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D4.1 Audio channels production version

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Abstract: This document is a report of the development and curation of the Europeana Music Collections, reporting on the work carried out in Tasks 4.1 *UX design and user evaluation* and 4.2 *Channels development*. This document summarises the development and design of the Europeana channels platform, summarises the Music Collections content and presentation, and outlines the current and future plans for the editorial and curatorial organisation of these platforms. The evaluation includes user feedback and usage statistics.

Dissemination level	
Public	X
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0.1	ToC	David Haskiya (EF)	20/10/2016	First ToC
0.2	First draft	David Haskiya, Joris Pekel (EF)	16/01/2017	First draft for external review
0.3	Second draft	David Haskiya, Joris Pekel (EF)	25/01/2017	Updates based on comments from the external reviewer.
1.0	Final	Richard Ranft (BL)	30/01/2017	Final review and formatting

Review and approval

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Application area

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Statement of originality

This document contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Project summary

Europeana Sounds is Europeana's 'missing' fourth domain aggregator, joining APEX (Archives), EUscreen (television), and the European Film Gateway (film). It will increase the opportunities for access to and creative re-use of Europeana's audio and audio-related content and will build a sustainable best practice network of stakeholders in the content value chain to aggregate, enrich and share a critical mass of audio that meets the needs of public audiences, the creative industries (notably publishers) and researchers. The consortium of 24 partners will:

● Double the number of audio items accessible through Europeana to over 1 million and improve geographical and thematic coverage by aggregating items with widespread popular appeal such as contemporary and classical music, traditional and folk music, the natural world, oral memory and languages and dialects.

● Add meaningful contextual knowledge and medium-specific metadata to 2 million items in Europeana's audio and audio-related collections, developing techniques for cross-media and cross-collection linking.

● Develop and validate audience specific sound channels and a distributed crowd-sourcing infrastructure for end-users that will improve Europeana's search facility, navigation and user experience. These can then be used for other communities and other media.

● Engage music publishers and rights holders in efforts to make more material accessible online through Europeana by resolving domain constraints and lack of access to commercially unviable (i.e. out-of-commerce) content.

These outcomes will be achieved through a network of leading sound archives working with specialists in audiovisual technology, rights issues, and software development. The network will expand to include other data-providers and mainstream distribution platforms (Historypin, Spotify, SoundCloud) to ensure the widest possible availability of their content.

For more information, visit http://pro.europeana.eu/web/europeana-sounds and http://www.europeanasounds.eu

Copyright notice

Contents

Executive summary: D4.1 Audio Channels Production Version

This document reports on the work carried out in Tasks 4.1 (*User experience research and design*) and 4.2 (*Channels development*) of Work Package 4, with a strong emphasis on Task 4.2 Development.[1] It reports on the development of the Europeana channels platform and how it has been exploited to make Europeana Sounds content better available to users, compared to previous versions of the Europeana portal (now called Europeana Collections).

Note that during the Europeana Sounds project lifetime the Channels concept was renamed into Thematic Collections (the term used in this report).

1   Introduction

Design and development of the Europeana Collections platform and the Music Collections has previously been reported in Milestone documents MS19[2], MS20[3]and MS22[4], which are available to download as PDFs. This deliverable will mainly focus on development performed after the completion of Milestone 22 (i.e. after August 2015) and on the outcomes of user evaluations and usage statistics of the Music Collections

2   Product Objectives

> *"All curation grows until it requires search, and all search grows until it requires curation"* - *Ancient Internet wisdom*.

The Europeana channels concept was conceived in 2012. It was born out of an analysis of user interviews and usage statistics of the then Europeana portal, in combination with an analysis of trends in the online world of content discovery. The user research and statistical analyses showed very limited engagement with the Europeana portal as it was, and an impression that its content contained very "poor media" - tiny thumbnails, small images, unplayable videos and audios. Also, that content was always "one click too many away", on a website other than Europeana, with a completely different user interface and likely in a language the user did not understand. It was also clear that the sheer amount and wide variety of content in Europeana coupled with a lack of structured categorisation of the content made it difficult for users to find what they were looking for.

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[1] The milestones previous to this deliverable focused on UX research and design.

[2]http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Sounds/Milestones/EuropeanaSounds-MS19-Audio-channels-first-prototype.pdf

[3]http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Sounds/Milestones/EuropeanaSounds-MS20-Audio-channels-second-prototype-v1.0.pdf

[4]

http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Sounds/Milestones/europeanasounds-ms22-audio-channels-first-production-version-v1-0.pdf

The wider online trends that influenced the channels concept was the increase of search engines and discovery sites that offered direct one-click access to rich high-quality media - users had come to expect that as a baseline. Another trend that influenced the concept was the increasing shift towards "curation"[5] as a way to make it easier for users to make sense of and find the gems within the deluge of online content but also enable them to become co-creators and curators of content.

A third external influence was the capability of other platforms like Historypin and SoundCloud to allow users/customers of those platforms to brand or even 'skin' their presence, turning them into "micro sub-sites" on those platforms, and also support off-site embedding of individual resources or even the entire sub-site.

Finally, a strong internal influence on the channels concept was, and remains, the Europeana 1914-1918[6] site; with its greater thematic focus (than the then current portal) and capability for users to share family histories about the First World War and annotate existing content .

As the channel concept was refined internally at Europeana a high-level objective was defined:

The Europeana portal should become (more of) a destination and engagement site where users can navigate Europeana content by high-level themes/topics/categories that function as domain specific search sub-sites, in one-click directly access digital representations of cultural heritage objects, learn from and be "infotained" by expert curated content, and be enabled to become co-creators of content by curating and annotating existing content and by sharing stories on select themes.

In a more structured form the objective can be broken down into the following sub-objectives:

- Users must be able to quickly navigate into broad thematic subsets of the content, e.g.: Art, Music, Newspapers, Fashion, Photography, Maps & Cartography, Natural history, etc.
- Users must be able to directly, by one-click, access high quality media files representing the cultural heritage objects
  - Including not only images but also audio, video, texts - all types of media
- Users must be able to easily navigate between the dedicated search and browse interface and long- and short-form curated content (i.e. virtual exhibitions and blog posts respectively).
- Users must be enabled to co-curate the content by annotating it and in creating and sharing selections of it
- Users must be able to co-create the content by contributing their own stories and content on select themes
- Partners must be able to collaborate in the branding and expert curation of channels and exhibitions
- Europeana must develop a platform solution for the above that can scale to at least 20 thematic channels by 2020

The development needed to reach the objective was recognised to require many years of development, broken down into multiple releases of individual modules, new architectural layers, APIs, sites and features.

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[5] In the broader sense of the word used in the context of the web, not only as used by e.g. museum professionals.
[6] http://www.europeana1914-1918.eu/

The Europeana Sounds project became an additional source of funding[7] and driving case to help take the channels idea from concept to product. At the very start of the Europeana Sounds project the concept was at a stage of maturity well illustrated by the WP4 slides presented at the project kick-off.[8]

3 Technical Design and Architecture

3.1 Technical design principles

Based on experience of previous Europeana portal version and the business goals of Europeana, the following technical design principles were formulated and adhered to in developing Europeana Collections and the thematic collections:

- **Open source**: Europeana uses open source code only in developing its platform and also makes its own code openly available. Reinventing the wheel is discouraged.

- **One database**: Europeana Collections and the Thematic Collections use one database, one single source of truth for its cultural heritage object data. Thematic Collections do not have their own databases of cultural heritage object data.

- **One Europeana Collections**: Europeana Collections and the Thematic Collections is one application, not multiple applications. Thematic Collections are integral to Collections, not separate applications. Features added to Collections as a whole are available to all thematic collections, features that are developed on the initiative of one thematic collection become available to all thematic collections.

- **APIs first**: Europeana Collections is a client of the Europeana APIs. Europeana APIs are always designed as if they will be public (whether they are planned to be or not).

- **Responsive design**: Europeana Collections has a responsively designed user interface that adapts the display to multiple devices.

- **Atomic design**: Europeana Collections aims to have a visual design that is consistent with that of other Europeana sites like Europeana Pro and Europeana Labs. This is accomplished by these sites using a shared patternlab for CSS and other front-end resource (in line with "atomic design"[9]).

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[7] The Europeana Sounds budget alone was/is not intended to fund this development. Other funding sources have been Europeana Creative, Europeana v3, Europeana DSI-1 and Europeana DSI-2.
[8] http://www.slideshare.net/DavidHaskiya/e-sounds-kickoffdavidhaskiya2
[9] http://atomicdesign.bradfrost.com/chapter-2/

3.2 Europeana platform architecture

The Europeana Sounds project has contributed to the development of multiple components in the overall Europeana platform architecture. Other components have been developed prior to Europeana Sounds or in parallel with funding from other sources.[10]
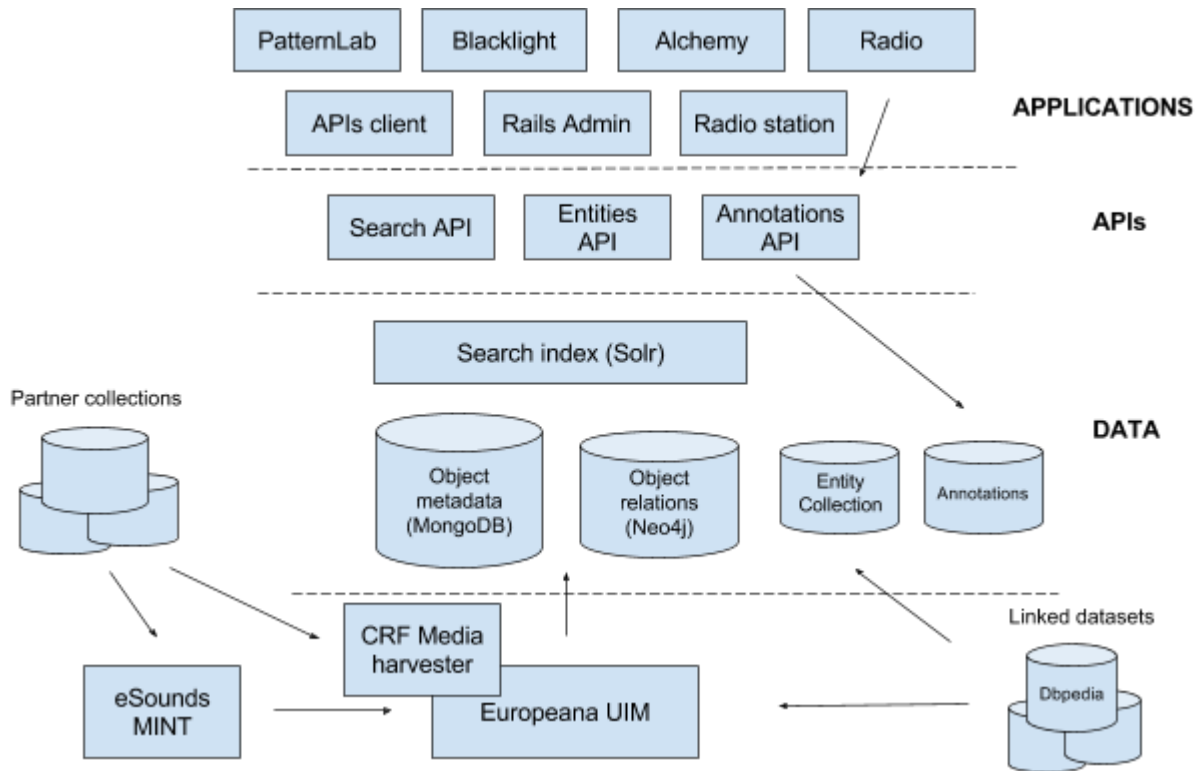

Figure 1: Simplified system architecture diagram for the Europeana Platform with focus on the components most important to Europeana Sounds WP4.

3.2.1 Data and APIs layers

Within the Europeana Sounds project, WP5 has ensured the initial setup and smooth operations of the Europeana Sounds MINT instance, the technical component in the thematic Sounds aggregation infrastructure, and its data connection with Europeana UIM.

The data officers of Europeana use the Europeana United Ingestion Manager (UIM) to harvest, enrich store and index Europeana Sounds data partner metadata from MINT. Its CRF Media Harvester component then downloads the media files from the links provided in the metadata to create thumbnail previews and extract technical metadata for storage and index.

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[10] Examples include the Europeana Search API, Europeana United Ingestion Manager (UIM), the CRF Media harvester and the Exhibitions CMS/Alchemy.

The Search API (documentation[11], source code[12]) makes the metadata in the Europeana database searchable and retrievable to Europeana Collections and any other client application with a valid API-key.

As a result of the development efforts in Europeana Sounds two new databases and APIs have been added to the data layer: Annotations and the Entity Collection.

The Annotations database contains the tags and other types of annotations created by users of Europeana Radio via the Europeana Annotations API (documentation, source code[13]) and via batch imports from e.g. the Europeana Sounds Space in WITH[14], Wikidata and Wikimedia Commons. The Annotations API is considered to be in internal Beta stage. By this it is meant that it is available for limited external testing (by invitation) but is used in full production applications e.g. Europeana Radio and in importing annotations from Wikimedia platforms and Pundit.

The Entity Collection (source code[15], documentation forthcoming) is a database of persons, organisations, resource types, topics and places present in Europeana's object metadata. In Europeana Data Model terms these are called Contextual Classes. Examples of entities include composers, musicians, item types (e.g. sheet music, libretto) and topics (e.g. music genres) and the intent is to use the Europeana Collections API to improve search and browse in Europeana Collections in various ways. The first visible application will be to power an autosuggestions functionality for the Europeana Collections search bar (see Further development below), but the Entity Collection is already in use in the Europeana data ingestion (UIM) where it is the basis for the automatic semantic enrichments that are performed on all records in Europeana.

3.2.2   Applications layer

Soft-launched in December 2015 and formally launched in January 2016, Europeana Collections with its thematic Music Collections and Art Collections is a complete replacement of earlier Europeana portal versions. From an architectural point of view Europeana Collections is the application layer.

It consists of a Blacklight powered search and display component that fetches its Europeana data via the Europeana APIs client. To configure the application a Rails admin instance functions as a very simple CMS that can be used to edit the Europeana Collections landing page and also create and edit static pages. More importantly, it is with this CMS that Europeana Collections Admins can create and publish thematic collections.

The second major component, both in technical terms and in terms of user experience, is the Alchemy powered virtual exhibitions CMS. Developed too late to be in production for the Europeana Sounds produced virtual exhibition Recording & Playing Machines, that exhibition has been migrated from Europeana's older exhibition CMS to Alchemy and will be re-launched in late January 2017.

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[11] http://labs.europeana.eu/api/introduction
[12] https://github.com/europeana/api2
[13] https://github.com/europeana/annotation
[14] http://www2.withculture.eu/custom/soundspace/index.html
[15] https://github.com/europeana/entity-api

First created at an internal hack event at the Europeana office, Europeana Radio was an experimental prototype aimed at making the music recordings of Europeana available in a radically different way, a more "frictionless" way, than that of the "traditional" search, browse and display interface of Europeana Collections. Estimated to have the potential to make Europeana Sounds music content even more accessible, the prototype has been developed into a stable production version.

3.3 Europeana Sounds resource contribution to development of Europeana Collections and APIs

- Europeana's UX design and software development activities have in the last three years been funded by a combination of base funding (Europeana v3, DSI-1 and DSI-2) and project funding (e.g. Europeana Creative and Europeana Sounds). The majority of the funding of comes from the base funding.

- The UX research and basic UX design for Europeana Collections was primarily (c.80%) funded by the Europeana Sounds project (WP4)

- The development of Europeana Collections search, discovery and thematic collection management and publication was partially developed with funding[16] from Europeana Sounds (WP4). The Music Collections was the first driving case in the development of Europeana Collections, later joined by the thematic collections for Art and Fashion.

- The Europeana Annotations API was primarily developed (WP2/AIT) in Europeana Sounds and integrated (WP4/EF) with the Europeana APIs client library and, via the client library, Europeana Radio. Scripts for batch import of annotations from WITH/Pundit and Historypin were developed in WP4 (Net7/SHIFT/EF) and scripts for batch import of annotations from Wikidata and Wikimedia Commons in WP2 (EF).

- The Europeana Entity Collection was partially developed by funding from Europeana Sounds (AIT/WP4).

4 Development Report (in short)

4.1 Europeana Collections platform and Music Collections, development summary

From a technical design perspective one of the major attributes of the Europeana Collections platform is that it is designed to be one platform on which many specific Thematic Collections can be created, published and managed via a simple Content Management System. The design intent is also to gradually integrate Europeana exhibitions and blog into this unitary platform. This is in contrast to the previous

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[16] Europeana Sounds contributed 1 full time equivalent (FTE) during 3 years to the Europeana Foundation's development of Europeana Collections and the Music Collections as well as a significant amount of sub-contracting for user experience research, design and evaluation.

Europeana portal, exhibitions, blog and Europeana 1914-1918 each which is/was its own completely separate site (and user interface design).

It is germane to this Europeana Sounds report to explain why development of Europeana Collections and Europeana Music Collections are not discrete strands of development. The technical platform is unified and all features implemented in the Music Collections are based on generic features powered by the Europeana Collections platform.

Europeana Collections source code is publicly available under an open licence. It reuses the popular digital library search application Blacklight via the Europeana Blacklight adapter.

4.1.1   Europeana Collections releases (from August 1 2015 - January 10 2016)

In this period we released first a series of alpha versions (first public alpha release was version 0.2 on August 3 2015) and then a series of beta versions (starting with version 0.3 on December 16 2015). The first production version, 1.0, was released November 3 with release 1.4 on January 25 being the last release within the lifetime of the Europeana Sounds project.

We list below releases of particular significance to the Music Collections.

0.2 release - public Alpha (Aug 3 2015):

As the public alpha release was very much for the purposes of having a test version of the Music Collections available much of the initial development was focused on meeting its requirements identified during the research and design phases.

Features relevant to the Music Collections and thus the Sounds project included for example an audio and video player that works without browser plug-ins in both desktop and mobile browsers, but the main feature was the very existence of the Music Collections.

0.2.1 Release (September 2 2015):

Feature in this release of special relevance to the Music Collections included adding support in the audio-video player for multiple new formats (e.g. FLAC) and the addition of a IIIF compatible viewer.

0.3.0 Release - public Beta (December 16 2015):

With this release Europeana Collections was considered feature complete enough to replace the previous portal. While there were no features added that were specific to the Music Collections the release did include many features and improvements essential for the full search, browse and download user experience as well as the addition of a real CMS to manage the Collections discovery platform and the Thematic Collections created on it.

0.3.4 Release (February 17 2016):

In this release support for standards compliant[17] embeddable players were added. This includes for example SoundCloud, AudioBoo, Vimeo, YouTube and other players relevant to the Europeana Sounds partners. The Europeana Collections CMS saw the addition of a full-width page template that allowed the inclusion of the interactive "Travelling through time with sounds" timeline.

0.3.5 Release (March 2 2016):

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[17] The industry standard oEmbed

In this release we added support for specific embeddable players that are not standards compliant. This allowed us to add thousands of more playable audios and music related videos to the Music Collections from e.g. CNRS – Musée de l'Homme.

0.3.6 Release (March 30 2016):

This release included a completely new exhibitions component to Europeana Collections. While the Europeana Sounds exhibition, Recording and Playing Machines, was published before this, that exhibition is currently being migrated to the new exhibition style.

0.3.9 Release (June 29 2016):

This release included a feature to allow the user to easily switch between search results in different themes and also between a theme and all of Europeana. Images and multi-page documents from the National Library of France were from this release onwards displayable in full in Europeana, using IIIF, which allowed the inclusion of 10s of thousands of music related items in the Music Collections.

0.8.0 Release (October 13 2016):

This release included making Europeana Radio available (for more detail, see below).

0.9.0 Release (October 25 2016):

This release included clearer visual differentiation between all-Collections search results and thematic collections search results. It also improved accessibility for visual and motor impaired users. The call to action to click-through to the providers site for items that don't have thumbnails (particularly relevant for Sounds) was changed to be more explicit and visually apparent.

1.0 release (November 3 2016):

This release counts as the first production release of Europeana Collections and the Music Collections. To that effect the Beta flag was removed.[18] The release saw the introduction of the new globally interoperable Rightsstatements.org-based rights statements including also their display in Europeana Collections (but not in Europeana Radio).

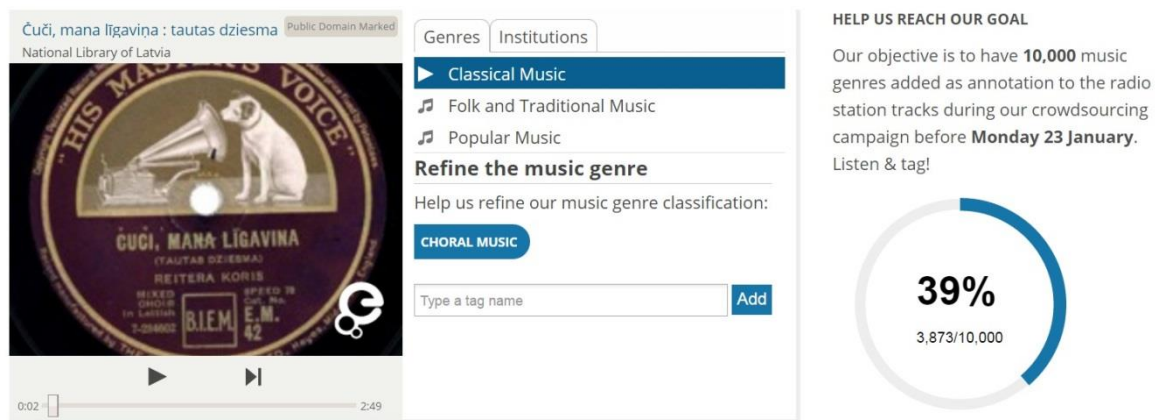**1.3.1 Release (January 10 2017):**

This release included basic display of the user created and crowdsourced annotations acquired via the Annotations API. It also added support for embedding DISMARC's media player, used by Europeana Sounds partner RBB.

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[18] It is retained on the thematic Europeana Fashion Collections which will remain in beta until March 2017.

4.2   Europeana Radio

Figure 2: Screenshot of Europeana Radio with the in-development user annotations progress display. Note the call to action to tag the current music recording and that it has been user tagged with (the Wikidata term) "choral music".

Europeana Radio was developed as an attempt to make the discovery and experience of the music recordings in the Music Collections more playful and "frictionless". It is built as two parts, one a radio station which retrieves tracks from the Europeana Search API for the radio stations and a radio player which is the user interface for a web browser to play tracks from the radio stations. The radio player can be embedded into any website to allow users to listen to Europeana's Music Collections. Europeana Radio was first released on October 20, 2016 with c. 3,000 available music recordings.

In an update on 10 January 2017 the number of music recordings available was increased to almost 200,000 and, powered by the Annotations API, users were enabled to add genre tags to the music recordings. A second update on 24 January added another 10,000 music recordings and more music genres/forms for the users to tag with.

4.3   Europeana APIs development related to Europeana Sounds

The Entity API has been developed into a first Alpha version and will be released in Q4 2016 as a public Alpha API. The Entity API allows API clients (such as Europeana Collections) to suggest and retrieve known entities such as persons, topics and places. The entities which are part of the first release include many Sounds-related ones such as music genres, musical instruments, musicians and composers. The Entity API will become an integrated part in Europeana Collections and thus the Music Collections to allow for an even better and specific search and browse experience.

Furthermore, preparatory work has been done on the MyEuropeana APIs in the Search API. The MyEuropeana APIs are a set of API methods used for user authentication, authorisation and user management. These methods will be key in integrating the Annotations API with Europeana Collections/the Music Collections, to allow users to login prior to annotating.

4.4   Planned post-project development in 2017

Development related to the project and the Music Collections will continue also in 2017, after the Europeana Sounds project ends. [19]
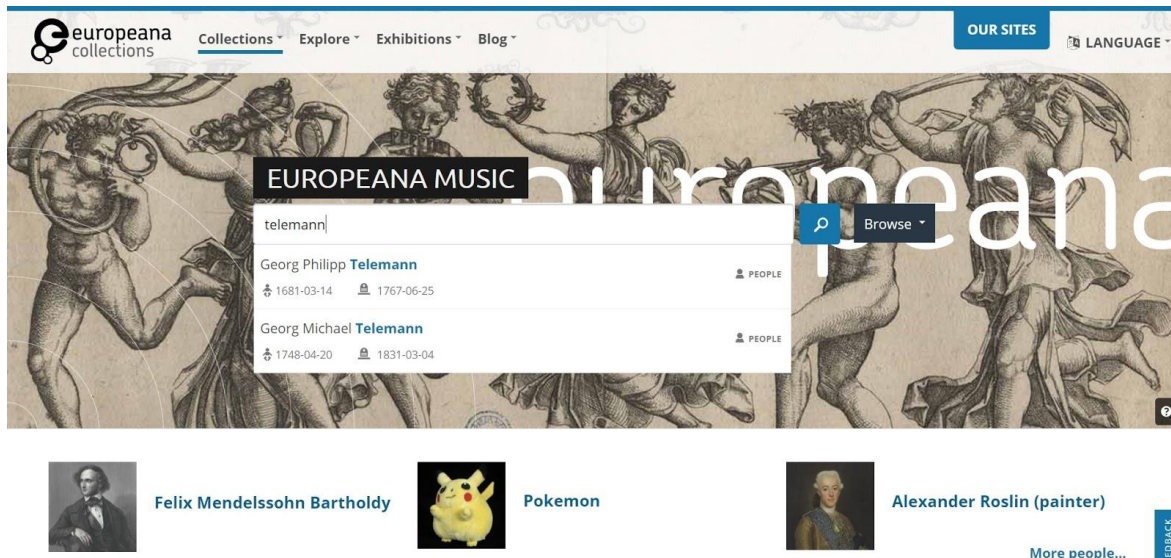
Figure 3: Screenshot from an internal test version of the Music Collections with the entity based autosuggestion in action. Note the help it can provide in disambiguating queries prior to execution.

In the Europeana product development roadmap for the first three quarters of 2017[20] there are a number of developments that will improve[21] also the Music Collections:

- The Recording and Playing Machines exhibition to be updated to the new version of virtual exhibitions[22]

- The addition of autosuggestions based on semantic entities, via the Entity Collection API, including music genres and composers

- The introduction of tagging in Europeana Collections itself (not just Europeana Radio)

- Improved display of links to Wikidata and Wikimedia Commons, including the data contributions that Europeana Sounds WP2 have made to those platforms. This is enabled by the Annotations API.

- The introduction of entity pages - pages that provide the user with basic information about all the topics and persons in Europeana. This is enabled by the Entity Collection API.

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[19] As all features and functionality developed for Europeana Collections as a whole and for other thematic collections become available also to the Music Collections (see Technical Design and Architecture above).
[20] Corresponding to the duration of DSI-2
[21] Note: This of course also depends on user testing results. A feature with very negative user feedback may never be put into production.
[22] Used in e.g the Colossus of Leonardo da Vinci exhibition http://www.europeana.eu/portal/en/exhibitions/the-colossus-of-leonardo-da-vinci

- Introduction of Creator and Topic/Type facets in the Music Collections search. This is enabled by the Entity Collection API.

- Introduction of a production ready Audio-similarity search based on the prototype developed in Europeana Sounds WP2

5 Music Collections content

5.1 Content selection (metadata records)

The Music Collections is designed to contain music recordings, images of musical instruments and performances, scanned sheet music, libretti, music history books/texts, videos of music performances, TV-broadcasts about music artists and any other content directly related to music (of any genre). It is not intended to contain other types of sounds like ambient sounds, environmental recordings, animal sounds or any other sound recording that is not primarily a music recording (i.e. mixed radio recordings where music forms a very small part of the recording).

All metadata records in the Music Collections must also comply with Tier 2 of the Europeana Publishing Framework.

5.1.1 Music Collections filter

The intention with the Music Collections is to showcase a broad selection of music related content. For that reason not only are music recordings included but also e.g. sheet music, music manuscripts, libretti, images of music instruments, images of musicians and images of music recording and playing devices. Also featured in the theme are works that are about music or the history of music e.g. books, TV-recordings, and radio broadcasts that are about music.

In practical terms the check for theme alignment is made by defining and filtering search results on certain keywords in in the type, subject and concept class label fields.

The keywords include the following terms[23]: *music, sheet music, notated music, score, libretto, musical instrument, concert, symphony, orchestra, ballet, gradual, gramophone, phonograph, wax cylinder, jukebox, cassette player, composer.*

Also included as keywords are finer grained music genres and forms: *classical music, popular music, folk music, opera, jazz, waltz, sonata, fugue, motet, saltarello, organum, ballade, chanson, laude, madrigal, pavane, toccata, cantata, minuet, partita, sarabande, sinfonia, hymnes, lied, music hall, quartet, quintet, requiem, rhapsody, scherzo, sinfonia concertante.*

These keywords are regularly reviewed and modified by Europeana.[24]

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[23] Here in English only, but the terms are typically checked also in German, French, Italian, Spanish, Polish and sometimes also Romanian and Swedish.

5.2 Content overview and statistics

The Music Collections currently[25] encompasses 318,092 records of which 160,740 are images, 72,976 are sounds, 70,598 are texts, 13,777 are videos, and 1 record is a 3D object.

Of the total amount of records, Europeana Sounds has aggregated 75,070 records making it the second largest aggregator-provider, and largest provider of sound recordings, to the Music Collections after The European Library (TEL).[26] The top 3 institutions in the European Library though are all also data partners in the Europeana Sounds project: National Library of France, British Library and Austrian National Library. The third largest aggregator-provider to the Music Collections is Musical Instruments Museums Online (MIMO).

In total there are more than 50 institutions from 33 countries represented in the Music Collections.

5.3 Curated content

The Music Collections also features curated content related to music. Curated content takes the form of e.g. exhibitions, timelines, playlists and image galleries and are published not only in the Music Collections itself but on external platforms, like e.g. SoundCloud. Curated content will encompass content from other partners than Europeana Sounds and MIMO already at first launch.

5.3.1 Exhibitions

The Music Collections features the Europeana Sounds exhibition "Recording and Playing Machines". It will also feature three pre-existing Europeana exhibitions with a connection to music: Weddings in Eastern Europe, Explore the World of Musical Instruments, and Yiddish Theatre in London. Europeana is open to adding further exhibitions relating to the theme of music, provided that the curation is done by partners with the subject matter expertise that Europeana itself lacks.

5.3.2 SoundCloud

The layout of the Music Collections landing page also displays links to all Europeana Sounds social media presences with an extra strong emphasis on the Europeana SoundCloud presence.

5.3.3 Blog posts

The Music Collections landing page features the three most recent Europeana blog posts tagged "music". Blog posts written by Europeana Sounds and which relate to music are published there (in some cases as cross-posted from the Europeana Sounds project blog). The user can click through and view them in their entirety or click to see all blog posts on the topic of music.

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[24] In the person of the Collection Coordinator for the theme and the Product Owner of Europeana Collections development.
[25] Statistics retrieved 12 January 2017. Note that Europeana continually publishes new content and sometimes also depublishes content so this number may have changed at the time of finalising this report.
[26] TEL is defunct as of 1 January 2017.

5.3.4   **Static pages with embeddable content**

Music Collections editors can create and publish pages in which they can embed media hosted on other platforms. This enables for example embedding of interactive timelines from TimeMapper[27], playlists from SoundCloud or AudioBoo, videos from Vimeo or YouTube and image galleries from Pinterest.

6   Europeana (Music) Collections, main functionalities and unique features

6.1   **Europeana Collections, landing page**

The thematic collections need to be viewed from the perspective of Europeana Collections as a whole. The channels concept envisions channels as thematic access points to the data in Europeana. The themes are subsets of data in Europeana and go across languages, countries and data providers. Individual thematic collections must be easily found and navigated to from the main Europeana Collections landing page.

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[27] Like the one created by Europeana Sounds WP6.

Figure 4: Screenshot of the Europeana Collections landing page.

The primary purpose of the Collections landing page is thus to provide an overview of what Europeana Collections is and what it offers, top-level entry points (thematic collections and other main navigational/explorational possibilities), browse entry points, latest news (blog posts) and, not least, immediate access to search.

6.2 Music Collections landing page

The users may access this page from navigating menu or promotional tile of Europeana Collections. The Music Collections channel landing page is intended to provide orientation to the user: Where am I? What can I do here? Which type of content is available? What has changed since I last visited? Who is behind this service apart from Europeana? The user must find answers to these questions on the landing page while at the same time not feel overwhelmed or lost in clutter - this is the design challenge.
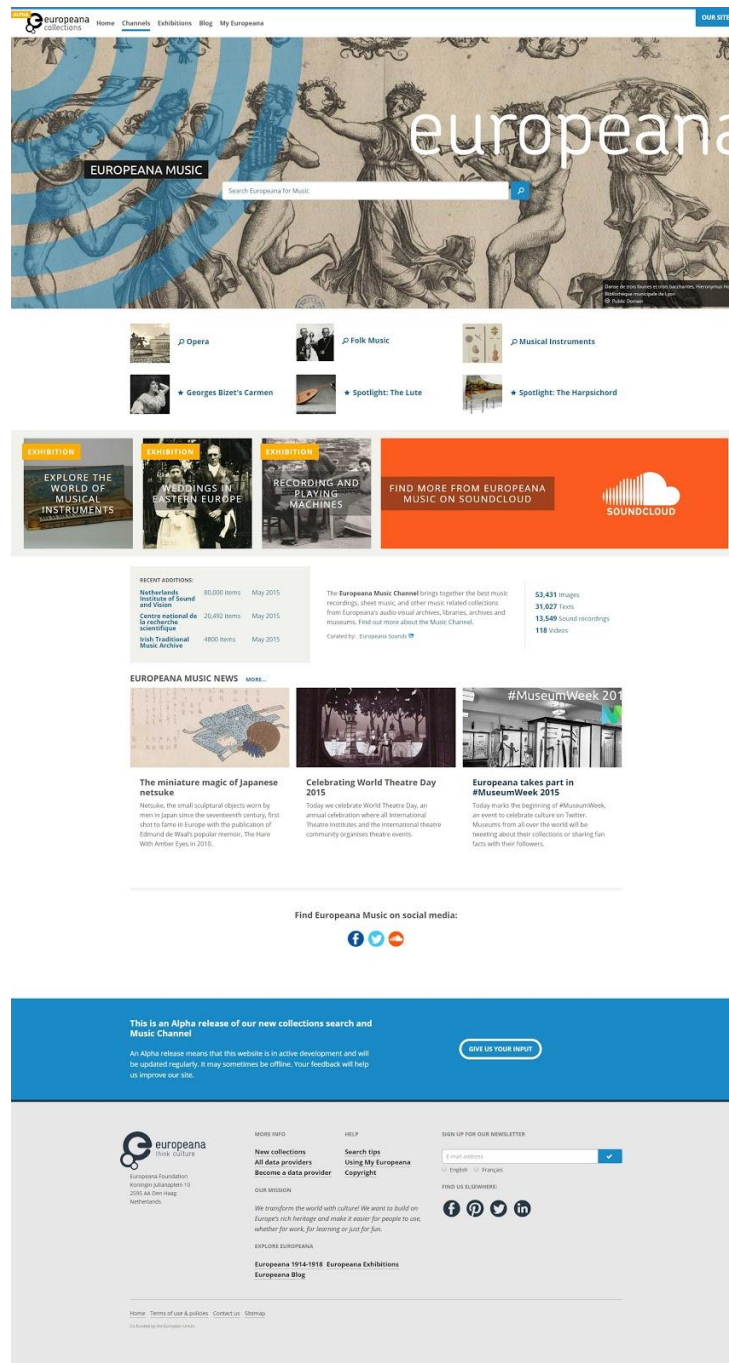
Figure 5: Screenshot[28] of the Music Collections landing page.

The main components of the landing page are:

1. **Thematic collections name**, each channel will have a unique name that immediately communicates its thematic nature.

2. **Hero image**, visualises the content of the thematic collection. The hero image must visually communicate the theme of the channel (see more below).

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[28] This particular screenshot was taken during the Alpha testing period in 2015.

3. **Search box**, the main focus of the thematic collections as befits a search service.

4. **Browse entry points**, gives a user the option to begin by browsing rather than searching. This is often preferred by users who are looking for inspiration rather than arriving to the site with one or more known specific items to find. Browse entry points are typically based on subjects, types of objects or creators (authors, composers, musicians, artist, etc.) but are editorially created and thus very flexible.

5. **Featured exhibitions and social media presences**, gives a user looking for infotainment, context and learning opportunities direct entry points to the type of content that provides it. If a channel has a particularly strong presence on a social media platform, like the Music Collections on SoundCloud, then it should be especially featured here.

6. **Thematic collection description,** a brief description of the channel including a link to find out more about it.[29]

7. **Thematic collection curator(s)**, provides attribution to the caretakers of the channel and reinforces the authoritative nature of Europeana as a trusted source of authentic heritage content. The latter is consistently evaluated as Europeana's main differentiator vis-à-vis sites like Wikipedia and Google.

8. **Collections overview**, gives the user context and overview, especially featuring recently added collections. The overview is automatically created by querying the content of the thematic collection.

9. **Social media presences**, provides shortcuts to common social platforms where the thematic collections is represented.

Under the thematic collection curators' editorial control are: hero image, featured browse entry points, and featured exhibitions. These can be edited by the curators to keep the landing page fresh and give users extra reason to revisit the thematic collections regularly.

The Music Collections landing page has its own [web address](#) allowing users to bookmark it and search engines to index it.[30]
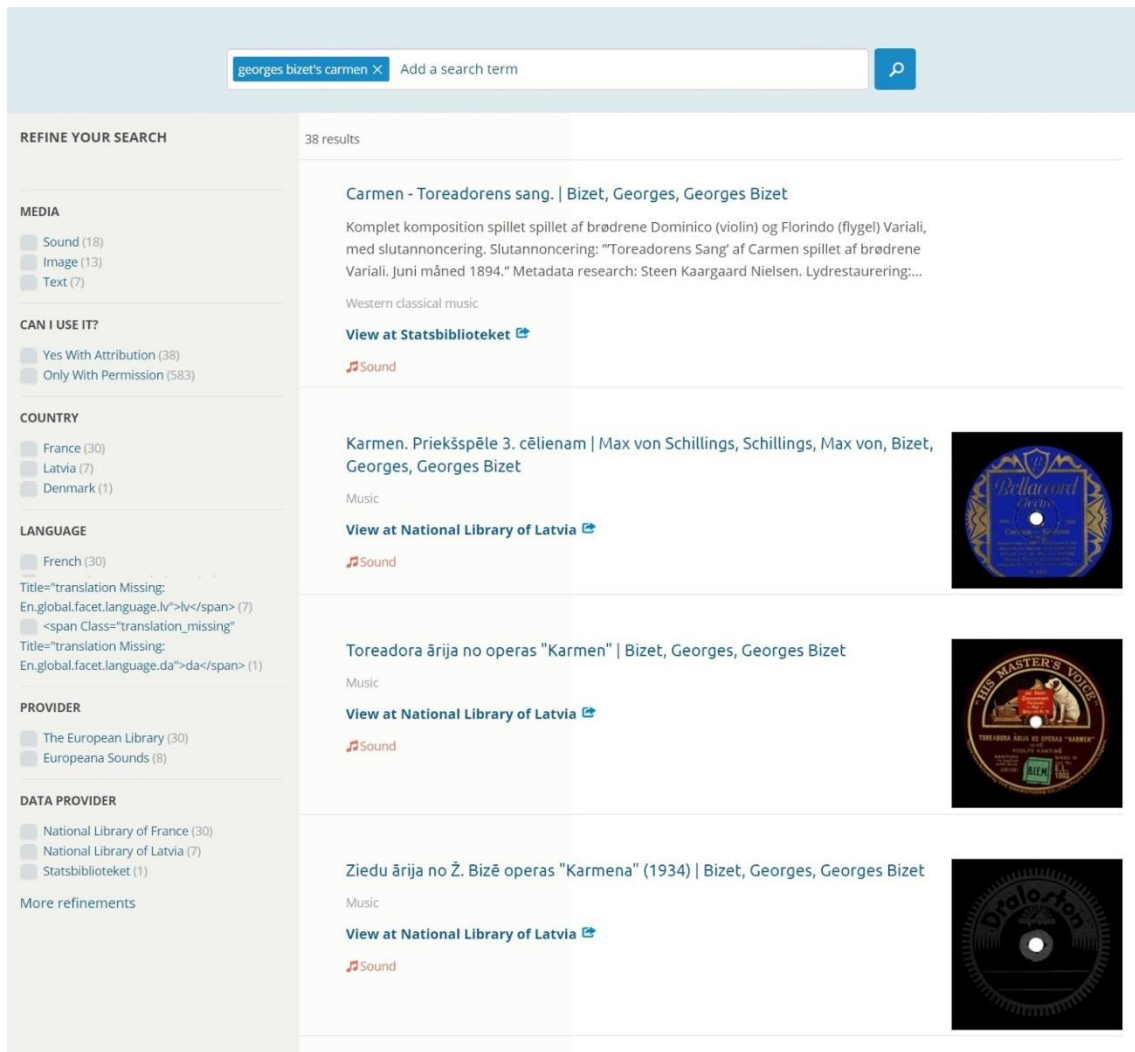
6.3   Search results page

The results for searches are displayed with facets on the left, sort and display options above the results and pagination beneath. The user can choose between displaying the search results in a list or in a grid and how many items to display per page. The list view displays smaller thumbnail previews but more metadata per record whereas the grid displays larger thumbnails than the list but with less metadata per record.

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[29] In earlier iterations this description was higher up in the visual hierarchy. However, user testing showed most users glossing over it.

[30] Note that during the testing period the portal and Music Channel are blocked from indexing by search engines. This is to safeguard the SEO of the current Europeana Portal.

Figure 6: Screenshot of a <u>search result in the Music Channel</u>. Note that the screenshot is cropped.

6.4 Item display page

The item display is the key page in Europeana Collections. It is where the user can access the item metadata and any linked media that they have been looking for or found while exploring. Note that while in the below sections item displays are presented by media type, Europeana items can have mixed media: one record, representing for example a musical instrument, can e.g. have multiple photographs linked to it as well as a sound recording of the instrument being played.

6.4.1 User journey

Note that large majority of users[31] of Europeana Collections arrive directly on an item page, rather than via a search from within Europeana.

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[31] Europeana traffic is roughly 60% from search engines, 20% referral traffic from other sites and applications and 20% direct traffic.
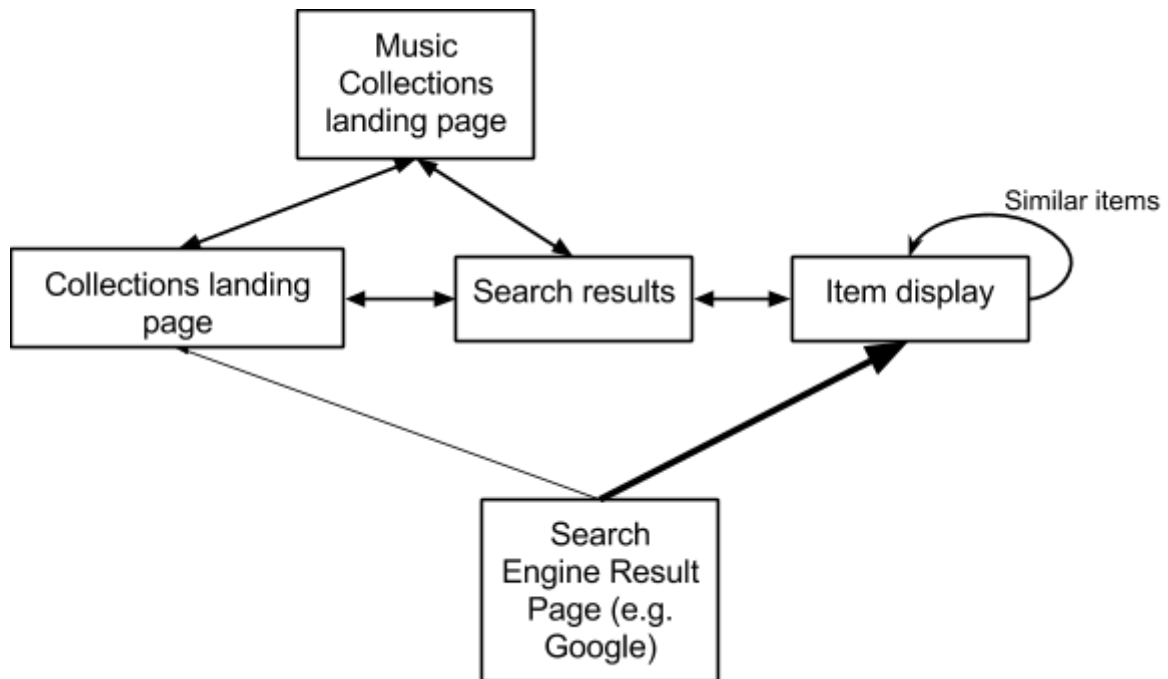
Figure 7: Typical user journeys to a Europeana Collections item page.

The design of the item pages thus also needs to provide a user with a sense of what Europeana is and what they can do here - internally in the design team this is referred to as "the item page IS the landing page". It is also imperative that accessing the content/media is immediate, without unnecessary clicks and that opportunities to browse (canned searches, similar items and new search) for more Europeana content are prominent and easy to access.
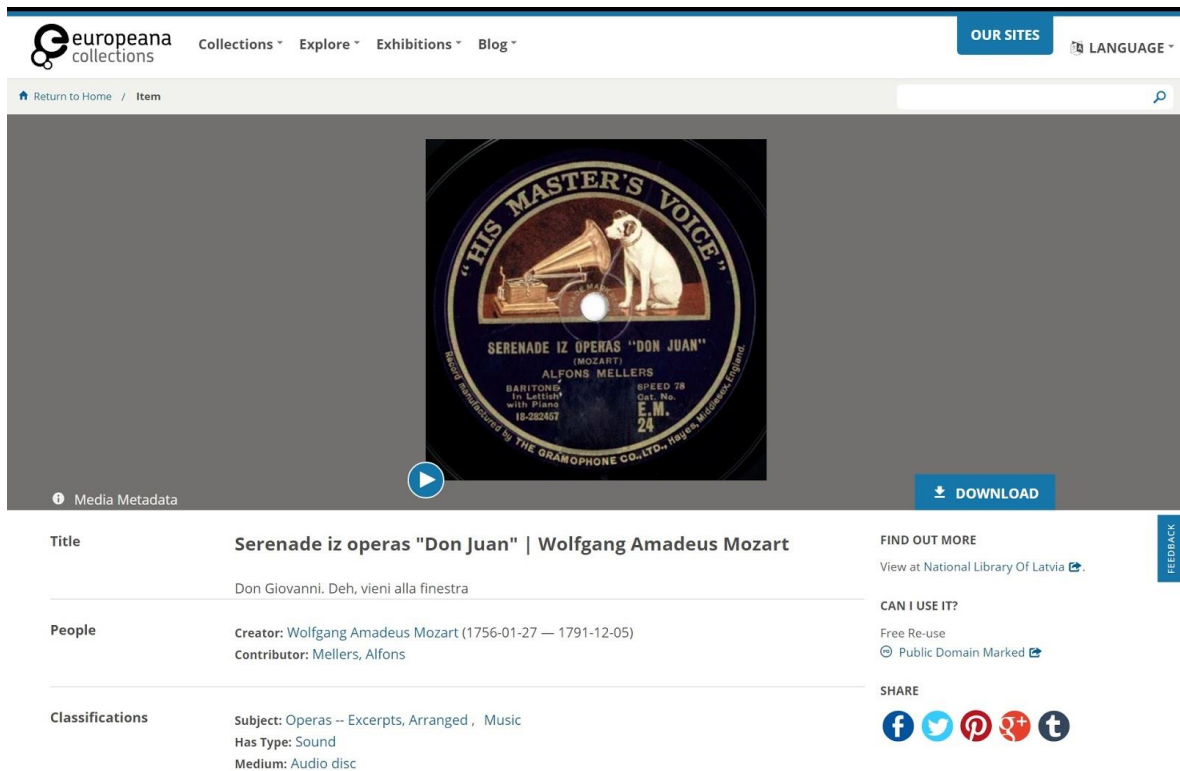
6.4.2   Sounds

In cases where the provider has chosen to provide direct links to the audio file, Europeana will in most cases[32] be able to play it directly within the portal/channel. The following formats are supported: WAV, OGG, MP3, M4A, AAC and FLAC. The player has the standard controls needed to play, pause, control the volume, download the sound recording and so on.

The player component is Video.js which was chosen because it is in wide use, actively developed, mobile friendly and has many plug-ins that extend its basic functionality.[33] It is also capable of playing both video and audio making it possible for Europeana to use one component for both types of media.

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[32] Some outdated formats are impossible to play in a web browser and requires proprietary installed players.
[33] For example, we use the Aurora plugin to extend Video.js's functionality to include audio file formats.
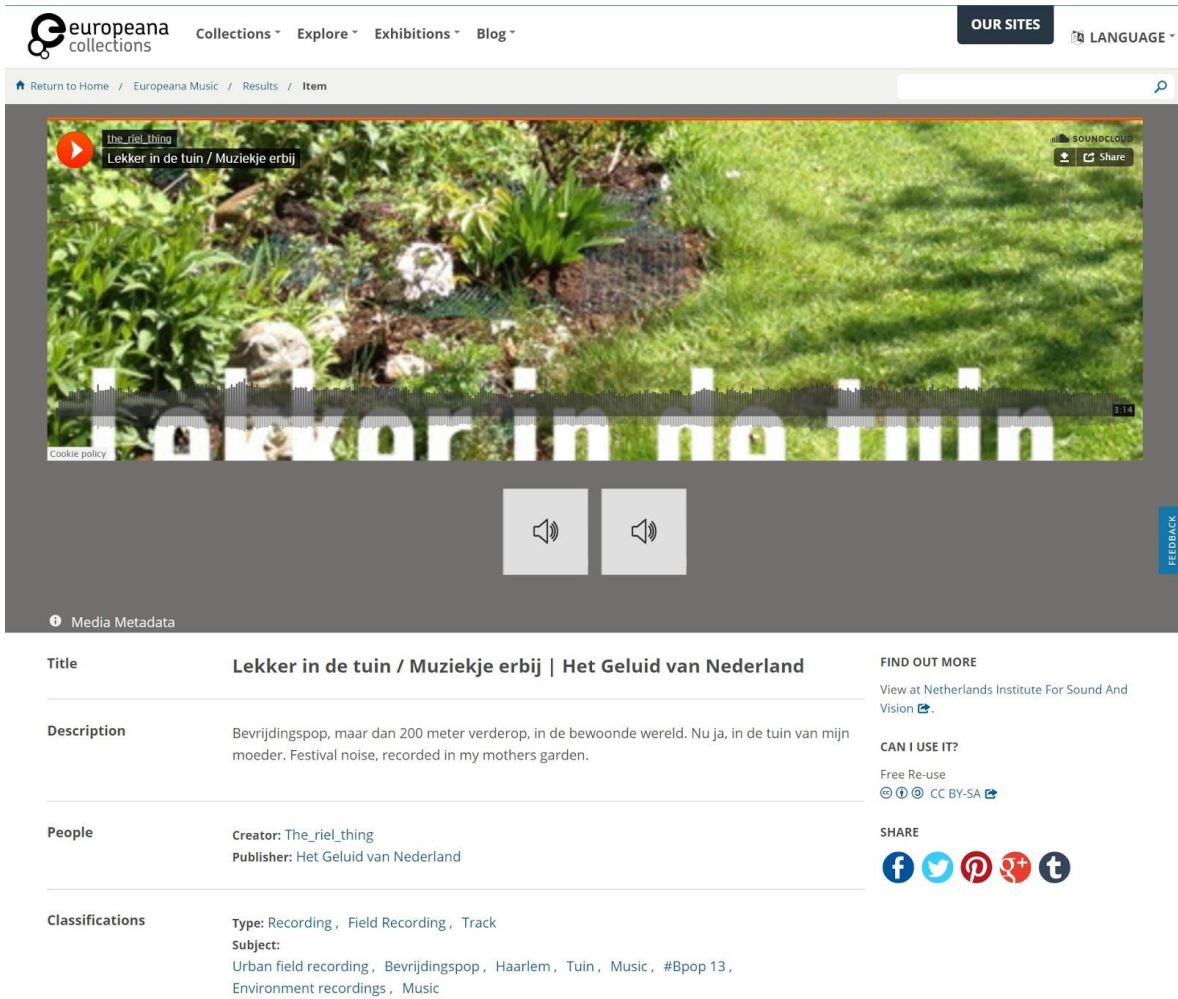
Figure 8: Screenshot of an item page where a Europeana Sounds partner has provided a direct link to a mp3-file and a thumbnail image representing the shellac disc.

Europeana Collections also supports embedding of oEmbed compliant audio players e.g. SoundCloud and AudioBoo. It can in most cases also, with some minor configuration per player, support embeddable players that do not comply with the oEmbed standard.
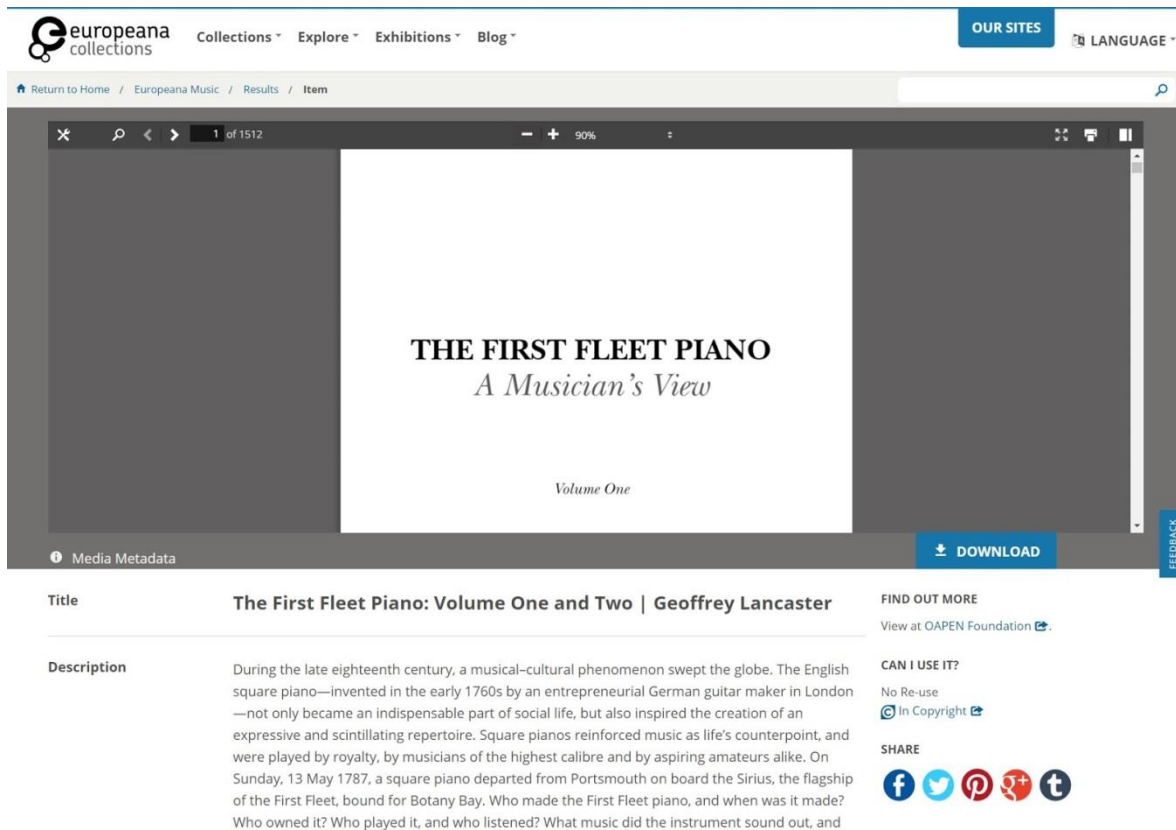
Figure 9: Screenshot of an item with an embedded SoundCloud player.

6.4.3   Texts (PDFs)

Where data providers have chosen to supply direct links to PDF files, these are displayed in an inline viewer. Users can use it to read a document within Europeana or choose to download the PDF. The PDFviewer used is PDF.js.
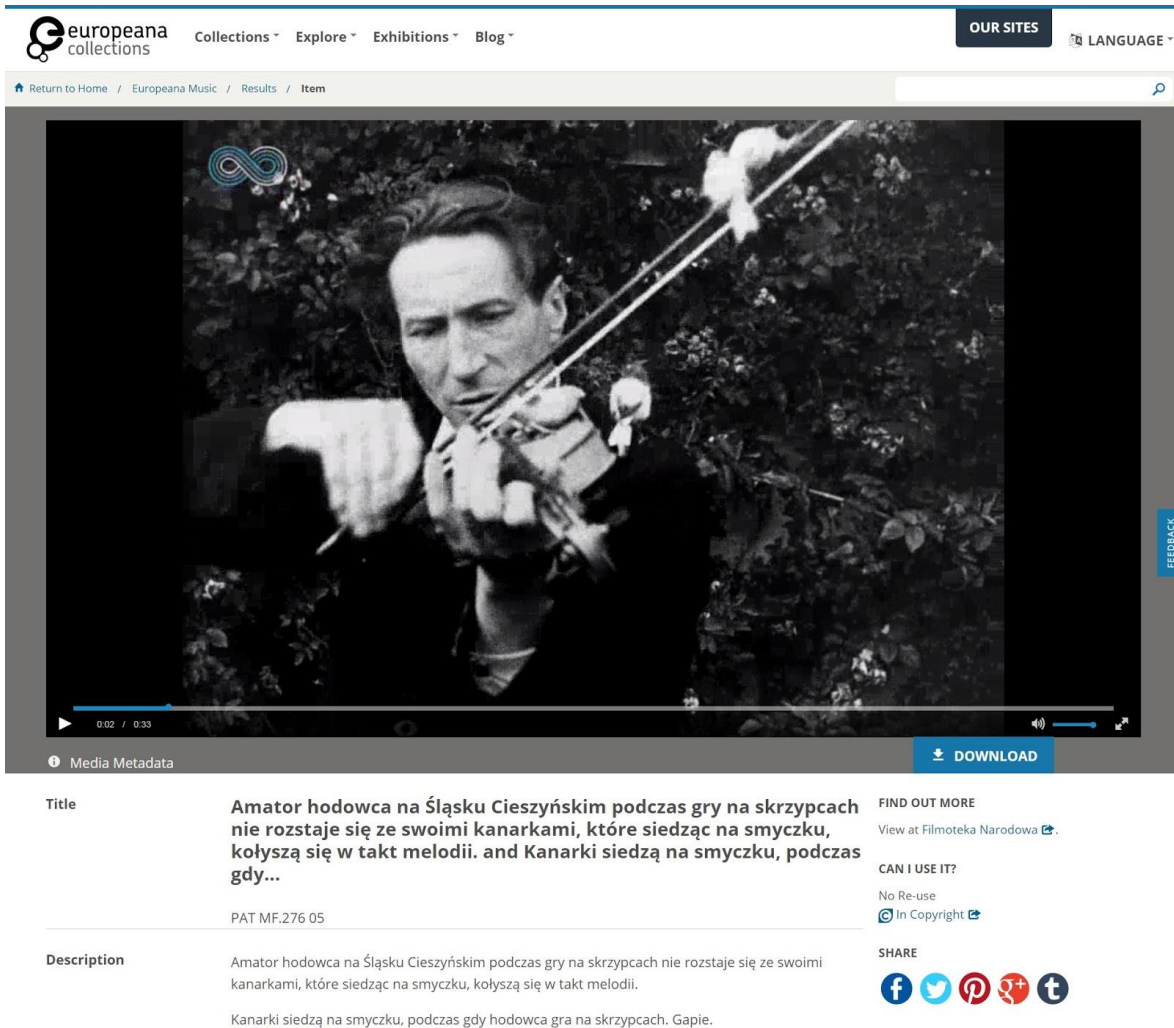
Figure 10: Screenshot of an item in the Music Collections with the inline PDF-viewer loaded.

In reading mode the user gets an overview of the pages (if the PDF is a multi-page document) and has access to controls for pagination and zooming. The user can also choose to view full screen.

6.4.4 Videos

In cases where the provider has chosen to provide direct links to the video file, Europeana will in many cases be able to play it directly within the portal/channel. Only certain formats are supported, HTML5 compatible video only.[34]

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[34] mp4 (encoded in H.264), WebM and OggTheora.

Figure 11: Screenshot of an item in the Music Collections where the partner has provided an mp4-link.

To better support data partners who cannot provide direct links to video files but have embeddable video players, we have added support not only for oEmbed compliant video players (e.g. Vimeo, YouTube, DailyMotion) but also a number of players custom to the partners.

Figure 12: Screenshot of an item in the Music Collections where a custom player is embedded.

6.4.5   IIIF-based display

Apart from direct links to image files Europeana has developed the capability to display images that comply with the International Image Interoperability Framework (IIIF). This brings advantages not only to the display of single images, of limited usefulness to Europeana Sounds, but also multi-page documents such as sheet music, music manuscripts and libretti. As the French National Library during the Europeana Sounds project added support for IIIF a huge collection of music relevant documents were added to the Music Collections with the ability for the user to zoom in and paginate through the documents in full-screen.
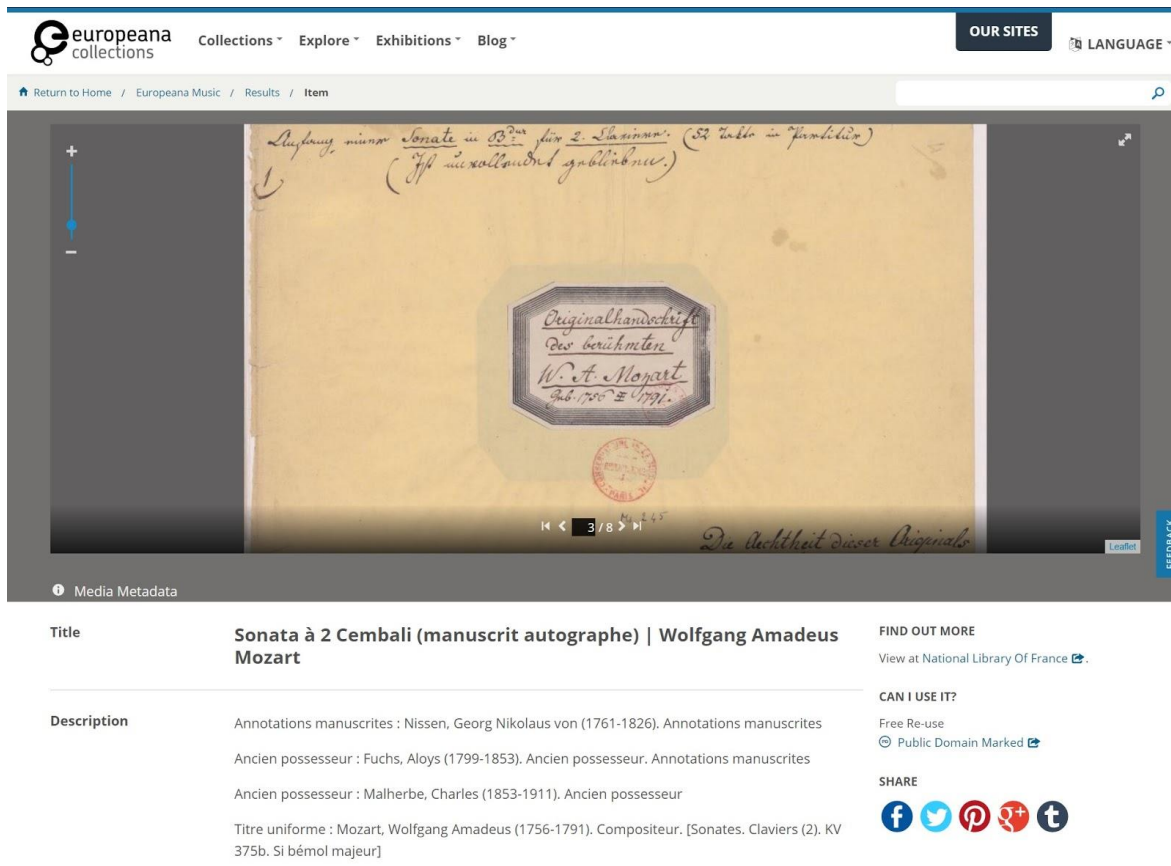
Figure 13: Screenshot of an item in the Music Collections where the partner supports IIIF.

7 Editorial and curatorial organisation

7.1 Organisational principles

The thematic collections concept is premised on active management from groups of Europeana partners per theme. The role of Europeana is primarily one of providing the platform and infrastructure (technical, organisational and financial). As it is estimated that there will be up to 20 thematic collections by 2020,[35] there needs to be a level of homogeneity to the organisation of them for reasons of scalability.

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[35] By end of 2017, it is planned there will be five thematic collections: Music, Art History, Fashion, First World War, Photography and Newspapers.
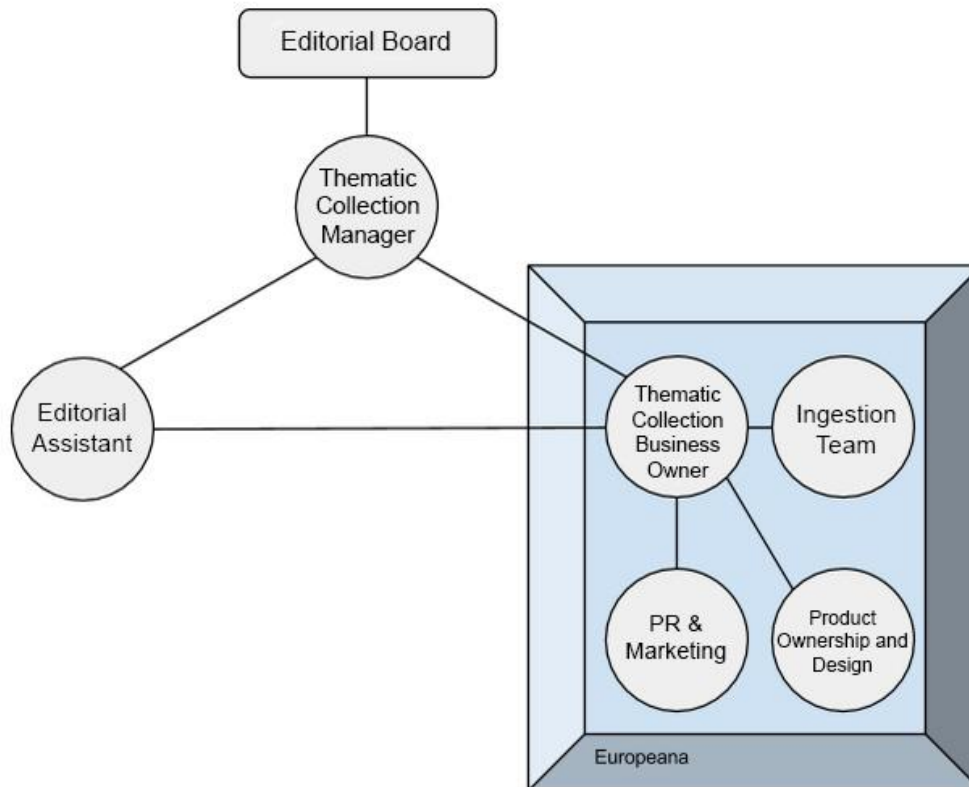
Figure 14: Diagram showing the proposed standard thematic collection management structure and roles.

7.2   **Collections Manager**

The Collections Manager is the person who is responsible for one specific thematic collections site as a whole: its content strategy, its positioning vis à vis other sites/competitors, and organising its editorial/curatorial activities.

For the Music Collections this role has during the project been performed by the Europeana Foundation in the person of Joris Pekel.

7.3   **Editorial board**

The editorial board should consist of domain experts (curators, data officers), academic researchers in fields related to the collection's theme and senior managers from institutions whose content are in the channel. They will help the Collections Manager to define the strategy and vision for the thematic collection and identify strengths and weaknesses in its content. They also act as ambassadors for the thematic collection externally and use their personal networks to recruit new partners and thus strengthen the content position of the site.

No Editorial board has been set up during the Europeana Sounds project. The Europeana Sounds Project Management Board has de-facto performed a similar role.

7.4 Editorial Assistant(s)

The Editorial Assistant(s) role is to make sure that the editorial parts of a collection are updated on a regular basis. In addition, the Editorial Assistant makes sure that channel-specific social media accounts[36] are filled with interesting updates.

Editorial/Curatorial tasks

- Regularly changing the hero image on the landing page
- Updating the tiles (descriptions, links, images) as featured on the landing page
- Updating the snippets (descriptions, links, images) as featured on the landing page
- Writing blog posts that are displayed on the landing page
- Coordinate the translation of the portal/thematic collection's UI elements.[37]
- Creating and adding virtual exhibitions (as tiles).

Marketing

- Keep the thematic collections specific social media accounts active
- Create playlists on SoundCloud and promote them on social media
- Document and share user feedback received.

Moderation

- Moderation of user created annotations and content.

For the Music Collections the Editorial Assistant(s) role has been performed by the Europeana Sounds partner with the monthly responsibility to manage the thematic collection (see below). In practical terms it has also had overlap with activities already being performed within Europeana Sounds WP6 especially in regards to marketing on social media.

7.5 Collections Business Owner (Europeana Foundation)

The Collections Business Owner is the Europeana contact person for a portfolio of thematic collections. The Business Owner oversees the launch of each new thematic collection from Europeana's perspective and is the contact point for the roles above-mentioned.

The Business Owner works in collaboration with the following teams in Europeana:

Data Partner Services team

- Identify initial content offering

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[36] In the case of the Music Collections this is the Twitter and Facebook accounts of Europeana Sounds (at least during the project lifetime).

[37] In order to translate the portal and channels user interface Europeana relies on volunteer translators from its network of partners. The goal is to support all official languages of the European Union.

- Acquires specific content in line with the thematic collection content strategy, following up on leads with the Collections Manager.

Product Ownership and Design team

- Ensures functionality requests are evaluated and, if planned for implementation, translated into requirements

- Leads UX research and design

- Leads technical improvements, bug fixing, new features, channel performance.

- Implements the channel content definitions into working filters

PR and Marketing team

- Planning of comms activities before, during and after launch of channel

- Relate theme specific marketing activities to general end user marketing

8   Curation of the Music Collections

The home page of the Music Collections has been curated by the partners of the Europeana Sounds project. Every month a data providing institution would take over the role of 'curator of the month' and highlight and promote content from the collection. Each month a particular theme was chosen by the partner such as 'Greek folk music' or 'Viennese operas', and Europeana Music Collections would be dedicated to this theme, highlighting the collection of the curator, but also other material in the collection.

8.1   **Curation tasks**

Every month a partner worked on the curation in close collaboration with the Europeana Foundation. In the month before the partner filled in a prepared template with all the information that they wanted to be on the homepage of Music Collections. This included;

- Changing the 'Hero Image' - a large image from the collection to give identity to the monthly editorial theme on the channel landing page
- 6 browse entry points. This is a prepared search query making it easy for users to dive right into the collection.
- Updating the tiles (descriptions, links, images) as featured on the channel landing page
- Writing 1 or more blogposts that are displayed in the channel
- Some institutions also prepared a playlist on the SoundCloud platform or a virtual exhibition to be featured on the Music Collections.

Month	Europeana Sounds partner	Theme	Time spent
January 2016	British Library	European Composers: sounds, text and images	0.5 day
February 2016	Statsbiblioteket Denmark	Mongolian folk music	1 day
March 2016	DNB	Wax cylinders & phonographs	1 day
April 2016	National Library of Latvia	Opera (classical) music, arias	2 days
May 2016	Österreichische Mediathek OeM	Fin-de-siècle Vienna, focus on Gustav Mahler at the Viennese Court Opera	2 days
June 2016	Statsbiblioteket Denmark	Earliest Danish recordings	0.5 day
July 2016	FMS	Traditional music, Greek music	1 day
August 2016	TAD and ITMA	Traditional music in Scottish Gaelic and Scots Irish Traditional Music	10 days[38]
September 2016	BnF	Traditional folk music from France	0.5 day
October 2016	ONB	Opera's of Antonio Salieri (or sth about classical music)	2 days
November 2016	ICCU	Giuseppe Verdi	1.5 days
December 2016	CNRS	Worldwide traditional music and spoken words	3 days[39]
January 2017	CNRS (Continued)	Worldwide traditional music and spoken words	-

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[38] While doing the curation ITMA realised that some of the data they wanted to highlight was not ingested properly into Europeana. Getting this right took about 9 days, hence the high number.
[39] Curating Europeana Music showed a number of data issues for the CNRS set that needed to be fixed before the curation could start.

8.2   **Feedback**

During the year we asked every partner to give feedback on their month as a curator.[40] During the first months after the release of the beta version of Music Collections some technical fixes still needed to be done, but after that the curation was generally considered as easy to do and rewarding. In order to make it easier for the partners to do the curation a guide was written with all steps required as well. The biggest issue that arose was the display of the partners' collections. Because the curators were working with their own collections they often found issues in the portal such as records missing, thumbnails not appearing and particular information missing. These issues had to be fixed by WP1, but because of the publication cycles this could not always be done in time for the start of the month.

8.3   **Task 4.3 going forward**

After the end of Europeana Sounds the curation by the contributing partners will be continued. In 2017 the partners will get more control over the site. Because the site was still in beta for most of the project, it was decided that the backend was not ready to open up completely to the partners. Instead a template was used and the Europeana Foundation would prepare everything. In 2017 Europeana will open up the backend to the partners so they can edit and curate the Music Collections landing page directly.

9   User evaluations

9.1   **User surveys**

Beta launch user satisfaction survey

As part of the release a survey[41] was launched aimed at evaluating the reception by users of the Music Collections. The survey (which is still open) includes questions on overall rating, rating of the visual design, rating of the content available and a question asking if the user would recommend the Music Collections to a music interested friend or colleague.

The KPI for year 2 was that 70% of users respond Good or Excellent when asked to rate the Music Collections overall. The rating scale used is a Likert[42] scale from 1-5 where Good = 4 and Excellent = 5. At the close of January 31 we had 68% of users responding Good or Excellent

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[40] Full feedback
[41] https://insights.hotjar.com/s?siteId=54631&surveyId=5884
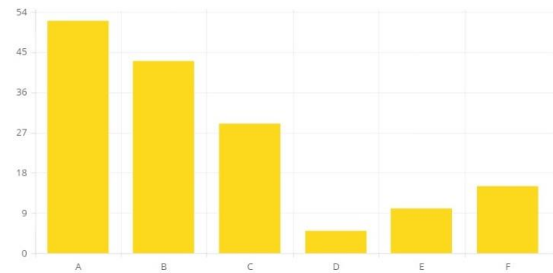[42] https://en.wikipedia.org/wiki/Likert_scale

Figure 15: Data and diagram on the overall rating of the Music Collections by January 31 2016.

70% is deliberately a very highly set KPI representing , compared to a normal distribution curve, a very positive user response. While we have marginally failed to reach the KPI in year 2 we are optimistic we will ultimately reach 70% with the planned improvements during year 3.

The question to the users about whether they would recommend the Music Collections to a friend is a first attempt to calculate an indicative Net Promoter Score.[43]
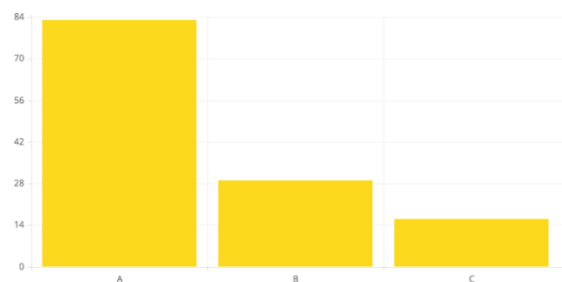

Figure 16: Data and diagram on how many users would recommend the Music Collections to a friend or colleague.

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[43] https://en.wikipedia.org/wiki/Net_Promoter

10 Usage statistics

This chapter of the report includes statistics of use on Europeana Collections for the items aggregated by Europeana Sounds. The statistics, unless otherwise noted, are for *ALL the items from Europeana Sounds not just the subset of items included in the Music Collections*.

The statistics are generated from Europeana's Google Analytics account with the exception of the usage statistics of Europeana Radio. The reporting period at the earliest is June 1 2015 as this was the month in which the first Europeana Sounds contributions were published in Europeana and the end date in the report extracts below is December 31 2016.[44] Some metric reports cover the period January 1 2016 - December 31 2016 as they rely on custom tracking events that went into production by that starting month. In most of the Google Analytics screenshots below the reporting period is visible on the top right.

10.1 Estimate of performance

Formally the Europeana Sounds project does not have any KPIs relating to how many times the content it has published on Europeana should have been viewed, played or clicked-through on to the partners sites. The unofficial goal was more to provide a more deeply engaging user experience than what the Europeana portal was capable of when the Europeana Sounds project was planned. The very concept of Channels was very much about reshaping the portal to become not only a search engine but a destination site. For that reason the main success, as seen through the lens of usage statistics, are the greatly superior "stickiness" statistics (see 10.2 below) of the Music Collections and the play statistics of Europeana Radio.

10.2 Music Collections "stickiness"

The thematic collections are intended to make the Europeana portal function more as a destination and engagement site than as a search engine (see Product objectives). In web analytics this is sometime referred to as "stickiness" and the metrics used to measure it include e.g. average session duration, the number of pages visited per session, and the proportion of returning users.

Figure 17: Returning visitors and bounce rate comparison between the Music Collections and Europeana Collections as a whole.

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[44] As this report is due in a reviewed state no later than January 31 the statistics does not include the final month of the Europeana Sounds project.

Figure 18: Pages/session and average session duration comparison between the Music Collections and Europeana Collections as a whole.

A comparison of the standard "stickiness" metrics show that the Music Collections user experience and behaviour is much more sticky than the Europeana Collections baseline. The thematic Art Collections have near identical "stickiness" metrics to the Music Collections'.

10.3   Europeana Sounds usage statistics

How many times are Europeana Sounds provided items viewer in Europeana Collections? How many times do users, when direct media links are provided, choose to click to view/play/read them? How many times do they click through from the Europeana Collections item view to the item page on the data providing institutions online collections?

These questions are important to all provider-aggregators and institutions providing data to Europeana. Europeana is able to report these metrics by tracking the unique provider-ID that is present in the URL of all item pages and by having added Google Analytics custom tracking events to Europeana Collections.

Note that while Europeana has knowledge of these metrics it has no insight into the usage statistics of the data providing institutions own online collections and thus does not know whether e.g. the amount of click-throughs to a given partner is considered significant by them.
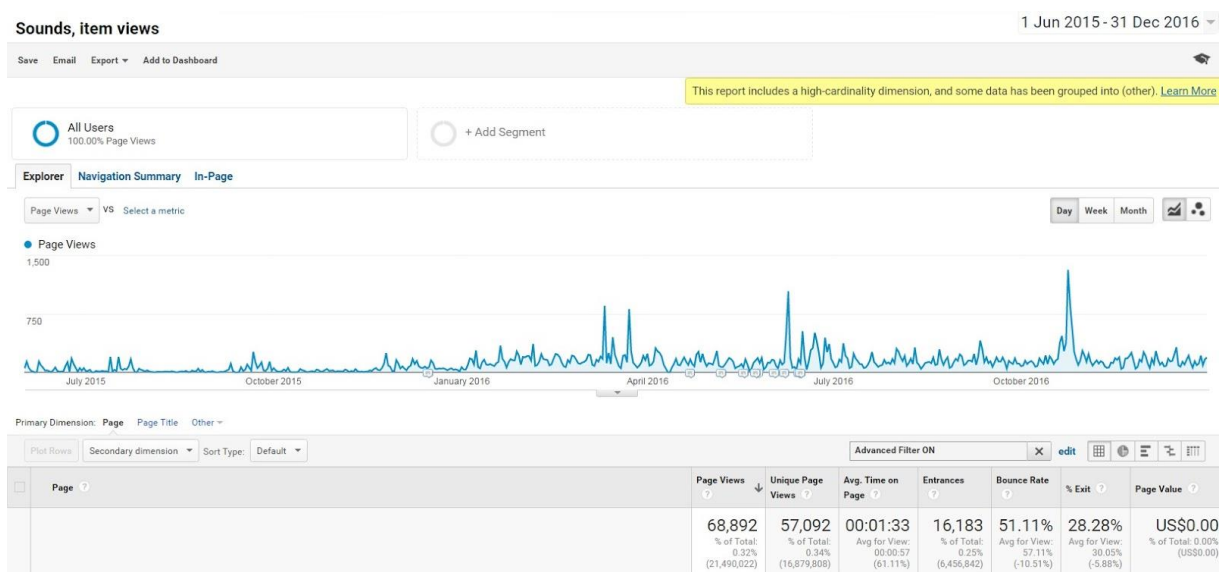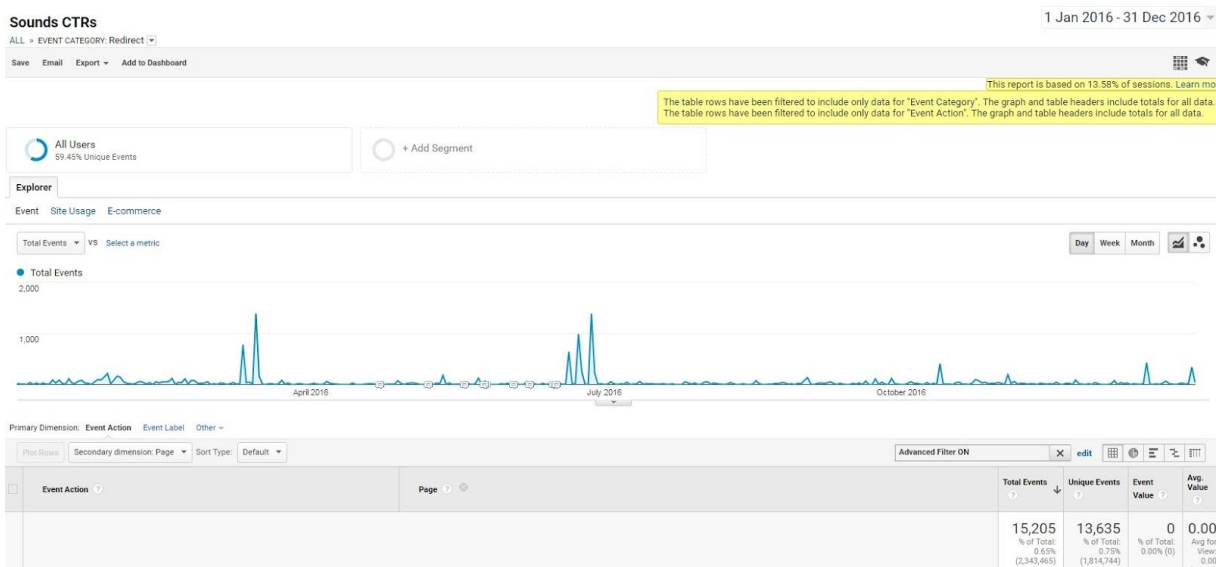

Figure 19: Report showing the number of views of Europeana Sounds provided items in Europeana Collections between June 1 2015 and December 31 2016.

Europeana Sounds provided content was first published in June 2015 and during the year of 2015 the amount grew quite slowly. In the item views report above it is clear that views only began to pick up in early 2016, coinciding with the launch of Europeana Collections, and has since plateaued (see screenshot below). In total, since first publication, Europeana Sounds items have been viewed c. 68,892 times[45] during the reporting period. Almost 90% of those views occurred in 2016.
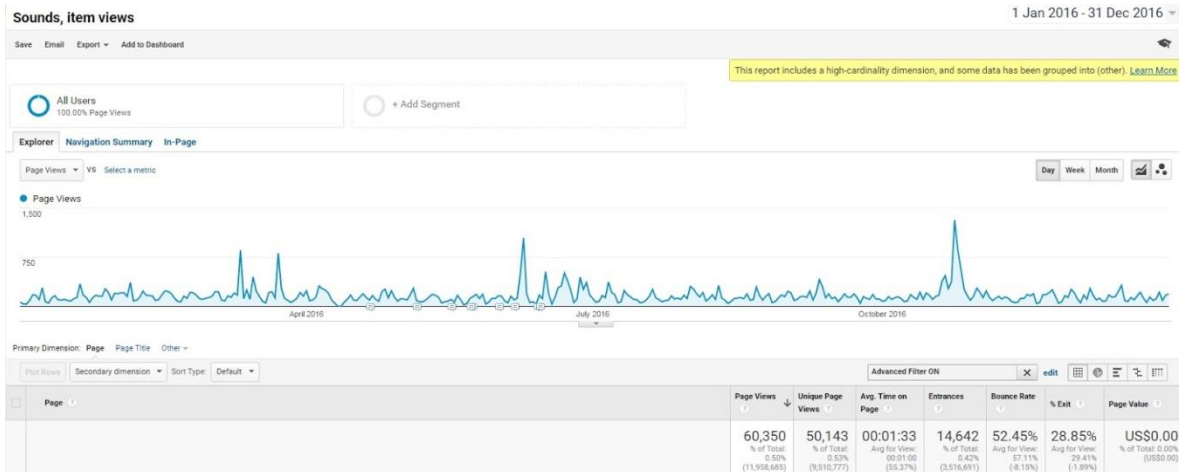
Figure 20: Report showing the number of views of Europeana Sounds provided items in Europeana Collections between January 1 2016 and December 31 2016.

Not all views of an item in Europeana lead to the user clicking-through or viewing linked media. The following two screenshots serve to illustrate that.

Figure 21: Report showing the number of click-throughs to Sounds providers' site from Europeana Collections

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[45] Why circa? Because users who have activated certain privacy plugins that refuse cookies are not tracked by Google Analytics. Previous log analyses performed by Europeana indicate that the proportion of users who deny cookies is close to 10%.

The click-through report shows that of the c. 60,000 item views in 2016, 15,000 of them resulted in a click-through to the providers' site.
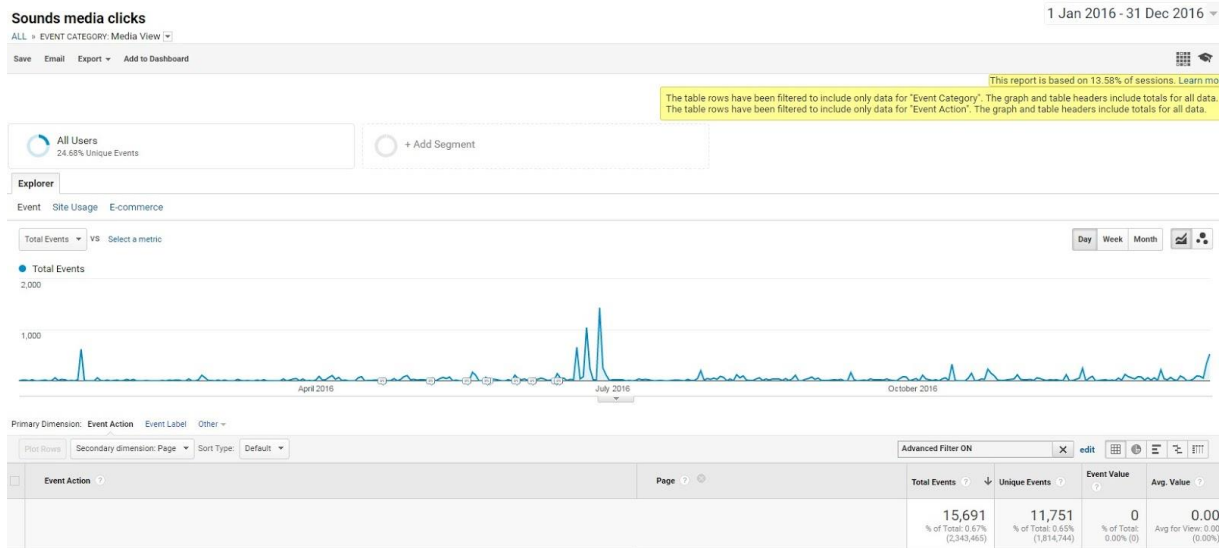
Figure 22: Report showing the number of media views in Europeana Collections of media files which Europeana Sounds partners have provided links to.

For the subset of Europeana Sounds provided items that include direct links to media files and that were viewed in 2016 c. 15,000 of the views resulted in a user clicking to play/view/read them. Note that this excludes clicks on embedded media players.
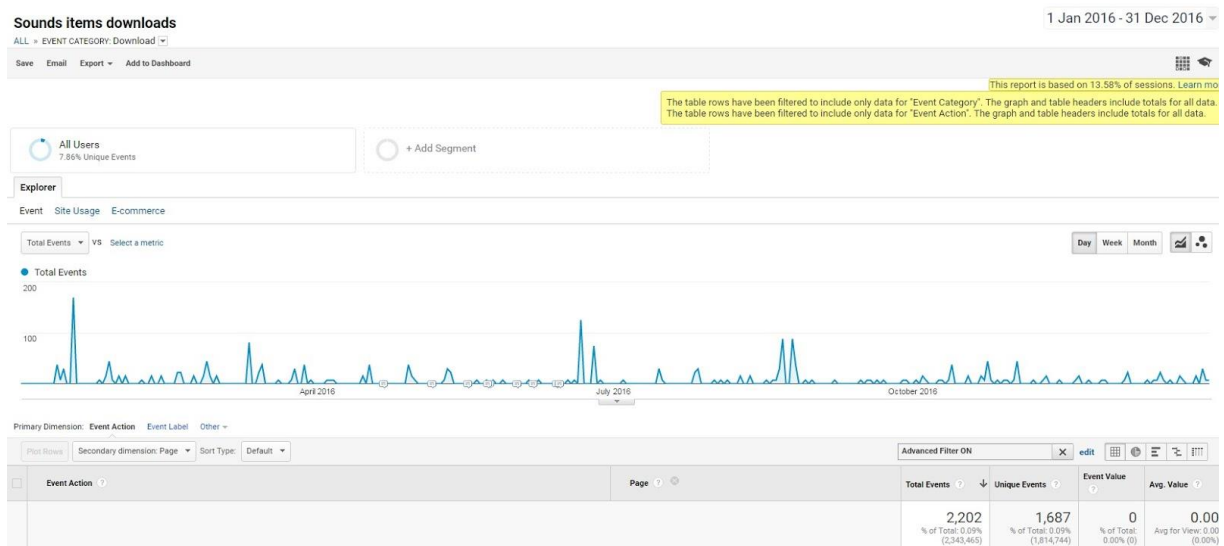
Figure 23: Downloads of media files from Europeana Sounds provided items from Europeana Collections in 2016.

Finally, for the subset of Europeana Sounds provided items that include direct links to media files and that were viewed in 2016 there were 2,202,000 logged downloads of the media files. Note that

Europeana can track only download made by users clicking the Download button in the item view, not when users use their browser and do Right-click/ Save As to download the file.

10.4   Europeana Radio usage statistics

Europeana Radio was first launched in a test version on October 20 2016 and we have only collected usage statistics for it from that date until December 6 2016[46] (and then from January 11 2017 onwards). This is a very short reporting period to base an analysis on and the results should be seen as indicative.

In that reporting period the c. 3,000 tracks available in Europeana Radio were played 3,708 times. A comparison with the amount of plays in the Europeana SoundCloud account and in Europeana Collections can put that number in context.

2016-10-20 to 2016-12-06	Plays
Europeana SoundCloud account	4,760
Europeana Radio	3,708
Europeana Collections (Europeana Sounds provided subset)	2,917 (incl. all media views/read/ plays not just music recordings)

The comparison indicates that Europeana Radio has the potential to significantly increase the number of times users listen to Europeana Sounds provided music recordings.

An updated report and comparison will be reported at the final project review in March 2017.

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[46] An updated version of Europeana Radio with substantially more music recordings (c. 190,000 compared to 2,230 at first release) was released on 10 January 2017.

Appendix A: Terminology

A project glossary is provided at: http://pro.europeana.eu/web/guest/glossary.

Additional terms are defined below:

Term	Definition
APEX	Archives Portal Europe network of excellence
API	Application Programming Interface
CMS	Content Management System
EC-GA	Grant Agreement (including Annex I, the Description of Work) signed with the European Commission
IIIF	International Image Interoperability Framework
MIMO	Musical Instruments Museums Online
PMB	Project Management Board
TEL	The European Library
UAP	User Advisory Panel
UIM	United Ingestion Manager
WP	Work Package