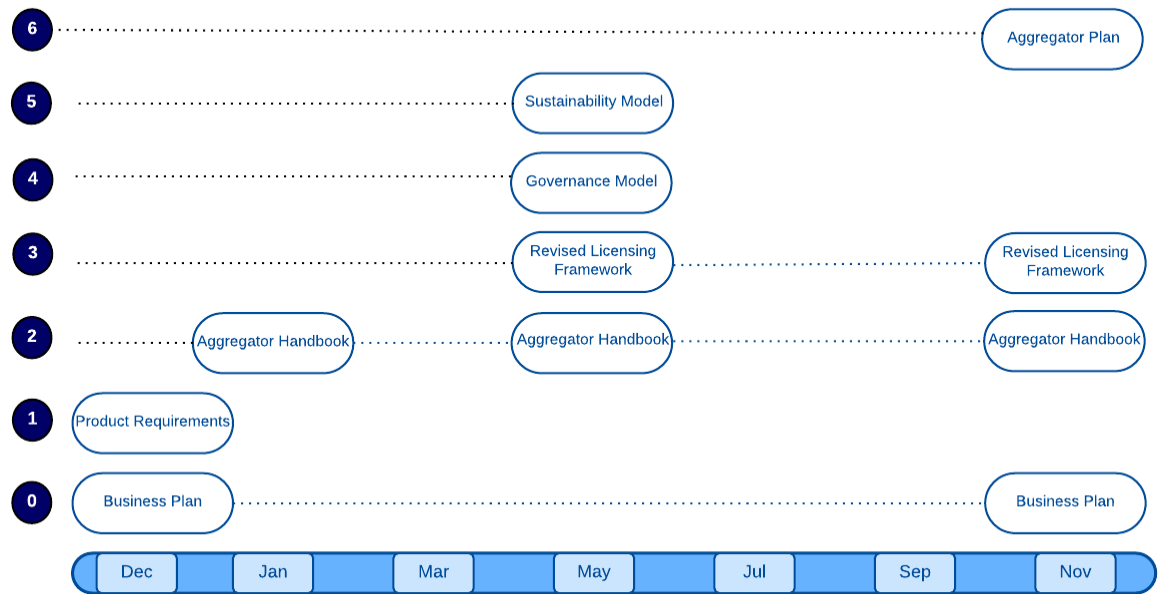
2) Europeana Cloud Aggregator Handbook (Jan, May, Nov 2015): Developing partnerships with potential customers requires describing how they might use the services. The Aggregator Handbook will serve as a guide to new partners to the services offered. It will describe how an aggregator can interact with the services, what they cost and what they can be used for. It will guide the aggregator through the scope and limits of the service, including for example that it is intended for reproduction copies of data, not Master Files. The handbook will be prepared in three phases with updates due in January, May and November of 2015

3) Revised Licensing Framework (May, November 2015): A fundamental pillar of the services offered is the legal infrastructure that guides the exchange and access of data. Based on the principles established in the Europeana Licensing Framework, a Revised Licensing Framework will be developed.   It will recommend the agreements and policies necessary for the exchange of metadata and content, as well as continuity of the existing standards for sharing data within the Cultural Heritage Institutions, CC0 for Metadata. It will be delivered in two phases, due in May (Beta) and November (Final).

4) Governance Model (May 2015): Having established the features and rules of operation of the services, we need to enable new partners to join is. Built on work undertaken throughout the life of the Europeana Cloud project a commons based cooperative to manage a shared infrastructure is to be agreed by partners by May 2015.

5) Sustainability Model (May 2015): Supporting the Governance proposition will be a Sustainability Model (May) which will include opportunities for public funding such as through H2020 (Reflective6/ICT8) as well as from new partners, including membership fees.

6) Aggregator Plan (Nov 2015) The final milestone prepared in 2015 are the plans for attracting new partners. The Aggregator Plan will describe how Europeana Cloud Services intends to attract new partners to the Cooperative.

Finance & sustainability

A full financial plan will be included as part of the sustainability model in May 2015. In the meantime we have done some preliminary cost calculations to establish a base-line and some design principles for the service.

Overview of costs for the Europeana Cloud platform		2016	2017	2018	2019	2020	TOTAL	
Partners		5	8	15	25 ind. dataprov.			
Basic scenario								
Coordination costs	FTE							
Personnel resources								
Management (1 FTE PO + 0,5 FTE assistant)	1.5	€130,000	€134,800	€139,400	€144,300	€149,400	€697,700	
Technical development & support (2 developers, 1 tech coordinator)	3.0	€210,000	€217,400	€225,100	€233,000	€241,200	€1,126,700	
Admin	0.5	€30,000	€31,100	€32,200	€33,400	€34,600	€161,300	
Aggregation support	2.0	€100,000	€103,500	€107,200	€111,000	€114,900	€536,600	
Partner relations	0.5	€35,000	€36,300	€37,600	€39,000	€40,400	€188,300	
Subtotal	7.5	€505,000	€522,900	€541,500	€560,700	€580,500	€2,710,600	Europeana DSI funding
Out of pocket costs								
Office costs		€5,000	€5,200	€5,400	€5,600	€5,800	€27,000	
Legal assistance		€5,000	€5,200	€5,400	€5,600	€5,800	€27,000	
Marketing		€15,000	€15,600	€16,200	€16,800	€17,400	€81,000	
Housing costs		€37,500	€38,900	€40,300	€41,800	€43,300	€201,800	
Subtotal		€62,500	€64,700	€67,000	€69,400	€71,900	€335,500	
GRAND TOTAL		€567,500	€587,600	€608,500	€630,100	€652,400	€3,046,100	Europeana DSI funding
Basic + scenario		€567,500	€587,600	€608,500	€630,100	€652,400	€3,046,100	
Back-end Developer	1	€60,000	€62,100	€64,300	€66,600	€69,000	€322,000	
UI developer	1	€60,000	€62,100	€64,300	€66,600	€69,000	€322,000	
GRAND TOTAL		€687,500	€711,800	€737,100	€763,300	€790,400	€3,690,100	Europeana DSI funding + additional partner funding
Premium scenario		€687,500	€711,800	€737,100	€763,300	€790,400	€3,690,100	
Developer	1	€60,000	€62,100	€64,300	€66,600	€69,000	€322,000	
System architect	1	€60,000	€62,100	€64,300	€66,600	€69,000	€322,000	
GRAND TOTAL		€807,500	€836,000	€865,700	€896,500	€928,400	€4,334,100	Europeana DSI funding + additional partner funding

The principle idea is that the running costs of the operation for the basic service will be funded from the Europeana DSI as this provides the best long term sustainability perspective. The additional costs of the more upscale scenarios will be funded through direct contributions of the members of the co-operative. See : https://docs.google.com/spreadsheets/d/1Uqb8AXL75R00CEp28z688KJ7fwZreUK3Az44Ezt2JvA/edit#gid=168349135 for more detail.

Furthermore, each member will incur costs based on the amount of data that it wants to host in the cloud and the amount of calls (read or write) that it will make on the infrastructure. A basic calculation of these costs can be found in sheet 2:

https://docs.google.com/spreadsheets/d/1Uqb8AXL75R00CEp28z688KJ7fwZreUK3Az44Ezt2JvA/edit#gid=168349135

Data cost calculations				
Storage needs			**Costs**	
Records # (GB/Million)				
Metadata	10		GB/month	€0.10
Thumbnails	35		Write (1M)	€5.00
Image	1500		Read (1M)	€0.40
Audio	5000			
Video	20000			

Appendix

1   Animation: https://vimeo.com/114241258

2.   Visual   Report   Workshop   'Management   Europeana   Cloud':
https://drive.google.com/file/d/0B62MHlFrzNJCeXF5SWFuUFRJcFU/view