EUROPEANA DSI-4 ANNUAL REPORT 2020/2021

CONSORTIUM PARTNERS

Europeana DSI-4 is provided by a consortium of 21 partners, coordinated by the Europeana Foundation.

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FOREWORD

Over the third year of Europeana DSI-4 (September 2020 to August 2021), the impact of the pandemic on our working and personal lives, which began with great shock and disruption, has begun to even out and become our new normal. We saw the importance of digital for the cultural heritage sector grow but also the widening of the digital divide - showing us that we are not all born-digital equal and that there is a greater need than ever to empower the sector to embrace, manage and benefit from digital change.

We strive to give more people more agency to do more things with digital culture - to share more, to share better and to reap the rewards of doing so.

For our aggregators, improvements to the aggregation infrastructure give them greater power to contribute and improve collections faster. While our efforts to improve relationships with active aggregators and to revisit old ones has led to improved data quality and fewer broken links. And the launch of the Aggregator User Group and additional training opportunities bring us closer together, improving our feedback processes and knowledge sharing.

Isracing på Kroppkärrssjön 1947, Dan Gunner, Värmlands museum, Public Domain

A focus on innovation - using machine-learning and artificial intelligence to enrich data - combined with a multilingual strategy to make data more accessible, creates greater value for both institutions and audiences.

For our audiences, new ways to engage with and use the collections come from a new create-your-own gallery feature and a range of competitions and challenges on subjects from Beethoven to artificial intelligence. And improved API services make it easier for developers to create new apps, games and services with Europeana content.

And for members of the Initiative - consortium partners, the Europeana Network Association and the Europeana Aggregators' Forum - the release of a definition of digital transformation for the cultural heritage sector and the first stage of a capacity-building framework mark significant steps towards the structural adoption of our capacity-building initiative, which will be measured in line with best practices derived from the Europeana Impact Framework.

The collaborative working of the Initiative continued through Task Forces and Working Groups, covering topics from storytelling to machine-learning, and new professionals to copyright. Our programme of online events, including the first

Europeana Aggregators' Fair, our first-ever online-only annual conference, and a Digital Spring Programme, brought thousands of professionals from across the globe together to build capacity for the digital transformation of the sector.

Running through all of this is a very real and practical acknowledgement that the sociopolitical landscape in which we operate is changing, and that we share the growing sense of responsibility in areas such as diversity and inclusivity and climate action. The impact of these issues informs every decision we make, no matter what the area of work. We are pleased that our conference was more accessible and environmentally friendly than ever before and our editorial more representative and we look forward to developing these - and other actions - further next year.

We again thank everyone involved for their contributions and we look forward to moving into the fourth (and final) year of Europeana DSI-4 together.

Harry Verwayen
General Director, Europeana Foundation

INTRODUCTION

Together with the European Commission and the Member States, the Europeana Initiative fulfils the European Union's aim to enable easy access to digital culture and resources, for citizens, education, academic research and the cultural and creative industries.

The Europeana Digital Service Infrastructure (DSI) showcases and provides online access to Europe's digital cultural heritage. As an initiative of the European Union, and funded under the Connecting Europe Facility (CEF), Europeana DSI-4 is the project that operates the Europeana DSI. The service is provided by a consortium of 21 partners, coordinated by the Europeana Foundation (EF).

The consortium collaborates with the Europeana Network Association (ENA), a strong and democratic community of about 3,000 experts working in the field of digital heritage. We also work closely with the Europeana Aggregators' Forum (EAF), consisting of national, domain and thematic aggregators.

This annual report summarises the main outcomes achieved in the third year of Europeana DSI-4, covering the timeframe from 1 September 2020 to 31 August 2021. In the past year, the consortium partners, EAF and ENA worked in close collaboration towards our goals in line with the Europeana Strategy 2020-2025 to provide a strong public service that supports Europe's cultural heritage sector in its digital transformation. As a result, we strengthened the Europeana infrastructure, we improved data quality and we built capacity for digital transformation.

Implementation plans were supported by the European Commission and the Expert Group on Digital Cultural Heritage and Europeana (DCHE) and its subgroups.

STRENGTHEN THE INFRASTRUCTURE

In the past year, we maintained and continuously improved Europeana DSI's main services and functionality. We focused on an easy and rewarding data publishing process, a satisfying Europeana website experience for our audiences, and a reliable and high-performing platform infrastructure. We also provided engagement activities for our audiences to discover Europeana's digital cultural content.
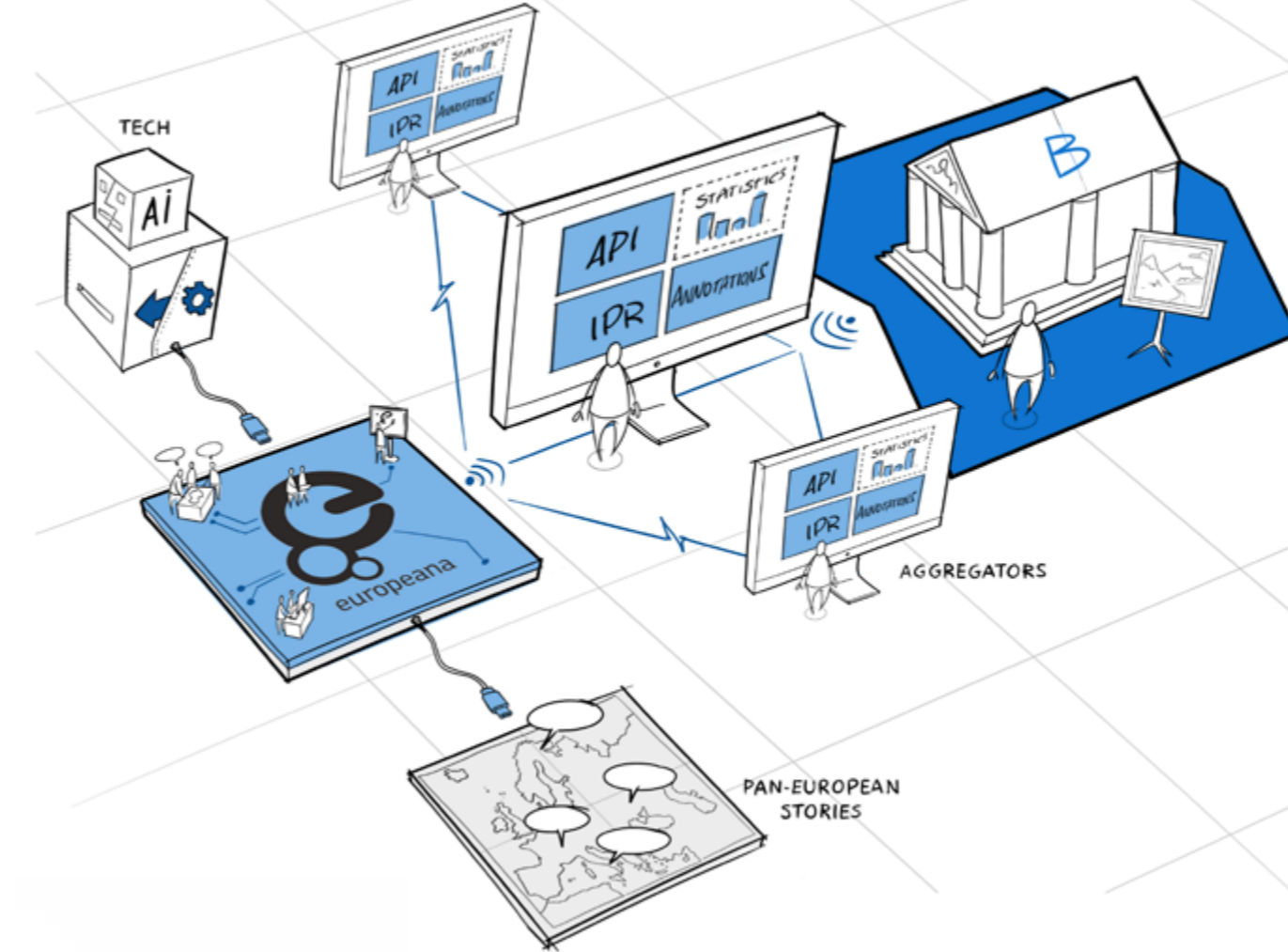
Easy data publishing

EF and PSNC offered a fully functional data and aggregation infrastructure through Metis, which allows EF to import, transform, validate and enrich metadata for aggregators.

Extend and maintain Metis
The focus for the past year for Metis revolved around speeding up and enhancing the reliability of the publishing process.

Infrastrucutre, Europeana Foundation and Sketchy Business, 2020, Public Domain

In January 2021, the Metis enrichment/dereferencing service was restructured to make it more modular and easier to reuse by applications other than Metis (such as the Entity and Annotation APIs). In addition, new sources for data enrichment were added to the enrichment service: century and organisations entities as well as new vocabularies for dereferencing (Wikidata agents, topics, time spans and places). This work contributed to increased data quality and multilingual coverage, and supported the creation of new entity collections on the website.

Several other Metis components were extended throughout the year:
- Validation of rights was added as part of the validation service
- Normalisation of media URIs was added to the normalisation service
- Duplicated records were identified as part of the data import
- Depublication of records was introduced (such as takedown requests) which supported the work on broken links.
- Metis workflows and parallel tasks were optimised to improve processing time.

In April 2021, we implemented a solution to support the representation of data provenance of machine-generated metadata separately from that of the source data. This allows aggregators to represent their enrichment separately from the source data (submitted by a data provider) in the data they provide to Europeana.

This new functionality was released to enable the provision of the enrichments created by the Europeana XX Generic service project.

Finally, we established a process for incremental harvesting to speed up dataset updates. Previously when updating a dataset in Metis, the user had to reprocess the full dataset. A user in Metis can now specify whether the workflow to be applied will be full or incremental. When selecting incremental, only the updated or added records will be processed. Metis and eCloud (most specifically the harvesting and indexing components) were updated for this purpose.

Throughout the year, substantive effort was put into infrastructure and technology upgrades to improve performance, resilience and maintainability. EF focused particularly on solving the most pressing issues (data storage and network issues) encountered at the level of the main eCloud database.

Enable Metis Sandbox
Building on the work done in the Europeana Common Culture project, we further developed and released the Sandbox to allow aggregators to test and resolve dataset issues before submitting data to Europeana. The Sandbox supports the direct testing and the preview of the data according to the Metis workflow. Significant efforts were spent on developing the user interface for the Sandbox and improving the scalability and performance of the system.
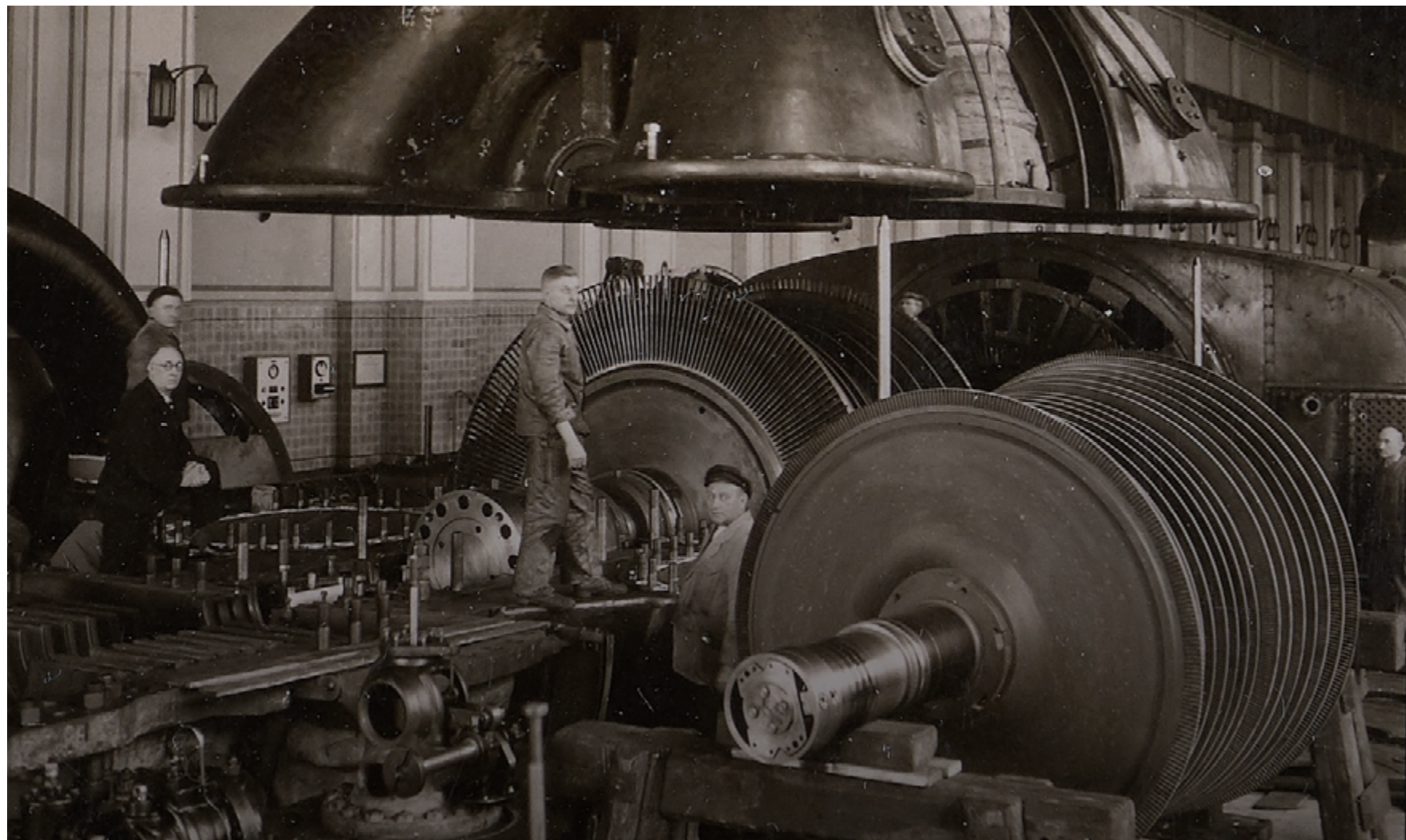
Zusammenbau der Maschiene, 1937, Stiftung Kraftwerk Hirschfelde, CC BY-SA

Europeana website experience

The Europeana website is the single multilingual access point to digital resources of European heritage. Number of visits is our key success metric for the Europeana website with a target to reach 500,000 visits per month. In the past year, we saw about 455,000 monthly visits on average which is close to our set target. At the beginning of the COVID-19 pandemic in 2020, we saw an exceptional spike of traffic as more people sought online options for cultural heritage. Between Jan - Aug 2021, the traffic levels reverted to the pattern seen in previous years.

User return rate is another key metric to evaluate the success of the Europeana website, with the aim of achieving a 15% user return rate. The overall percentage of returning users vacillated between 12.3% and 15.4% monthly. In March 2021, we measured the highest user return rate (15.4%) for Europeana DSI-4 thus far. We believe two factors contributed to this: the new ability of users to create personal accounts and make galleries, and our social media promotion of Women's History Month-related content published throughout March 2021.
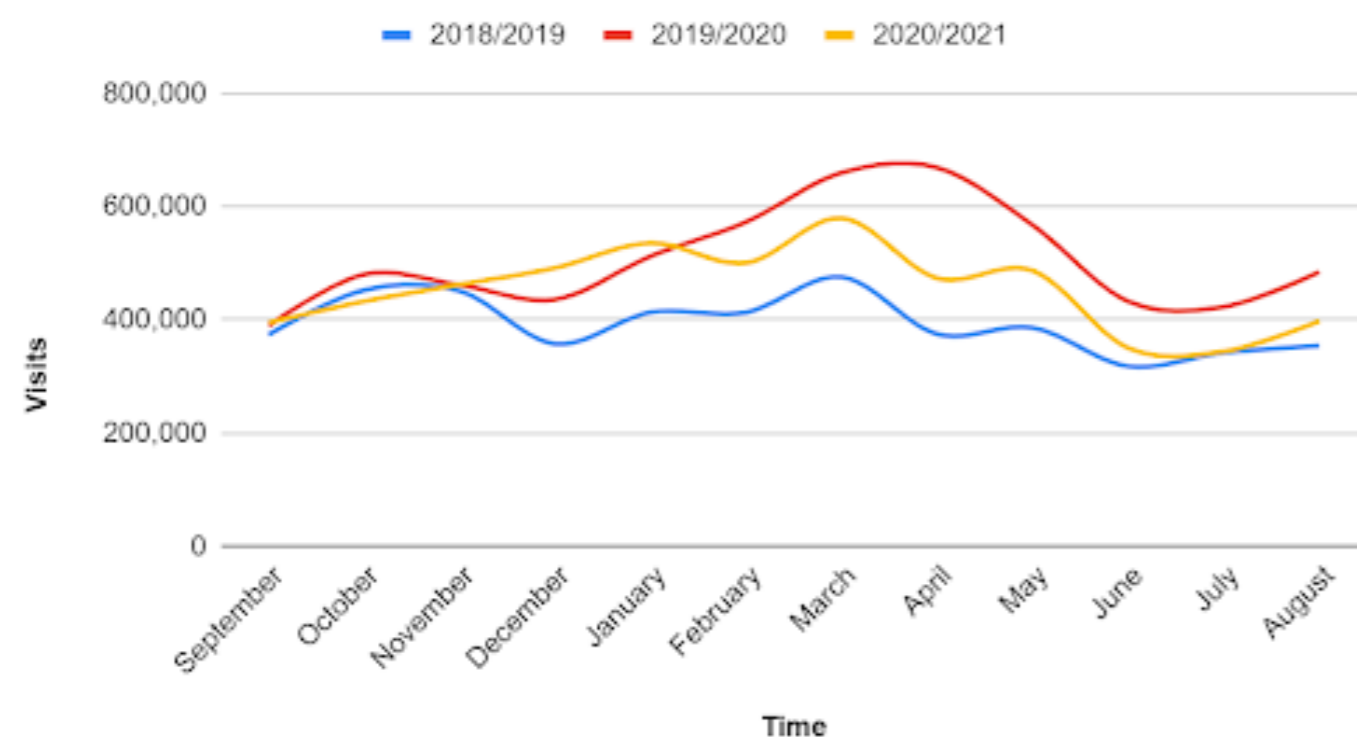
Traffic to Europeana website comparing Europeana DSI-4 Y1, Y2, and Y3.

The latest user satisfaction survey on the Europeana website, completed in July 2021, showed a very good average satisfaction of 72% for the question 'How likely is it that you would recommend our service to a friend or colleague?'

Extend user engagement features

In the past year, significant developments were implemented on the Europeana website. In November 2020, we released user-created galleries (delivered partly by the Europeana XX Generic Services project) for users to curate and publish their own galleries on the Europeana website. As part of the release, we also developed a feature that recommends similar items to users when curating their own galleries. We saw that since the release, this newly introduced user engagement feature drove traffic to the website and also attracted more return visitors.

We enhanced the website experience on the Europeana home and Collections page by adding a module that displays topic and century entity collections and automatically updates them daily. Additionally, we developed a similar module for displaying one item from each newly ingested dataset. We hope that both dynamic modules will encourage people to return to the website more often.

This year, we also newly introduced organisation pages to give each CHI that we work with more visibility on the website, delivering on our promise to provide them with more recognition and to create awareness of their institution. People can now explore our collection by CHI, giving them another way to discover our collection and potentially improving the findability of items.

Finally, we improved the metadata display, added the Sketchfab viewer for 3D content, released a new feedback widget and enhanced the overall feedback process, and we migrated the blog from Wordpress to the Europeana website.

Deliver better search experience

In the past year, we improved the search experience and content findability for users. An important feature this year was the upgrade of newspaper search, which extended our capability for supporting full-text material. Now users have the ability to use the main search functionality to locate a search term within a newspaper issue. When the search term is found, it is highlighted to the user in the search interface and pinpointed in the issue on the item page. Additionally, the user can continue to edit the search term on the item page to refine the search query within the newspaper item.

In April 2021, EF completed the Europeana Search strategy which outlines areas and actions to focus on towards search improvements. The Search strategy, also presented an updated methodology for evaluating search effectiveness (i.e. by using user feedback and user signals/logs). The implementation of the updated methodology is a long-term effort but some elements have already been applied this year. Notably, a space was set up to track search performance (i.e. search issues) experienced by users and we also evaluated and improved textual normalisation (Search strategy, M-F4). The search strategy and the updated

methodology for measuring search success put us in a good position to make further improvements to the search experience on the Europeana website.

Extend multilingual reach

The extension of features to support Europeana's multilingual strategy is critically important for reaching and retaining new audiences. Multilingual efforts were kicked off by introducing new measures for evaluating multilingual access and the impact of implementing the multilingual strategy. The selection of a candidate machine translation service for metadata was one of the key starting points for the implementation of the multilingual strategy. We started our collaboration with the Europeana Translate Generic Services project which will develop an automatic translation service to fit the needs of Europeana DSI and DSI AGG. We also continued to work with eTranslation and the ELRC (European Language Resource Coordination) to progress the state-of-the-art in multilingual services.

As our multilingual approach is breaking new ground for the cultural sector, the multilingual strategy identified a significant number of experiments to find the best ways of approaching the work. Many (but not all) of the performed experiments happened as part of a prototype for a Spanish destination portal (also referred to as 'Spanish pilot') that allows users to seamlessly access collections with Spanish or English metadata, using either language for querying and visualising results. We focused on having a working prototype of a Spanish

destination as validating implementation across one language is a necessary step before scaling across many. This pilot has used the Google Translate service as a live translation tool.

In the past year, we focused on testing multilingual search and worked towards the implementation of multilingual item pages. We experimented with real-time translation of search queries with a specific focus on the Spanish language and evaluated multilingual search designs to be usable and understood by users. As part of the Spanish pilot, we also experimented with real-time translation of item page metadata so that metadata can be shown to the users in their language of choice, and we also evaluated multilingual item page designs. We released the first iteration of the multilingual item pages on the Europeana website that allows people to translate the items metadata into their language of choice.

A major effort was also made to boost multilingual coverage of static text on the Europeana website. The 300+ text elements (such as section headers) previously published only in English were translated and are now visible in 24 languages. We also established a process (which involves crowdsourcing) to translate future new text elements of the User Interface (UI) in a timely manner.
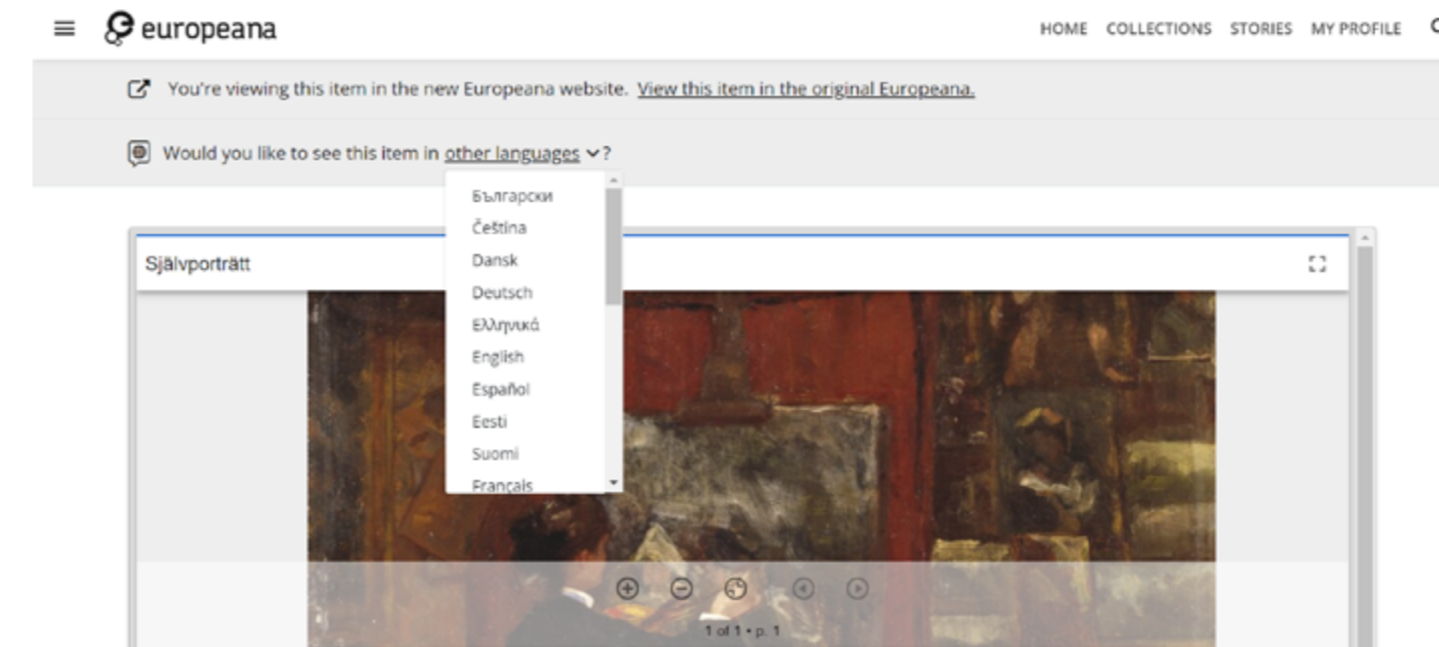

Screenshot of multilingual item page

Our translation policy was updated to reflect our approach towards the translation of static text, editorials and metadata. Coverage must prioritise the translation of all 24 official EU languages while coverage may also support other languages of EU Member States as per Council Conclusions of 13 June 2005.

Reliable platforms

The Europeana website, APIs, and aggregation systems are currently part of the Europeana core service platform. Europeana products were available 24/7 with an average uptime of over 99.5% (excluding scheduled outages).

To maintain a reliable platform and allow the deployment of specific features, we performed some routine and ongoing tasks, such as the regular update and reindexing of Solr (search index) and Mongo (metadata storage). Updates done in March 2021, for example, contributed to improved search and the re-enrichment of the whole database.

We continued our efforts for improving the resilience of our infrastructure. We completed a full disaster recovery test which fed into a stress and disaster recovery test report. Simulation testing demonstrated that tested components could be recovered within an acceptable time period. Numerous points in our disaster recovery documentation were identified as being unclear or incomplete and were subsequently updated. The work on reliability also included the establishment of a failover environment to help prepare for worst-case scenarios. We also evaluated our current IBM and Cloud architectures to ensure we are getting the best performance on the platform. The IBM hosting environment was reconfirmed in August 2021.
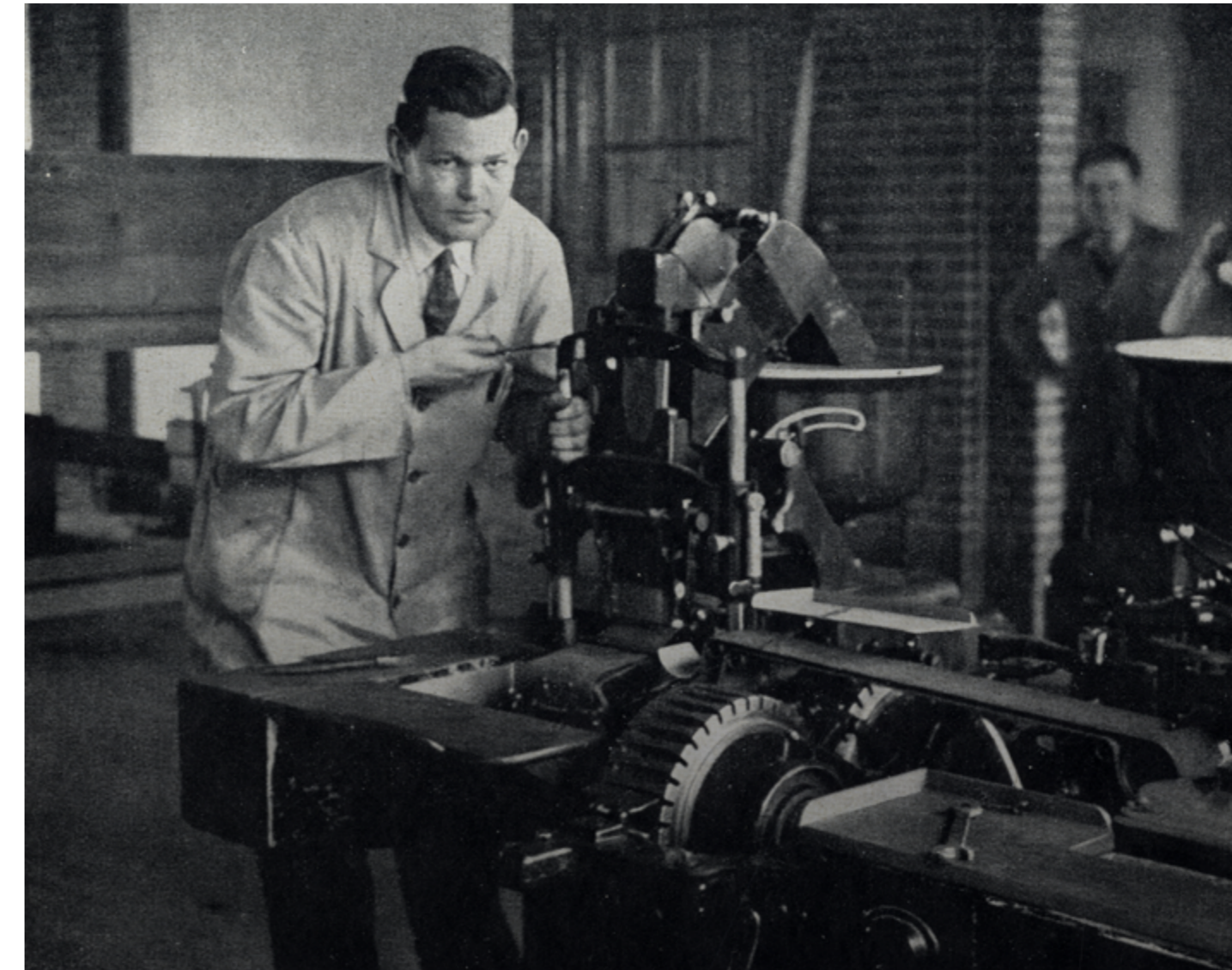
Afbeelding van een werknemer [...], 1944, Het Utrechts Archief, Public Domain

The developments for our APIs focused on the support for user-created galleries and the required login service as well as the new service for managing entities and entity improvement workflows. Other important developments include the adaptation and deployment of a recommendation engine to support item and gallery recommendations, the support for browsing by organisation entities, extending support for multilingual subtitles, and, most recently, the support for automatic translation on both Search and Record APIs.

This year, besides the new entity management service, there were three new additions to the API offering: the release of search within a newspapers issue; the new data download service; and a new service for authorising and monitoring access to Europeana APIs. The latter service was successfully deployed allowing users to access the different APIs using the same API key. To support this work and improve our services, the API registration/ sign-up form was updated to collect more information about users. We also continued updating our technical documentation covering the set-up, configuration and monitoring of the whole Europeana platform.

Discoverability of digital cultural content

The Consortium made it easier for people to use cultural heritage for education, research, creation and recreation. Our work contributed to an open, knowledgeable and creative society. Users engaged with cultural heritage on the Europeana website, via social media, and on partner websites like Transcribathon. eu. We also engaged educational audiences and API consumers.

Deliver high-quality editorial features
The foundations of our discoverability efforts are Europeana's high-quality editorial features and thematic seasons. In the past year, we showcased editorial content on specific themes, such as sport and women's history, and we contributed to wider European campaigns like Discovering Europe and New European Bauhaus. Several Europeana Generic Services projects also contributed to editorials.

We published about 150 blogs and 75 galleries on a wide variety of subjects and on themes such as the history of pandemics and the Olympic Games. Notably, the nine new exhibitions published this year achieved a high average satisfaction rate of 86%. The exhibitions Magical, Mystical and Medicinal and The Sakharov Prize, the European Parliament and human rights worldwide were particularly popular.

A SUGGESTION FOR A FLYING MACHINE

A man flying in the air with wings and balloons attached to him, Wellcome Collection, CC BY

Providing translations of exhibitions into more non-English languages than ever before made an important contribution to user engagement. The percentage of exhibitions published in more than one language increased from 50% to 64% and notably, three exhibitions from the European Parliament Archives were published in all 24 of the European Union's official languages.

We also launched a Stories page and new Feature pages on the website to make editorial and curated collections more discoverable to users.

In the past year, we increased our effort towards more diversity in Europeana editorials. For example, we published editorials as part of the Black History Month, while editorials for Women's History Month highlighted women of colour. We

also highlighted editorials around the theme of disability, LGBTQ+, and Roma. We collaborated with Khalili Collections who provided an editorial for the Women's History Month and editorials related to Islamic heritage. In total, 25 pieces of editorial were created around the theme of diversity and inclusion (excluding editorials provided by Generic Services projects). We also made sure that editorials are as accessible as possible, with alt-text guidelines created, and the majority of images used being accessible for those that are visually impared.

Communication and dissemination to European citizens
We brought cultural heritage material to the attention of our audiences to drive traffic to the Europeana website and to engage audiences with digital culture. Curated content was particularly successful at generating traffic to the Europeana website and in its promotion on social media. Promotion occured on the Europeana website, via the monthly newsletter, and through social media. Our end-user newsletter in English for example, reached about 50,000 subscribers each month.

In the past year, our presence on social media (Facebook, Pinterest, GIPHY, Twitter and Instagram) was very successful. We had more than 592 million impressions on social media with an average of about 343,000 likes, shares, or comments monthly, and a 5.7% increase of fans/followers (about 228,000 fans/followers in

total). Building on the success of previous years, we again participated in Women's History Month (March 2021) which once more proved to be our most popular activity in terms of engagement, user return and traffic generated.
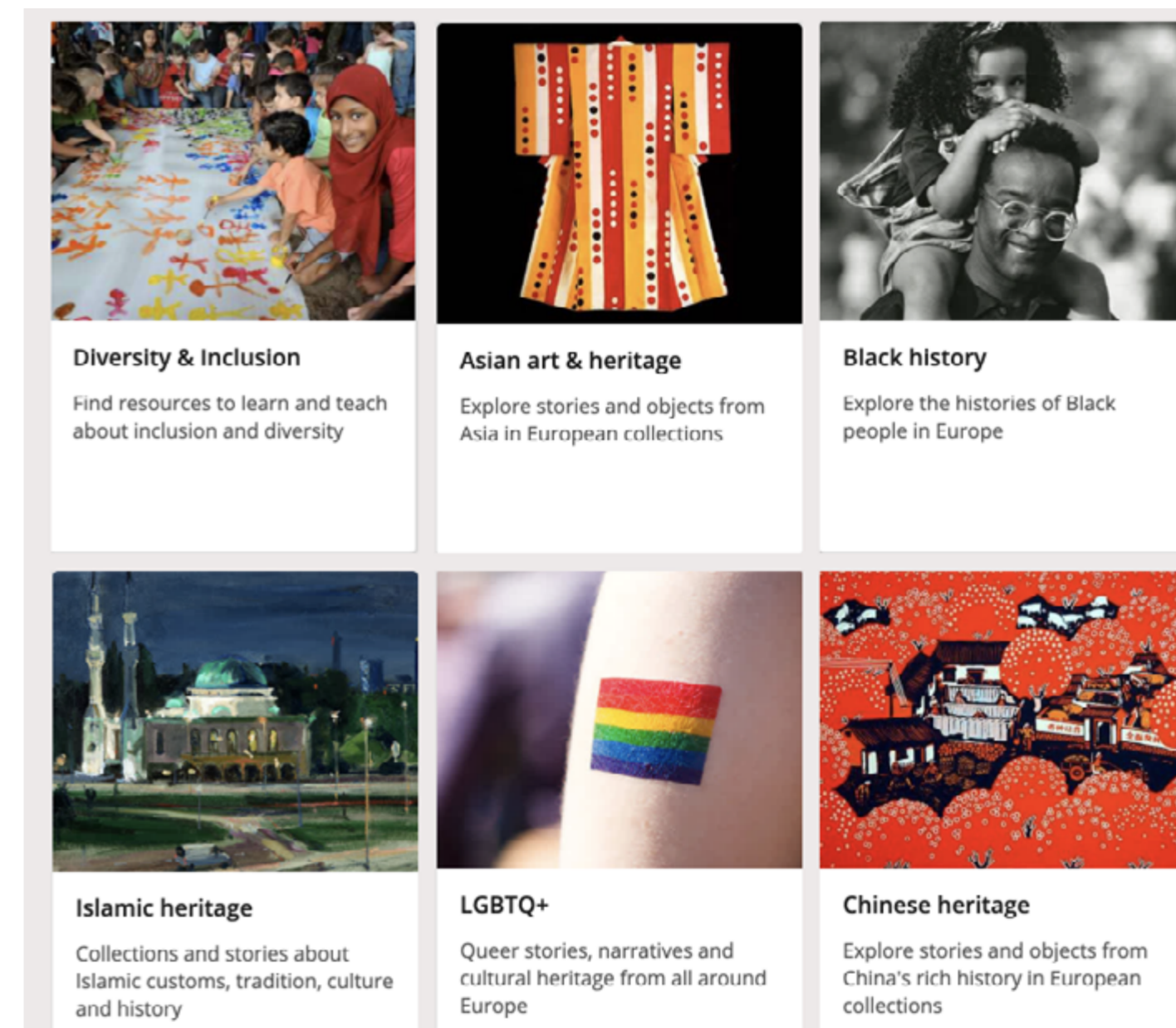
We also engaged in partnerships reaching cultural enthusiasts across the world. Most successful were campaign-centered partnerships - such as GIF IT UP and the Digital Storytelling Festival. The global GIF-making contest GIF IT UP 2020 raised awareness of Europeana and motivated users to create GIFs with digital cultural content. Over 230 eligible GIFs by creators from across the world were submitted for the competition and the GIF IT UP website received over 50,000 visits during the contest. In addition to regular partners DPLA, Trove and DigitalNZ, this year we welcomed two new partners, Japan Search and DAG Museums, India.

Europeana's first Digital Storytelling Festival, organised in collaboration with the Heritage Lab, India, invited curators, students, social media professionals and museum educators to create and share engaging digital stories using open access cultural heritage. New online resources including storytelling tips, inspiring open access collections and guidance on using digital tools were created for the festival. 40 varied submissions, including creative writing, history pieces, animations and videos were received from around the world. The festival closed with an online awards ceremony that announced the prize winners and runners-up, and showcased the most interesting festival entries.

We also shared artworks from Europeana with over one million DailyArt app users, and published guest blogs in their [online magazine](). We participated in the #ColorOurCollections campaign and promoted Europeana's colouring books including the new edition about [Sports Heritage](). In addition, we continued the cooperation with the #DisHist community, raising the awareness of disability in cultural heritage and historical material. For example, we invited disability historian Daniel Blackie to speak at our Europeana Café on the theme of [Diversity and Inclusion]().

Europeana Transcribe
[Europeana Transcribe]() is a crowdsourcing platform allowing users to add transcriptions, tags and georeferences to historical material (historical letters, diaries and pictures). F&F and EF encouraged and facilitated the transcription of historical material by organising online events and runs. For example, the [Sachsen at Work Transcribathon Run]() (Aug 2020 - Feb 2021), the [Manuscritos no palco (Manuscripts on Stage) Transcribathon Run]() (May - June 2021) or the continuous online [Stories of the Month Run]() which started in June 2021. Over one year, this contributed to an increase of 29.1% in characters transcribed. Transcribed documents were sent back to Europeana to make content more accessible. This year, about 3,000 page transcriptions were transferred.

Screenshot of diverese content on Europeana Feature page

Engage with educational communities

In the past year, we focused on outreach to raise the digital capabilities of new educational audiences, particularly museum professionals and other non-formal educators. We promoted Europeana and its offer to the museum and educational sector by attending and speaking at events, and conducting webinars and workshops. Teachers using Europeana services at our events evaluated Europeana with an excellent average satisfaction rate of 87%.

We collaborated with educational partners on cross-promotion and joint community outreach campaigns. In March 2021, for example, we contributed to the Annual Open Education Week and All Digital Week campaign.

One highlight this year was the educational challenge #reinventingBeethoven to celebrate the 250 anniversary of Beethoven's birthday (Oct - Dec 2020). This competition invited teachers to introduce Beethoven's life and work to students and to encourage students' creativity with cultural heritage resources. 28 groups of students from 11 countries around the world took part. In addition, Euroclio published a new source collection on Historiana about the life and work of this historical figure.

Happy Birthday Beethoven (project created by 11-14 year-old students, coordinated by Elisabetta Nanni from the IC Rovereto Nord, Italy). The project created an interactive exhibition around Beethoven's life and work and an escape room in Beethoven's Bonn house), Elisabetta Nanni, 2020, CC BY-SA

A new multi-aggregator collaboration explored how to ingest more audiovisual (AV) material for the classroom and how to make it accessible in the education space. The Task Force developed recommendations around five key areas: media literacy, co-creation and dialogue, multilingual access, resources allowing deeper and creative interaction (My Profile and galleries, crowdsourcing, Unified Media Player) and copyright.

Europeana Education community
Our work was supported by the Europeana Education community, composed of professionals who believe in the important role culture can play for innovative teaching and learning. The Education community, for example, was involved in the development of the Porto Santo Charter, a proposal to policymakers, cultural and education agents to rethink the parameters of culture and showcase how communities, digital technologies and education can foster (or contribute to) inclusive spaces for all, via cultural democracy and cultural citizenship. The outreach to the Europeana Education community was very successful in the past year, resulting in a 74% increase in community members (1,810 members in total) and 42% increased reach via key communication channels (mailing list, LinkedIn, Facebook) with 8,545 people reached, for example in August 2021.

We also maintained the Europeana Classroom, our educational offer on the Europeana website, which received about 33,700 visits in DSI-4 Y3.

Educational partnerships
Together with European Schoolnet (EUN) and Historiana (EuroClio), we worked on increasing the use of digital cultural heritage in formal and non-formal education. In the past year, EUN and Euroclio developed a total of 181 new learning resources with Europeana data. We also invested more effort in translating learning resources into different European languages. All Europeana content ever published on European Schoolnet and Historiana received about 416,000 visits in DSI-4 Y3 (Sep 2020 - Jun 2021).

EUN coordinated both the Europeana Ambassador Network and the Europeana User Group and developed new learning resources that were promoted on the Teaching with Europeana blog, the Future Classroom Lab (FCL) and the EUN YouTube channels. In the past year, 1,197 educators from 28 countries were actively involved in creating learning resources.

One highlight this year, developed by EUN and EF, is the publication of the interactive handbook Digital Learning in the Pandemic. It presents the 24 best learning resources produced in the last academic year by educators to help them overcome future challenges of online and blended learning. Eight language versions (Spanish, Italian, Portuguese, Polish, French, Greek, German and Turkish) were added to Europeana Pro.
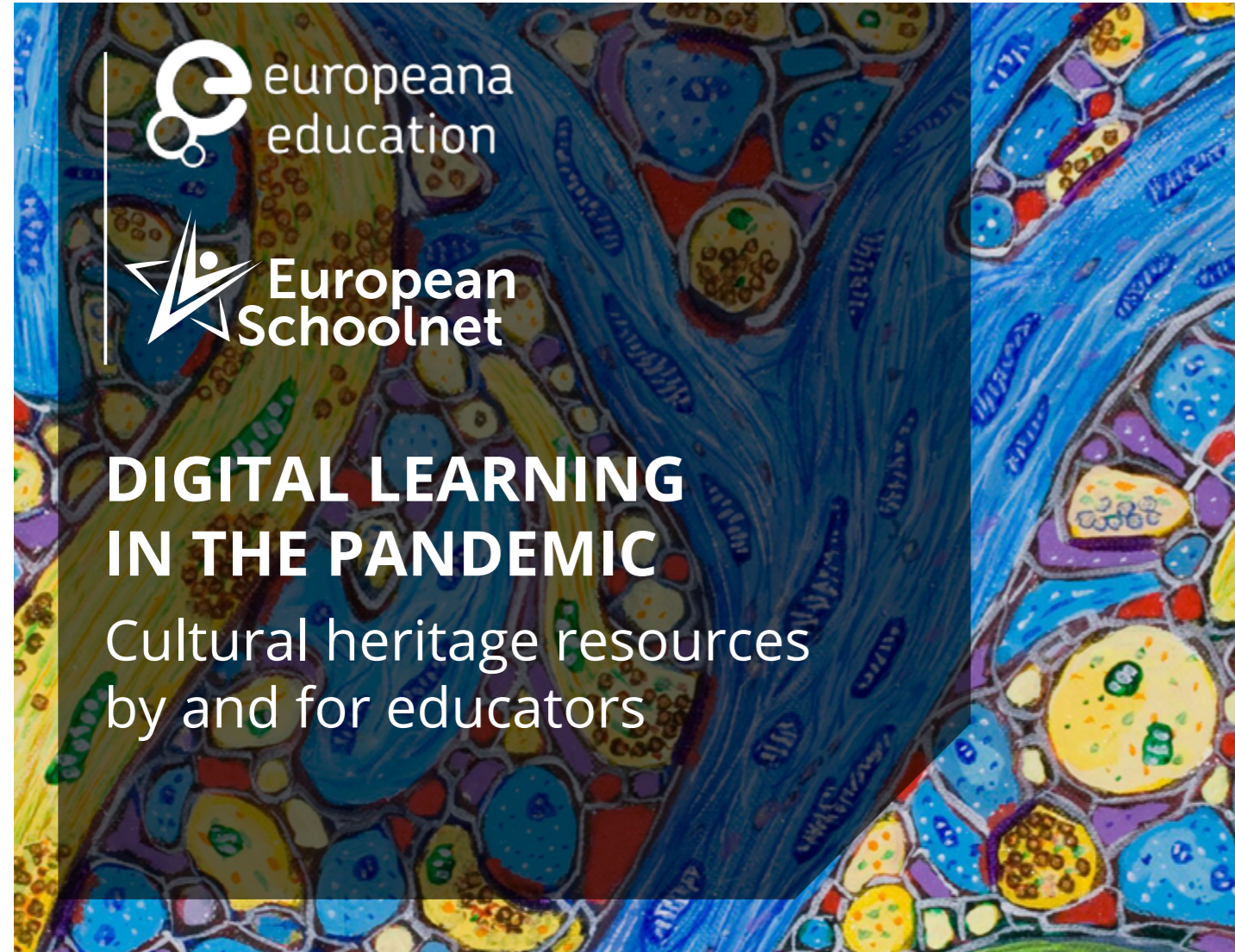
Screenshot of Digital learning in the pandemic - cultural heritage resources by and for educators

Another highlight was the Europeana MOOC Digital Education with Cultural Heritage. Over 2,100 people from 67 countries registered for the course and 547 participants completed the MOOC and got a certificate (50% completion rate). 99% of post-survey respondents rated the overall value of the course as good or very good and 95% agree or agree strongly that they will use the ideas and examples presented in the course in their everyday work.

In April 2021, in the framework of the 2021 STEM Discovery Campaign, EUN organised the Europeana Education Competition 2021. The campaign invited teachers, museum educators and CHI professionals to find innovative ways of using Europeana content in their educational activities. 89 participants from 18 countries participated with 58 eligible submissions (42 were learning scenarios and 11 stories of implementation) from which 24 winners were selected. The winners' contributions will be published on the Teaching with Europeana blog over the coming months.

A main highlight this year is a new offer on Historiana for CHIs and their educational audiences. EuroClio developed five new partner pages on Historiana to encourage CHIs to develop their own learning materials with Europeana content and engage directly with their educational audiences using this free virtual space.

EuroClio also developed an online course and tutorials for newcomers to Historiana, an advanced webinar series to support more experienced users of Historiana, and a train-the-trainer session to increase the number of trainers reaching more educators with their offers.

EuroClio actively promoted Historiana's educational offers to the cultural heritage sector. Since March 2021, a new space on the EuroClio portal has promoted the Historiana platform and materials developed (webinars, tutorials, featured source collections, guides and case studies, etc). At the same time, EF and EuroClio published a new space on Europeana Pro with information for CHIs on the opportunities of creating a partner page for history education on Historiana.

New integrations of Europeana educational offers in external platforms
In the past year, we integrated Europeana sources (manually curated or via the Europeana APIs) in four new educational portals: three new integrations at ministry level (Poland, France, Netherlands) and one new integration on Canva (a graphic design platform with worldwide reach).

Currently, Europeana content is integrated into the portals of seven Ministries of Education (France, Spain, Portugal, Flanders-Belgium, Greece, Poland, Netherlands). This year we have updated the Europeana spaces in the respective

Ministries of Education and included more learning resources, particularly learning scenarios that were produced for the MOOC Europeana in your classroom 2020 in Spanish, Portuguese and French.

EF also initiated other kinds of collaborations with the ministries focusing on the dissemination of Europeana activities. For example, INTEF (Spanish ministry) supported the #reinventingbeethoven challenge through their social media channels and by including the relevant information on their homepage during the challenge.

Attract API users and grow data usage
This year we doubled our efforts to encourage the use of APIs that support the development of new products, services and creations with cultural data. Activities were in line with the API engagement strategy developed in DSI-4 Y2. Efforts included re-connecting with the developer community and getting feedback from them about how we can improve our API offers. Based on the user feedback, we updated current API resources, user journey and documentation pages on Europeana Pro (including updates to libraries and plugins page, API Key retrieval form, terms of use page, and a new 'Harvesting and Downloads' section). The updates make it easier for API consumers to use the Europeana APIs for their own projects.

EF undertook user research (interviews and a survey) to generate feedback on the API outreach work. Research showed that people using the Europeana APIs are overall happy with its functionality while the service can improve its onboarding experience, provide more direct communication with users, and highlight use cases. User feedback made clear that the community is less interested in new products and services. Therefore we did not progress creating a reuse package for CHI professionals. We identified that the main needs of API users are clear documentation, transparency and solid support. Therefore, we will continue to focus our efforts on visibility of our API suite and to keep the developer community up-to-date with changes, as well as providing personalised support to developers who want to use our APIs, and on maintaining and updating our documentation.

In the past year, we recorded an average of about 30 million external API requests per month. The number of users increased to almost 200 users a month (+ 17.4%) and users were very much interested in our APIs with an increase of + 33.7% sign-ups (a total of 965 API sign-ups in DSI-4 Y3). Extensive efforts in fostering the current API developer community possibly contributed to the increase.
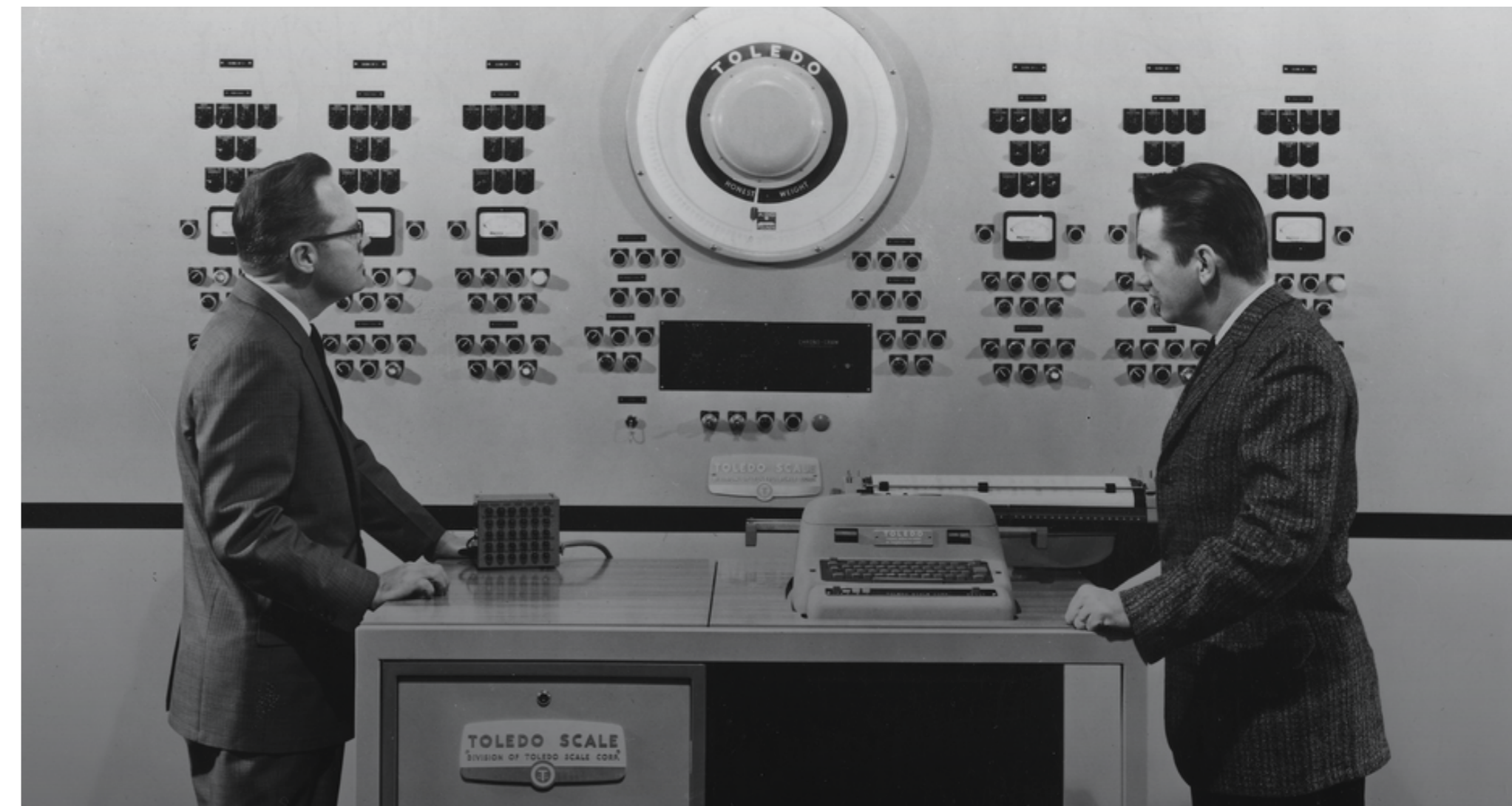
Toledo Scale [...], Swedish National Museum of Science and Technology, Public Domain

IMPROVE DATA QUALITY

In the past year, we increased high-quality content and metadata to improve access to and reusability of digital cultural content. This included new technological approaches of enriching data, such as crowdsourcing and machine-learning. These efforts also contributed to a more satisfying user experience on the Europeana website.

Europeana data repository
The Europeana repository currently offers access to over 52 million digitised cultural heritage objects from thousands of cultural heritage institutions: libraries, museums, archives and audiovisual collections from all EU Member States. In the past year, the repository grew by 4.6% which equates to almost 2.3 million more records available.

Most of the content is image items (56.2%), followed by text (41.3%), sound (1.5%), video (1.0%) and 3D (0.03%). 48.4% of the objects are in the public domain or licensed for free reuse (0.5% increase) while an additional 25.3% (1.5% increase) allow for some kind of reuse, for example, educational purposes. This equates to most of Europeana content allowing for some kind of reuse (73.7%), supporting our aim to provide (openly) accessible digital cultural heritage resources.
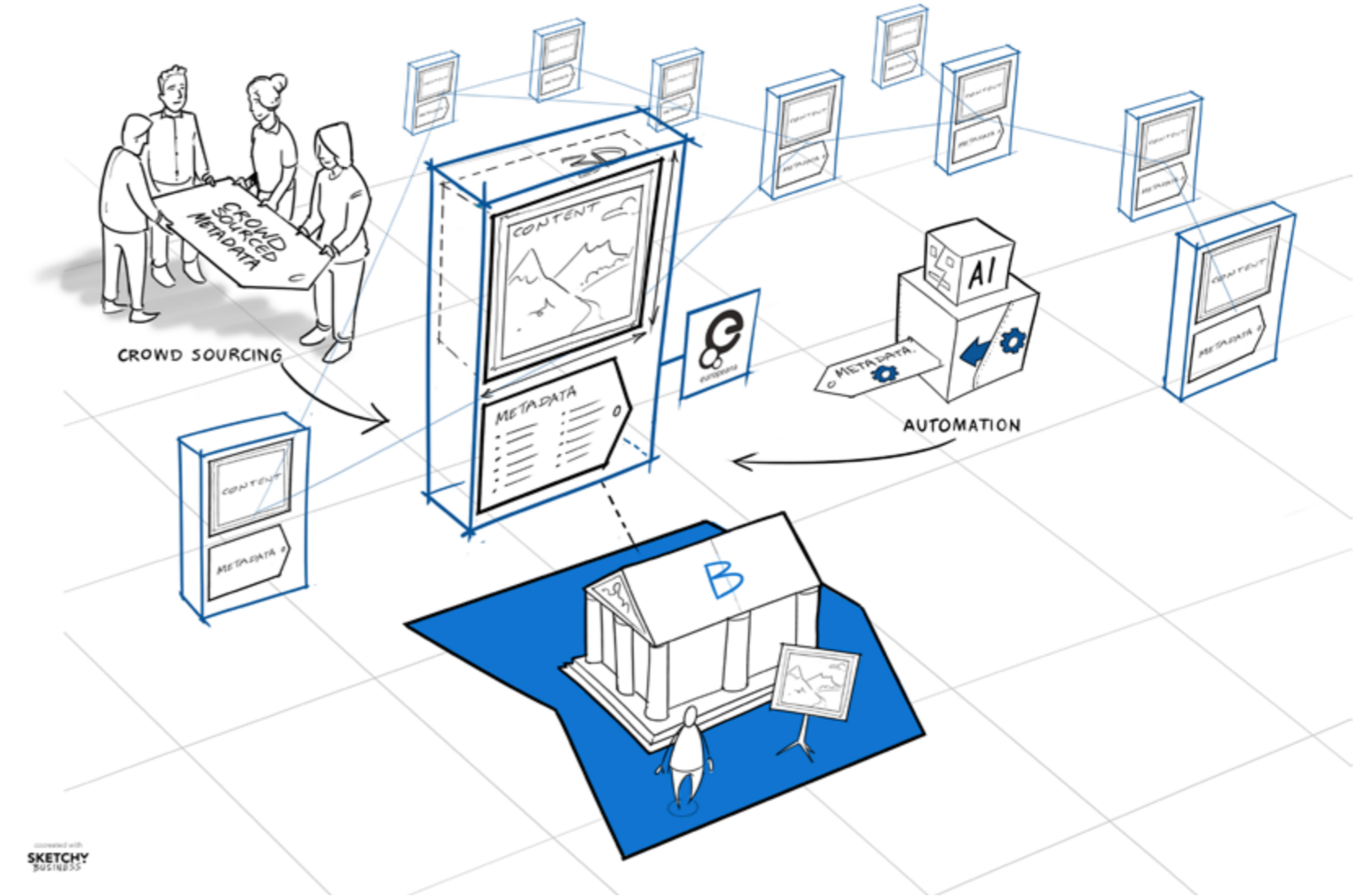
Data quality, Europeana Foundation and Sketchy Business, 2020, Public Domain

Quality assured data

The data issues that have developed over the past decade can only be resolved through a multi-year effort. In the past year, we continued to work with aggregators and data providers to raise the quality of content and metadata. As part of this effort, we further developed our data and publishing frameworks, standards and documentation for partners and influenced global interoperability through our networks.

Raise the quality of content and metadata
EF supported data partners with data quality improvements and data publication (DSI AGG, GS projects, and others). Efforts done by DSI AGG, GS project partners and EF resulted in a total of 441 datasets and over 12 million records updated in the past year.

We made good progress on improving content quality. The updates led to an increase in Tier 2+ content of 4.96%, which resulted in a total of 68.19% of Europeana content being in Tier 2+ (Aug 2021). Tier 3+ content increased by 4.48% which resulted in a total of 46.25% at Tier 3+ (Aug 2021). In addition to bringing in high-quality content from new institutions, the improvements mainly reflect the investment in providing direct links to digital objects and adding links to higher quality digital object representations to the metadata. Additionally, our efforts to resolve broken links had a significant positive impact on the tier stats.

We also made very good progress on metadata quality improvements, which is visible in the 9.65% increase of Tier A+ metadata, which resulted in a total of 64.97% at Tier A+ (Aug 2021). DSI AGG invested in language attributes which will help in the long term to improve the multilingual search on the Europeana website. The use of linked open data vocabularies increased which helps to contextualise content and improve discoverability.

The majority of data quality improvements, new content added and new CHIs published during DSI-4 Y3 were provided as part of the [Europeana Common Culture](#) (ECC) project. The former project partners continued to provide updates and published new content after the project ended. ECC partners account for 96 new CHIs published in Europeana during the past year (in total we published 141 new CHIs).

DSI AGG continued their efforts and investments in content and metadata quality and published high-quality collections from new CHIs. Below are some highlights of the past year.

- MCA improved datasets from former EU-funded projects and routed them to the MUSEU-HUB aggregator. One example is the Epigraphic Database Roma, published under the Linked Heritage project in the past.
- CARARE maintained and extended 3D collections, using mostly the Share3D platform which is an important source for high-quality 3D content. Another example is content provided by Slovenian and Serbian partners of CARARE.
- Photoconsortium published an update of the collections from KU Leuven (including new content), which is almost entirely content of the highest possible quality (content tier 4, mostly metadata tier B).

DSI AGG not only contacted and supported new CHIs but also published 12 of them in Europeana. For example:

- The high-quality collections from the Bulgarian National Film Archive via DFF (content tier 3 and metadata tier B),
- The collection from the Musée d'Archéologie nationale - Domaine national de Saint-Germain-en-Laye via CARARE (content tier 3 and metadata tier B),
- The collection from the Museo archeologico nazionale 'La Civitella' via MCA (content tier 3 and metadata tier C).
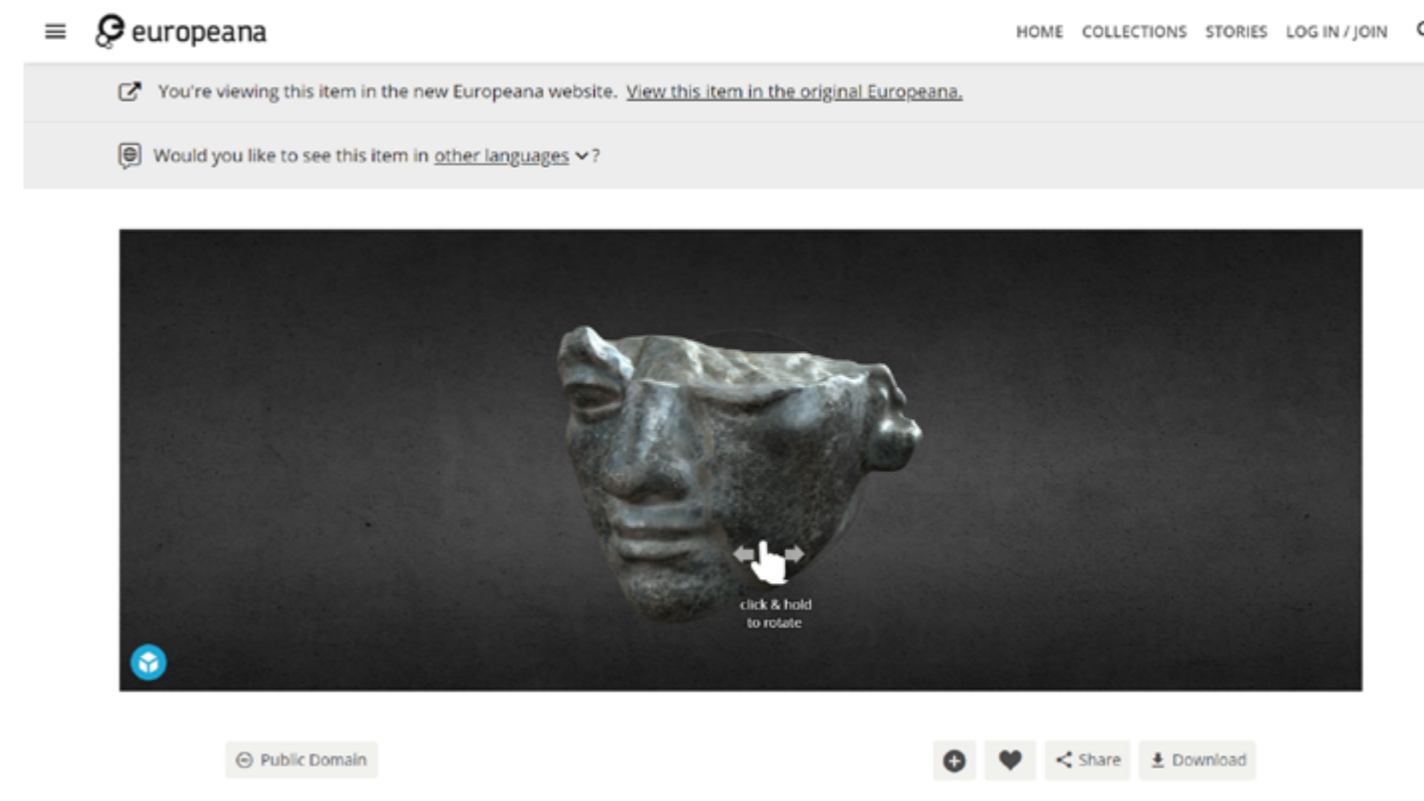
Screenshot of newly added high-quality 3D content on Europeana

Not all of the collections added or updated are large, therefore the impact on the overall quality figures is not huge either. Smaller contributions are still very important for the growth of the network and for achieving our goals to support CHIs across Europe (small and large) with their digital transformation. Those are also important to power editorial features and content dissemination.

SPK studied the feasibility of growing full-text newspaper sources and delivered a report about the current state of the Europeana newspapers thematic collection and the status of newspaper digitisation in Europe. The report also identified recommendations for improving user satisfaction, data quality and capacity for dealing with newspaper full-text resources in Europeana.

The objective of raising the quality of content and metadata was supported by the [Europeana Aggregators' Forum](#) (EAF), [Data Quality Committee](#) and the working group of [IIIF & Europeana](#).

Broken links
In the past year, EF established a regular link-checking process using a solution named CLIO, Checking Links in Operation, to automatically detect broken links in the repository. This tool supports EF's work on resolving legacy broken links as well as new ones. Since the end of 2020, we have consolidated the weekly CLIO reports into broken links reports. As part of the process, we inform data partners

about the datasets in which key links are consistently broken and work with them to either fix the links or decide which datasets need to be depublished.

This led to a significant decrease of datasets with broken links. In November 2020, we counted 334 datasets with broken links (1.1 million records) while in June 2021 we counted only 26 datasets with broken links (0.75 million records). We also saw a drop in the numbers of items not compliant with the EPF from about 10.5 to about 9.9 million records.

Work on inactive data partners
About 20 million records of EPF-compliant content come from inactive data partners or aggregators that have not been accredited. It is a challenge to meet quality standards if providers have lost contact or are no longer making updates. As a new strand of work, we engaged with inactive data partners to explore the potential to revive their collections, either through an existing accredited aggregator or by reviving the inactive aggregator. In some cases, reconnecting with the data partner led to a renewed relationship and new data deliveries with improved data. For example:

- eSbirky (Czech museum aggregator) updated their entire [collections](#) including high profile content that was used for editorials in the past (Art Nouveau content).

- The Slovenian National Library (Slovenian national aggregator) took over the data from a regional aggregator (Kamra) to reconnect more than 50 Slovenian CHIs to Europeana.
- Arts Council Norway is in the process of updating the entire Norwegian datasets which will affect several million records.

In other cases, it led us to realise that a reactivation of the partnership for improved data is not possible and datasets were depublished.

Accredited aggregators
With the accreditation scheme we help to identify active aggregators and acknowledge their role as trusted partners for CHIs wanting to publish their data on Europeana (and other platforms in the wider network). The scheme also encourages aggregators to share knowledge, best practices and foster an effective collaboration. In the past year, the Europeana Aggregators' Forum (EAF) welcomed three new accredited aggregators: Technische Informationsbibliothek (TIB), Cyprus Ministry of Education and Culture, and Estonian e-Repository and Conservation of Collections.

Fotografi, 1913, Museum of Gothenburg, Public Domain

Maintain data and publishing frameworks, standards and documentation
A crucial part of our service is to provide frameworks, standards and documentation to support high-quality data and the interoperability of cultural heritage data, specifically through the Europeana Publishing Framework (EPF), the Europeana Data Model (EDM) and the Europeana Licensing Framework (ELF).

In the past year, we reviewed related documentation to improve its usefulness for partners. As a first step, we developed recommendations for how to improve the usefulness of guidance materials. Satisfaction surveys from the past two years revealed that the current documentation, published online on Europeana Pro, needs to be improved. Web-based documents, more efficient search, a clearer document hierarchy, and the adjustment of the language are the key recommendations to improve the usefulness of the guidance material.

This year, we also progressed with the extension of the Europeana Publishing Framework (EPF). Implementing and amending the EPF is an iterative process. Based on the experiences and lessons learned with one iteration, we worked on a new iteration to improve various aspects of the EPF. After a second iteration of the EPF in summer 2019 that added the metadata component to the framework, we identified steps for a third iteration. This third version proposes a new direction for the EPF framework as a whole including a review of the framework based on the result of CHI case studies, updated guidance materials, several improvements

on the EPF, and an implementation plan for the resolution of the long-tail data issues.

We also researched the motivations and ambitions of CHIs publishing their collections in Europeana which were documented in the form of case studies. Additionally, the work of DSI AGG illustrated the value of high-quality digitisation for achieving individual CHIs' goals regarding content discoverability, outreach and audience engagement.

CARARE, for example, delivered a case study that illustrates how high-quality 3D reconstructions can be used in a range of different applications – in museum exhibitions, on archaeological sites around the museum, for tours, for education groups, in printing and online. Publication of the 3D models in Europeana (and on Sketchfab) additionally improves their discoverability.

Photoconsortium delivered a case study that illustrates that high-quality content and metadata are only the starting point for a journey that requires a multidisciplinary effort of curation, both on the metadata side (by offering rich and relevant information that allows for the content of interest to be retrieved and interlinked), and on the co-curation and storytelling side. This journey enables users to associate interesting meanings with the content itself, and to share these meanings with others.

In collaboration with the Europeana Data Quality Committee, a report was prepared to present use cases and data examples for enabling the representation of events in EDM. EDM was also fine-tuned to represent subtitles, and we worked on improving the modeling of user sets and provenance of metadata enrichments in support of GS project outcomes.

To support data partners in their data monitoring and reporting activities, we also progressed with a new version of the Statistics Dashboard. The dashboard was reviewed and updated including new designs and a new back-end infrastructure. It allows users to select statistics for a series of dimensions and filters (per metadata and content tiers, country, rights statement etc.) and to filter them. The dashboard will bring value to aggregators and CHIs by providing information on data quality for content available on Europeana and hence on areas for data quality improvements.

Influence global interoperability and technological innovation
EF and NISV used their expertise to influence and organise technical innovation across the cultural sector. We influenced and organised global interoperability efforts by co-ordinating and contributing to various Working Groups, Committees and Task Forces, not only to shape the global interoperability and innovation agenda, but also to keep up with recent developments and to maintain our own knowledge and skills. Most notable is EF's contribution in the executive committee of the IIIF Consortium and associated working groups.
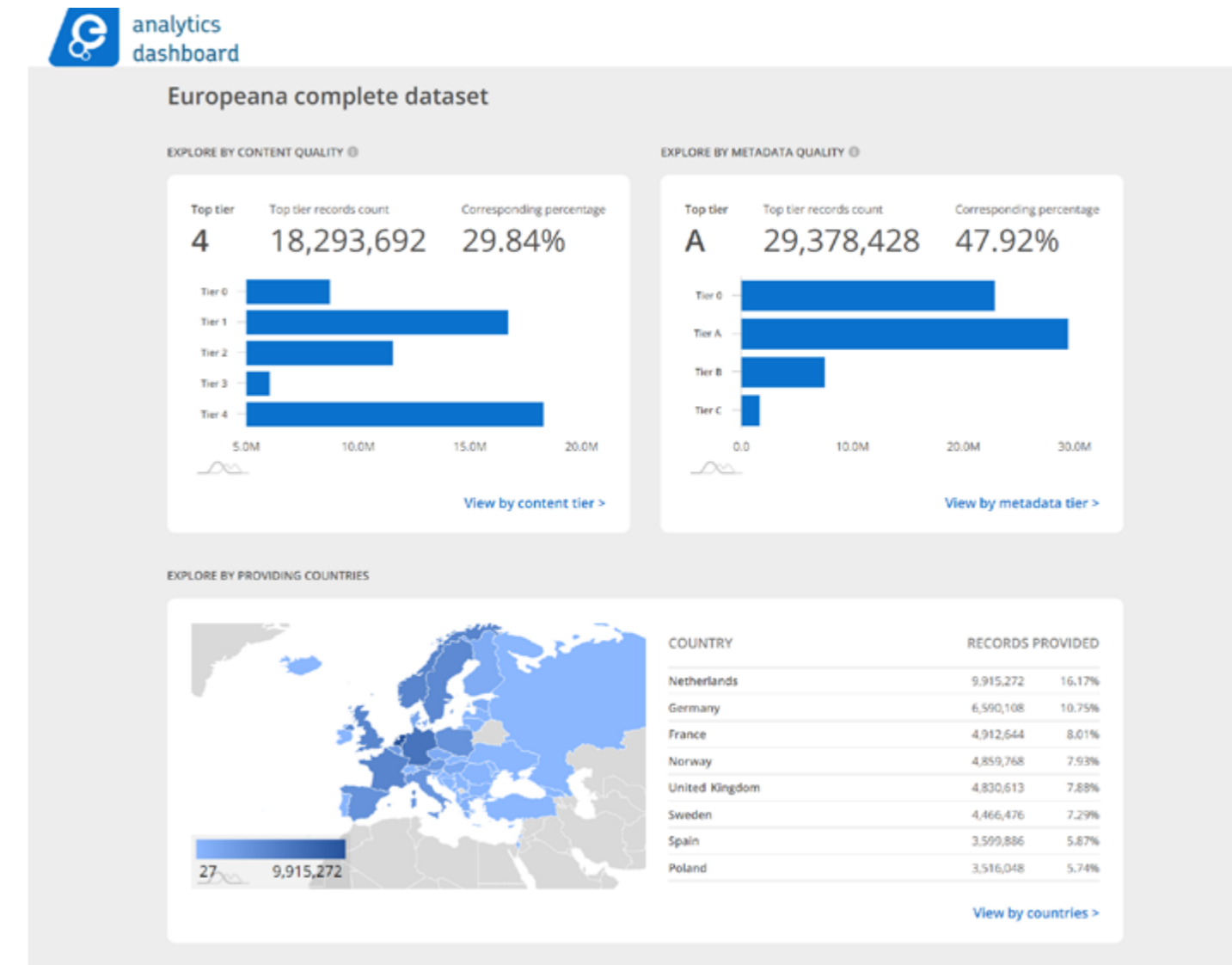
Screenshot of Statistics Dashboard

The most visible outputs from the interoperability and innovation work were the numerous research papers and presentations that were reported on throughout the year. Those mainly revolved around artificial intelligence, multilinguality and semantics.

EuropeanaTech community

EF, SPK and NISV collaborated with the EuropeanaTech community - a community of experts from the R&D sector making sure that the Europeana Initiative leads the way with technological innovation in the cultural heritage sector. One highlight this year was a challenge calling for proposals about suitable artificial intelligence (AI) and machine learning (ML) datasets, drawn from Europeana collections. The objective was to obtain large, well-documented datasets that are shaped for direct take-up for AI/ML purposes (such as training a model) and that can be made publicly available on relevant online platforms under open licences. In March 2021, three winners were announced and awarded financial support for the production, documentation and publication of the datasets.

Another highlight was the Exploring AI in the cultural heritage sector Europeana Pro News series which shed light on AI-related projects and initiatives in the cultural heritage sector. The end of the series coincided with the beginning of the EuropeanaTech x AI Webinars, a webinar series to explore the opportunities and challenges of working with AI in the cultural heritage and arts sector.

Under the governance of the EuropeanaTech community, EF also supported two Task Forces. The Interoperability of annotations and user sets Task Force aimed to foster interoperability in the Europeana ecosystem across the applications and projects that include annotations.

The Task Force inventorised use cases from its participants and analysed the data requirements raised from the use cases, related those to the relevant part of the EDM Annotation profile, and (partly) implemented those in the Annotations API. The AI in relation to GLAMs Task Force investigated the role and impact of artificial intelligence and machine learning in the cultural heritage sector. The Task Force conducted research which revealed that AI/ML-related projects are manifold. The main challenges identified relate to the required skills and expertise, the availability of appropriately annotated training data, concerns regarding ethics, as well as the complexities of tooling, evaluation and integration of AI into existing infrastructure.

In the past year, EuropeanaTech continued its general outreach activities via dedicated pages on Europeana Pro, the EuropeanaTech mailing list and the @ EuropeanaTech Twitter account. The community saw an increase of 12.2% with almost 6,400 people reached via key communication channels in August 2021.
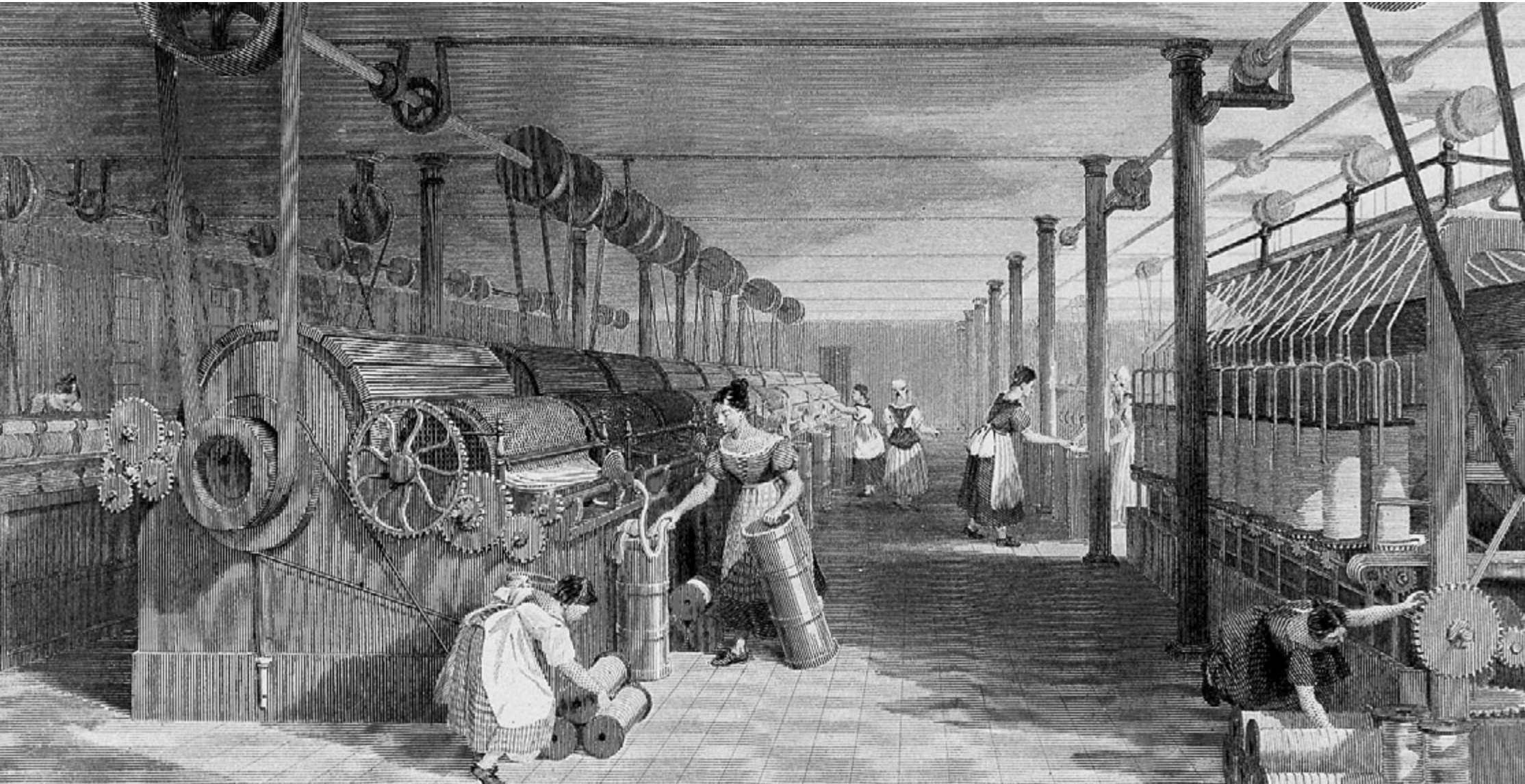
Carding, drawing and roving, Wellcome Collection, CC BY

Enriched data

The focus on enriched data is vitally important to the Europeana Initiative. As the scale of data publishing grows, new technological approaches are needed to improve the accessibility and use of cultural heritage data.

Extend entities to support better browsing
The extension of entities to support better browsing helps categorising items more usefully for Europeana website visitors. Entities are terms that represent a class of items and provide the basis for the collection browse experience on the Europeana website. For example, entities that support browsing by topic.

Over the past year, we redeveloped a new entity framework for data ingestion and updating to be able to update the metadata behind entities in a more flexible and automated way. This update allows the entity-powered collections to always be up-to-date and be progressively expanded to cover more topics. Before this redevelopment, making an update was very resource-intensive, which meant an update hadn't been performed since September 2017. As part of the redevelopment into the new entity framework, we also expanded the functionality to add or remove entities - a process which can now be done at any moment by EF staff. From this point onwards, we can expand the number of entity-powered collections as needed.

To support the development of organisation pages (see section 3.2), we created a new type of entity for organisations and updated our repository with information on the organisation profile which is collected via our CRM system Zoho. Finally, we have improved our mappings in order to collect more and better relationships between entities, in particular relationships between people. With the new entity framework, we are able to apply the new mappings to the full list of people. For the first time, Europeana has proper relationships between people in the data, which helps the user to browse between collections using such relations.

Use crowdsourcing and machine-learning to enrich metadata

As crowdsourcing and machine-learning tools become more accessible, more and more Europeana partners are using these methods to enrich their metadata. This year, several DSI AGG experimented with and used crowdsourcing and machine-learning to enrich data before it is ingested by Europeana.

EFHA organised one crowdsourcing (or better niche-sourcing) campaign, together with more than 25 fashion archivists at the Fondazione Fashion Research Italy in November 2020. This involved the classification of the object type in about 4,000 Europeana records that were missing this information. The niche-sourcing campaign involved a targeted set of professionals, rather than opening the contribution to an undefined 'crowd' because a trustable outcome was more likely to be reached by engaging experts. For this campaign, EFHA used the CrowdHeritage platform.

AIT Graz used the LinBi enrichment platform to curate metadata enrichment and to cluster content through expert crowdsourcing. New user sets created were published on Europeana.

NISV developed an illustrated toolkit aimed at engaging teachers with the concept of subtitle-a-thons and encouraging them to host events themselves. The toolkit provides a step by step overview of the logistics of setting up an event and marketing it, with a set of illustrated instructions.

APEF worked on various approaches to enrich metadata manually by adding contextual classes. The first project worked with crowdsourced expert input in order to enhance the existing metadata by including subject headings and URIs from LOD vocabularies (e.g. LCSH, TGN). The second project looked into the inclusion of contextual classes at the time of metadata creation. A third project used a topic-based research in Archives Portal Europe as its starting point to identify archival material connected with high-quality content and worked through the metadata of the selected collections in a second step by including various contextual classes from agents to subjects.

Additionally, APEF developed the automated topic detection tool, available as a web-based application (alpha version). It currently offers two types of searches - for entities and for concepts. For entities, a connection is made to Wikidata and

to the Virtual International Authority File (VIAF), from which the tool draws name variations in all languages available to check against the data. For concepts, the tool uses Fast-Text word embeddings that represent each document's 'meaning' in a processable way and enable the identification of semantic connections across multiple languages.

BL used OpenRefine to semi-automatically create wikidata URLs for 3,000 recordings that are part of wildlife species collections. The URLS have been converted from the Latin species names and then manually checked. The records are published on MINT and are ready for the next ingestion into Europeana.

CARARE extended the metadata enrichment services on CARARE's new aggregation services, Repox Flow. Work commenced to integrate the vocabulary mapping and enrichment tool developed by the Europeana Archaeology Generic service project into Repox Flow.

Photoconsortium completed one crowdsourcing campaign to manually enrich metadata for the collections of the Photoconsortium partner NALIS. The campaign took place during a citizen science workshop with students in May 2021 and was organised by Bulgarian Photoconsortium partners NALIS and University of Sofia. This activity resulted in almost 5,500 annotations that will be sent to Europeana for publication.

F&F maintained the Europeana Transcribe platform (including development and bug fixing) and in collaboration with EF transferred transcriptions to Europeana (about 3,000 page transcriptions in DSI-4 Y3).

Example of transcribed item (Europeana 1914-1918, CC BY-SA)

Establish machine-learning platforms

This year, we explored how shared machine-learning (ML) platforms may be of benefit to the cultural heritage sector. A technical discussion paper on the topic was written that outlines a high-level strategy and some first actions that EF can undertake, organised in the following areas: data access and developer interfaces, datasets for ML, data sharing, knowledge sharing and capacity building, and an in-house machine learning pilot. The paper was shared with the EuropeanaTech community to discuss subsequent actions. EF started to carry out some of the actions, like publishing Europeana datasets on third-party platforms or experimenting with image classification.

We published a Europeana-originated dataset on Zenodo with annotations on the style of 1,614 paintings. This dataset, produced during the V4Design project, can be used for training and evaluating machine-learning algorithms for artistic style detection.

Within our Artificial Intelligence (AI) and cultural heritage news theme on Europeana Pro, we published two posts on image classification experiments referring to a Jupyter Notebook that shows how the trained model can be applied to images from Europeana, producing new annotations that could be used to enrich the metadata for the corresponding cultural objects.

In addition, we considered and applied insights from the current Saint George on a Bike (SGoaB) project. The SGoaB project is using ML to develop insights into culture, symbols and traditions in imagery. We saw that more experiments and finer problem definition are needed. Image analysis using ML in order to recognise pre-identified concepts is a promising area, but it requires a lot of annotated data to work well, especially in cultural heritage, for which out-of-the-box solutions need to be adapted. Our experiments showed that the existing metadata may be used, but often proves not fit enough - either not complete enough or too noisy. SGoaB had to gather thousands of manual annotations of images in order to train object detection for just below 100 concepts with a very narrow iconographic scope, and the process has not even been evaluated yet. We need to identify with all relevant stakeholders a precise problem for which the technology can be applied (alongside manual effort), so that the investment will be justified.

BUILD CAPACITY

The Consortium supported professionals and partners in three principal areas to build capacity for digital transformation. We engaged professionals and partner organisations (both large and small) in capacity-building activities by running events, training and workshops. Secondly, we nurtured our networks, in particular by supporting the operations of the Europeana Network Association (ENA) and Europeana Aggregators' Forum (EAF). This included communication and promotion of activities and resources to our networks. Finally, we strengthened national infrastructures by supporting the adoption of Europeana standards and frameworks and by reinforcing the value delivered by the Europeana Initiative towards digital transformation of the cultural heritage sector.

Build capacity of aggregators and professionals

The Consortium built capacity to support the digital transformation of the cultural sector by delivering rewarding events and training for professionals and aggregators. We also developed a capacity-building framework to facilitate the structural adoption of our capacity-building initiative.

Capacity building, Europeana Foundation and Sketchy Business, 2020, Public Domain
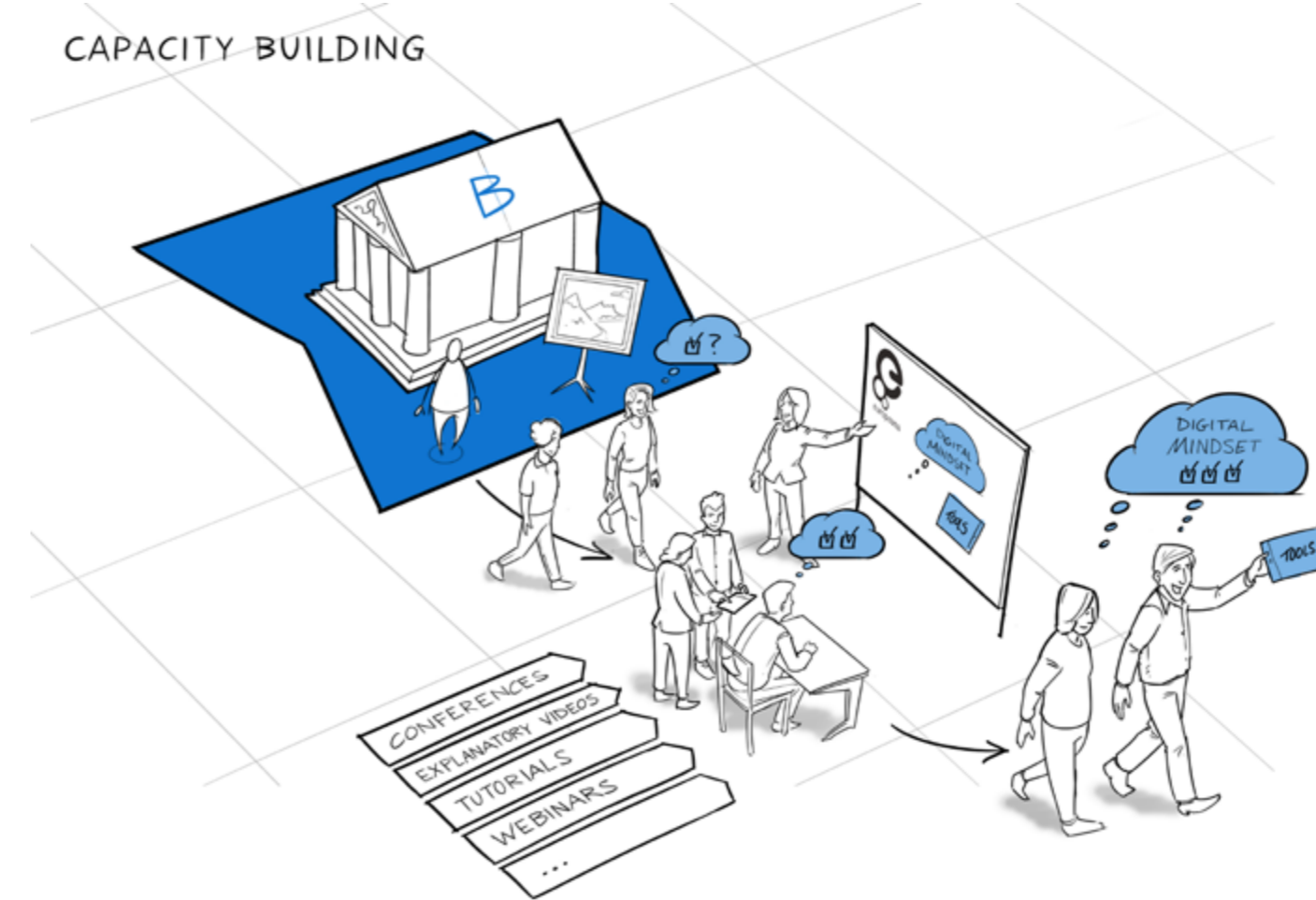
Deliver rewarding events for professionals

We supported Europe's cultural heritage sector in its digital transformation by offering rewarding knowledge experiences for professionals as well as aggregators and CHIs. In the past year, EF worked collaboratively with ENA, EAF and partners to deliver a programme of online events. We (co)organised in total 55 events including workshops and webinars that saw almost 3,400 participants. Those events covered themes such as improved data quality, AI, 3D, impact, copyright, open data, communication, research and education.

One highlight this year was our annual conference Europeana 2020: Crisis, Change and Culture in November 2020. Europeana 2020 was designed to look at three specific areas - digital divides, agency for change and collaboration. The online event saw over 70 speakers, covered 50+ sessions and almost 1,000 cultural heritage professionals joined from across the globe (Europe, India, Australia, Brazil, USA, Philippines, Mexico and more). The event was a success and received a high average user satisfaction of 82%. An impact assessment among participants revealed that the conference strengthened a sense of a community, provided inspiration for professional change and innovation, and that participants acquired knowledge or skills that can be applied in their own practice. Compared to previous years, the conference provided significantly lower network development

Europeana 2020, Europeana Foundation, CC BY-SA

opportunities and outcomes, due to the digital format. On the other hand, the conference was able to reach a much wider audience in terms of number of participants and geographic coverage. Due to its online format, Europeana 2020 also created significant savings for the annual conference's estimated carbon footprint.

In spring 2021, with the increased programming of digital events brought about by COVID-19, we implemented a framework for evaluation and impact assessment. This included aspects on how to improve the accessibility of our events, the confidence in participants' knowledge of the topic before and after the event, satisfaction with the event and needs/demands for future events or training. Information gathered helped us to continuously monitor and evaluate our programme to provide best practices for engaging and stimulating audiences.

Evaluation of our digital events showed that the widened digital offer resulted in our work this year having a much bigger ripple effect across the world - not just Europe. Our audiences are now much more likely to include people from outside the ENA and we see this as an opportunity to reach out and invite non-members to join the Network. We also saw limitations to our approach and ways to improve. A key limitation is the challenge of collecting and accurately reporting on data collected before and after the digital event.

In spring 2021, we also organised the Europeana Digital Spring programme. The webinars and workshops covered in this season-long programme were initially proposed for the Europeana 2020 conference but were not selected. EF gave them a platform in the spring programme instead. 15 workshop/webinar sessions covered topics such as copyright, data science and 3D and were contributed by our global network of partners.

In the course of the year, we developed an events management toolkit to drive the quality of event practice. Building on experiences and lessons learned, the toolkit shares a set of useful guidelines for digital events to benefit ENA communities and the sector at large.

Deliver scalable training for aggregators and CHIs
EF worked collaboratively with EAF, aggregators and CHIs to design, develop and deliver training events and resources that support CHIs small and large in their digital transformation.

As a result of the pandemic, we moved our event programming online. We developed and published a programme of training events on Europeana Pro and we expanded our training offers by publishing all recorded webinars as sustainable resources.

EF trained aggregators to pass on training to all sizes of institutions to build their capacity for digital transformation. In October 2020, within the autumn edition of the EAF meeting, EF organised a train-the-trainer day focusing on product development at Europeana and the aggregation strategy. To follow up, we launched the Aggregator User Group, which will support the feedback loop between the EAF and EF about our products. In May 2021, at the spring edition of the EAF meeting, we organised a train-the-trainer event that focused on artificial

intelligence (AI) for aggregators. It introduced tools and best practice examples developed mainly as part of Generic Services projects.

In August 2021, we completed a survey asking for aggregators' satisfaction with Europeana (21 of the 40 accredited aggregators responded to the survey). The survey showed a high overall average satisfaction of 82.2%. Satisfaction is highest for aspects related to personal support and workflow management by EF (90%) and lowest for the performance of the Metis media service as part of the publication workflow (76%).

Throughout DSI-4 Y3, DSI AGG, with support of EF, delivered 62 workshops, webinars and other outreach activities (e.g. lightning talks and presentations at events). One highlight this year was the Europeana Aggregators' Fair in June 2021 to which many DSI AGG contributed with online sessions. 90 cultural heritage professionals and others with an interest in high-quality, open cultural heritage content followed a programme of 17 sessions. Presentations, panel discussions and training webinars covered how high-quality cultural heritage content is being made accessible to new audiences through Europeana, and how to get involved with the Europeana Initiative. The event received a very high satisfaction rate of 84.8%.

Schulkinder bei Klöppelunterricht, Walter Möbius, 1945, Deutsche Fotothek, CC BY-SA

Throughout the year, DSI AGG also supported 206 CHIs from 29 countries in their digital transformation by providing help desk activities and one-to-one support. DSI AGG shared the organisational and expert knowledge needed to prepare and ingest high-quality datasets for inclusion in the Europeana website. DSI AGG also provided support for mappings, promoted the uptake of multilingual vocabularies and of Europeana frameworks and guidelines. Efforts in DSI-4 Y3 to increase the amount of contributing data providers resulted in 46 new CHIs collaborating with DSI AGG.

F&F and EF developed resources and training to support the adoption of the Europeana Transcribe platform as a service for aggregators and CHIs. For example, we published a page on Europeana Pro that offers the platform as a service/tool for CHIs. We also organised training workshops (e.g. at the Manuscritos no palco and Sachsen at work Runs) and promoted the platform at the EAF meeting in May 2021. Finally, we completed a strategy that ensures the availability of resources and infrastructure to offer the Europeana Transcribe platform as a sustainable service and tool for the Europeana ecosystem.

Develop Europeana Managers Academy
EF and DEN established professional education for management in the cultural sector. We introduced the Europeana Managers Academy which supported managers to work on digital transformation in their organisation on a strategic level. The programme offered guidance and methodologies to drive digital transformation, determine digital maturity, develop digital leadership and incorporate impact thinking. Facilitating conversation and sharing approaches between participants was also an important part of this programme.

The first cohort of the pilot took place from March to June 2021. 16 participants from 12 Member States participated in the programme. All the participants are active in the Europeana Aggregators' Forum. This group was specifically chosen because aggregators have the potential to play a role in future offerings of learning opportunities on a national level. The participants have indicated that the programme exceeded expectations and that they were able to apply learnings in their daily practices. Participants rated the programme with an 8.6 on a 1-10 scale.

We also evaluated the approach of the pilot looking at aspects such as business cases, international challenges, impact measurement and building long-term relationships, for example with an alumni programme. Several recommendations were made.
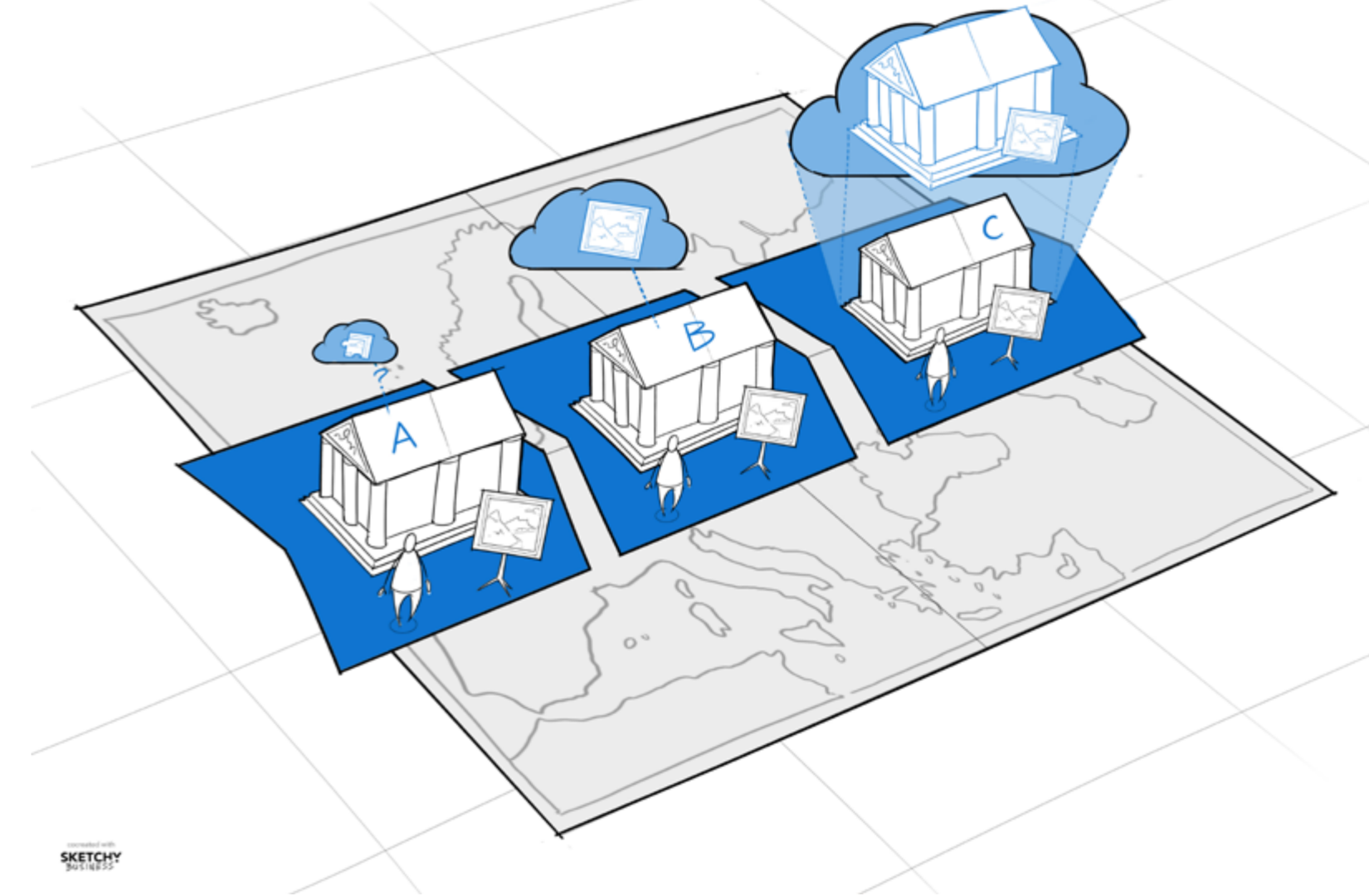
Develop a capacity-building framework

EF worked collaboratively with professionals, ENA and EAF to develop the basis for structural capacity building that enables and facilitates digital transformation throughout the cultural heritage sector. As a first step, we published a definition of digital transformation that is relevant to the cultural heritage sector. 'Digital transformation' is a term that is used in different ways by different people in different sectors. The definition will help us meet the needs of the sector, guide how we think about impact and how we measure our success and, ultimately, the progress of the digital transformation of the sector.

Digital transformation is both the process and the result of using digital technology to transform how an organisation operates and delivers value. It helps an organisation to thrive, fulfil its mission and meet the needs of its stakeholders. It enables cultural heritage institutions to contribute to the transformation of a sector powered by digital and a Europe powered by culture.

Digital transformation - a definition for the cultural heritage sector

Digital Transformation, Europeana Foundation and Sketchy Business, 2020, Public Domain

We developed a [strategy](#) for building and implementing a capacity building framework. The strategy describes the environment in which we operate, the services we offer and breaks down the actions being undertaken to deliver capacity building. Based on a preliminary impact model, the actions are detailed according to the type of impact they intend to achieve. The areas of impact identified aim to empower and motivate professionals to make sustainable changes that facilitate digital transformation. For example, we describe the need for good practices in running and delivering online workshops, which resulted in the development of the [events toolkit](#). Another example is the development of a playbook to support the process of identifying, prioritising, designing and measuring the impact of capacity building activities.

This year we completed the alpha version of the Capacity Building Playbook which offers a structured and measurable approach to developing skills and knowledge towards digital transformation across the sector. It also aims to encourage the use of shared resources for the benefit of the sector.

We also designed measures of change by developing a provisional Theory of Change (ToC) for digital transformation. The ToC isolates three core outcomes, related indicators and an impact statement. Alongside the ToC, we created a

'menu' of available or desired indicators, arranged at an individual, institutional and network (sector) level. A preliminary indicator approach suggests 11 indicators (e.g. pre- and post-activity changes in confidence levels; percentage of digitised heritage content at an EU level) that could give the desired holistic perspective on change in capacity building for digital transformation. Some suggested indicators rely on data from sources outside of Europeana, but most are drawn from data sources already available to Europeana (e.g. ENUMERATE and the evaluation of our events and activities). The ToC will be used to further improve the Capacity Building Playbook and to ensure that impact is at the centre as we further mature our work on capacity building.

Finally, we researched existing training and resources for capacity building offered throughout the sector to supplement our training offers. We launched an [ongoing survey](#) to collect information about existing training courses that support cultural heritage experts and managers to work on the digital transformation of their organisation. The training courses can be offered by institutions including cultural heritage institutions, universities, non-profit and commercial organisations and be on different levels, from strategic to practical.

Nurture networks

In support of our networks, we maintained and developed effective governance as well as the operational activities of the Europeana Network Association (ENA) and Europeana Aggregators' Forum (EAF). We facilitated digital change by developing connections with professionals, partners and other networks such as research communities. Our work was enabled through communicating and promoting the value of the Europeana Initiative, and by developing the Europeana Pro website.

Maintain and develop the effective governance of ENA/EAF
EF continued to provide a secretariat service for the governance of the legally established Europeana Network Association (ENA) and the Europeana Aggregators' Forum (EAF). We supported periodic meetings, managed the ENA and EAF membership, and refined policies and procedures around membership, communications and governance structure.

In the past year, we renewed the Europeana Network Association governance with elections for both the ENA Members Council (November 2020) and Management Board (January 2021 and June 2021).

Another highlight this year was the ENA membership campaign which was undertaken with the aim of providing a better service, updating membership-related information and encouraging an active network. ENA members were asked to renew their membership and to indicate which community they wished to join. Out of approximately 3,400 members, almost 1,000 did not confirm their membership and were therefore removed from the members' list which resulted in a successful retention rate of around 74%.

Maintain and develop the operational activities of ENA/EAF
EF worked with the governing bodies of ENA and EAF to help manage the connections and work of their members, Task Forces, Working Groups and communities. We disseminated ENA, EAF, member and community-building activities through Europeana Pro News and publications, Europeana LinkedIn group and a monthly newsletter.

EF supported the development, validation and publication of ENA and EAF annual reports and ENA and EAF annual work plans, and periodically reported progress to members. We strengthened the alignment of activities of ENA, EAF and EF by identifying opportunities for collaboration and connection of activities on a thematic basis. ENA Management Board and EAF Steering group members started to meet regularly with each other and we launched the concept of cross-Initiative Task Forces in which ENA and EAF will collaborate closely.

3 kvinnor och 7 män [...], 1905, Göteborgs naturhistoriska museum, CC BY

We also worked collaboratively to develop and implement a thematic agenda for the Europeana Initiative, further contributing toward capacity building in these areas. The thematic agenda is a first attempt to provide an overview of the planned work within the (greater) Europeana Initiative according to themes and topics, in order to be able to establish a joint horizon and to identify synergies and complementary work.

Europeana Network Association (ENA)
The ENA consists of more than 3,100 members from across Europe who give time and expertise voluntarily to strengthen the role of cultural heritage in society. In June 2021, we completed a satisfaction survey with ENA members with a good average satisfaction of 67% (based on a 10% response rate).

A main objective continued to be expanding the Europeana network by attracting professionals working in the field of cultural heritage, while keeping the existing network fully engaged and active. This year we completed a strategy and plan that identifies the challenges and opportunities to support the diversity and growth of the ENA, and where possible also the EAF. Particularly, the strategy addresses new and emerging areas of interest, such as diversity in data, and climate action.

In the past year, our reach to the ENA continued to grow. We saw an increase of 28.8% for ENA newsletter subscribers (~ 2,600 subscribers in total) and an

increase of 27.6% (~ 6,000 followers in total) for a LinkedIn profile dedicated to the ENA and the wider network.

Europeana Aggregators' Forum (EAF)
The Europeana Aggregators' Forum exchanges knowledge and best practice that supports aggregators and CHIs in their work.

In October 2020, EF hosted the autumn edition of the EAF meeting online. 83 participants from 22 countries joined over two days and 31 aggregators (out of 38 accredited aggregators) participated in the event. At the event, the recommendations for a European Member States and Commission supported digital aggregation strategy were concluded, and the Europeana aggregation strategy was presented and discussed. Discussions on the Metis sandbox and new developments of the Europeana website were also on the agenda.

In May 2021, EF hosted the spring edition of the EAF meeting online. 83 participants from 21 countries joined over two days and 35 aggregators (out of 40 accredited aggregators) participated in the event. At the event participants discussed important topics, such recovery and resilience as well as diversity and inclusion.

ENA communities
The ENA manages a number of specialist communities whose members share professional interest in specific areas related to creating, preserving and publishing digital cultural heritage online. Communities help ENA members to cultivate and share knowledge, expertise and best practices. The members can sign up to receive the newsletters, join various communication channels and social media groups, and participate in community-related Task Forces, Working Groups, events and meetings.

Currently, there are six active communities: EuropeanaTech, Europeana Research, Europeana Education, Europeana Communicators, Europeana Impact and Europeana Copyright. More details on the individual community efforts can be found in the corresponding content section of this report.

In January 2021, the work plans of the six active communities were formally approved by the Members Council (MC) and published on Europeana Pro. They describe the community budget and activities that every community aims to deliver by the end of 2021: EuropeanaTech, Europeana Research, Europeana Education, Europeana Communicators, Europeana Impact and Europeana Copyright.

ENA Task Forces and Working Groups

EF supports the management of Working Groups (WGs) and Task Forces (TFs). ENA members take on specific subjects or areas of common interest by participating in TFs and WGs. In the past year, between 125 and 145 ENA members participated on a voluntary basis in Task Forces and Working Groups per month.

TFs tackle specific subjects of interest related to the Europeana strategy. TFs run for a limited period and result in the delivery of recommendations on their subject. Recommendations of the completed Task Forces can be found on the respective Europeana Pro pages. Four TFs completed their work in DSI-4 Y3: New Professionals Task Force, Europeana as a 'powerful platform for storytelling', Research requirements, and How-to guide for labelling cultural heritage.

Five TFs are still in progress: Impact Lite, AI in relation to GLAMs, Audiovisual Playout in Europeana, Interoperability of annotations and user sets, and Audiovisual Material in Europeana Classroom.

WGs are set up to address ongoing activities and issues of continuing relevance and run for as long as their purpose requires. One WG completed its work (Europeana 2020/AGM WG/programme advisory committee) and three WGs are currently in progress: Data Quality Committee Working Group, 2020 & 2021 Governance Working Group, IIIF & Europeana Working Group).
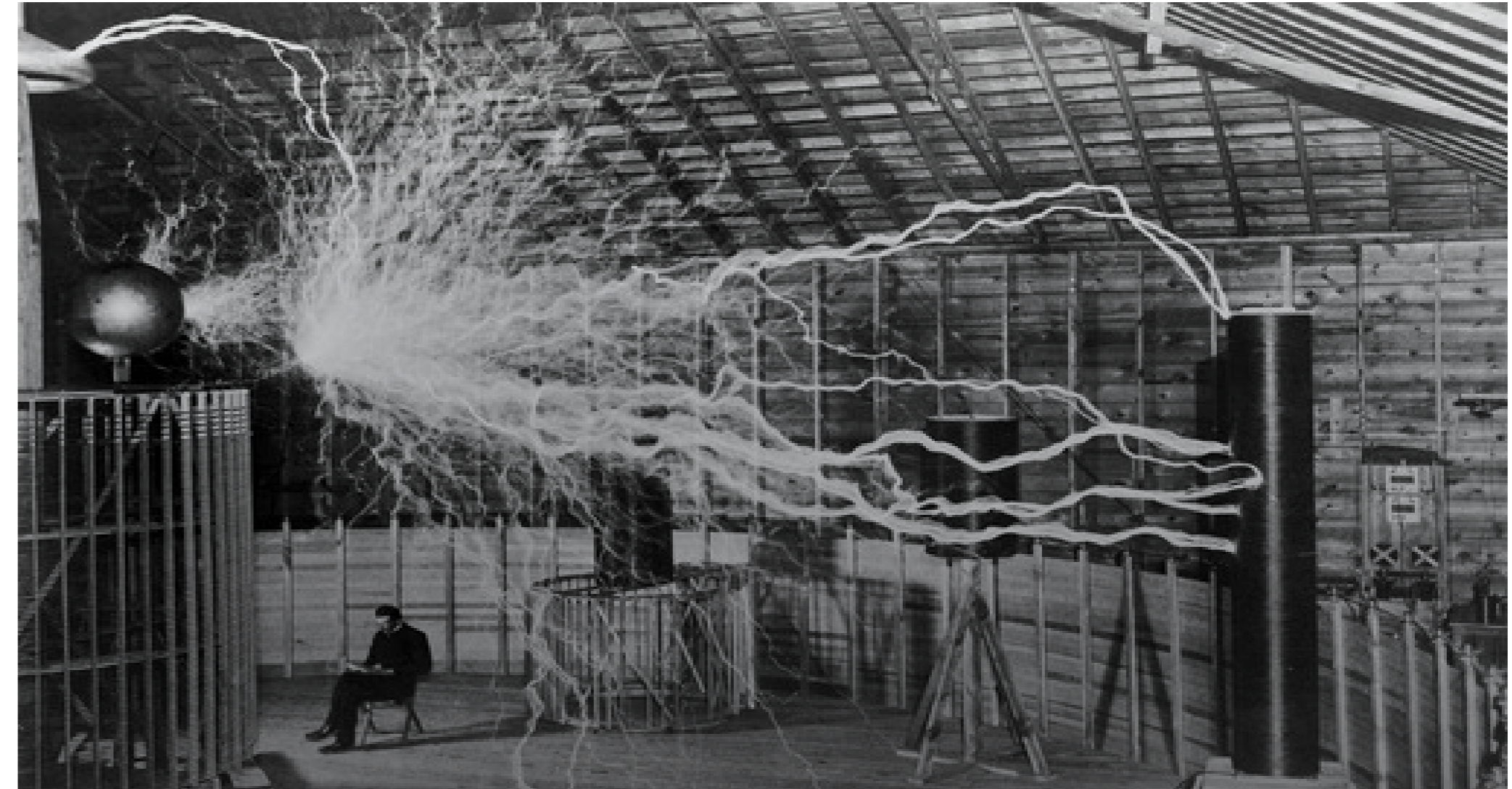
Nikola Tesla, with his equipment [...], Wellcome Collection, CC BY

Engage research audiences

EF fosters collaborations between the cultural heritage and research sectors. In planning its activities, EF continued implementing the Europeana Research Strategic Plan 2019-2020. Its main objectives are to make Europeana services more visible and useful for research purposes, to establish synergies between the cultural heritage and research sectors, and to promote research and innovation in the cultural heritage sector by engaging in international projects. The Europeana Research Strategic Plan was reviewed in 2021 and proposed a series of adjustments to better define and strengthen our approach to Academia and Research.

The work of Europeana Research was supported by the Europeana Research advisory board. Representatives of EF, CLARIN and advisory board members attended and presented at various international events which provided excellent opportunities to expand our outreach to research communities. In June 2021, for example, EF contributed to the programme committee of the Digital Humanities Benelux Conference 2021.

In May 2021, EF organised the Research and digital cultural heritage: New impact Horizons online symposium in response to the growing interest in social impact shown by policymakers, funding organisations, researchers and cultural heritage professionals engaged in promoting the reuse of digital cultural heritage. A

scientific committee of 20 speakers was set up, representing these four points of views. More than 125 people participated in the event, with most of the attendees (62%) coming from outside of the Europeana Network Association. An impact assessment of the symposium showed that there was a clear opportunity to: a) promote the use of the Impact Playbook in designing and assessing the impact of research projects focusing on digital cultural heritage, b) pursue the theme of impact with research communities, including for example, the LIBER Working Group on Digital Humanities & Digital Cultural Heritage.

This year, we also completed a new service for researchers to download datasets. The offer aims to meet the needs of researchers who are interested in data processing and are confident in their own computational competences.

One highlight this year was the 2020 Europeana Research Grants Programme with its strong focus on communities and cross-sectoral engagement. As the new format supports events, which were made much more difficult due to the pandemic, the launch of the 2020 call was postponed to April 2021. The call's theme was 'Crowdsourcing and Research'. In response to the situation triggered by the pandemic and the increasing interest in digital resources and tools available for reuse in university courses, part of the overall budget for the grants was allocated to special prizes that will support the making of video tutorials showing the potential of such resources and tools in higher education.

Approximately 40 proposals were submitted to EF. The winners will be announced in autumn 2021.

Due to the pandemic, the four institutions awarded a grant for the 2019 Europeana Research Grants Programme benefited from an extension of one year to organise their events. The theme of the 2019 call was 'Digital Cultural Heritage for Open Science'. Only one of the events took place as a physical event and the others were held as webinars (video recordings are available on Europeana Pro). The events shared reflections on metadata enrichment in research, digital cultural assets as FAIR data, and masterclasses as a format for the cultural heritage sector. The events reached 280 people in total.

Europeana Research community
EF also continued to support and reach out to the Europeana Research community. In February 2021, we launched a call for research videos to foster the sharing of knowledge and experiences within the research community. We selected eight institutions/individuals engaged in cross-sectoral projects, some of which are led by early-career scholars. The best video submissions will be included in the Europeana Research community video series.

In August 2021, EF also completed a report based on contributions made by the Research requirements Task Force, which aimed to support its members

in understanding researchers' needs. The report offers relevant insights into researchers' behaviours in accessing, processing and publishing cultural heritage assets, the problems they encounter, and their needs in terms of skills and training. The report is available on Europeana Pro.

Our outreach to research communities in the past year resulted in a 25.1% increase of people reached via key communication channels (mailing list, Twitter). In August 2021, for example, we reached almost 6,200 people.

Collaborations with research networks
CLARIN, in collaboration with EF, curated and published datasets of Europeana content on the Virtual Language Observatory (VLO) which allows their reuse with a variety of digital tools. The number of records from Europeana increased from 275,000 (October 2020) to 327,249 (April 2021). CLARIN also published a video to explain how it contributes language resources to the European Open Science Cloud.

Additionally, all openly licensed content from Europeana was integrated into the OCLC's WorldCat platform. OCLC is a global library cooperative that supports thousands of libraries in making information accessible around the world, and works to enhance the visibility and accessibility of open content (see example on the OCLC platform).

Respublikinės sporto organizacijos „Sporūta" dalyviai, Zarasų krašto muziejus / Zarasai Area Museum, CC BY

Communicating and promoting to professionals and partners

We communicated and disseminated our wide-ranging activities to empower professionals and partners to build digital capacity and to reinforce Europeana's values of openness and interoperability. We delivered high-quality and engaging content aligned holistically across EF, ENA and its communities, as well as the EAF.

Europeana Pro is our primary communications platform for professionals and supports the cultural sector in the provision of interoperable digital cultural heritage. It reflects key Europeana values and goals while raising awareness of and providing access to relevant information and tools, such as frameworks, API documentation and rights statements. Europeana Pro is also the platform for ENA members to network with international professionals in the sector and to connect with our various communities.

We delivered content on Europeana Pro under a strategic and consistent editorial approach, featuring examples of best practices and strong industry outcomes (case studies, resources and tools), supported by clear and consistent organisational narrative and messaging.

Through Europeana Pro News, we published articles communicating activities around the digital transformation of cultural heritage inside and outside of the Europeana Network Association (ENA). This included information about projects,

events and initiatives from across the sector, and news from the Europeana Initiative. Monthly themes and ongoing series have provided inspirational content around varied topics (including AI and cultural heritage and digital storytelling). We also exploited cross-platform narratives and engagement by combining activities related to the Europeana Sport season and New European Bauhaus.

Over summer 2020, we promoted the public consultation on opportunities offered by digital technologies for the culture heritage sector. This involved mobilising the Europeana network, communities and culture lovers, and reaching out to other networks in the sector to share with their audiences. We also published the Europeana Initiative position in September 2020.

Over the year, communications were disseminated via our various newsletters and mailing lists (ENA and communities) and on social media. As an example, Europeana Twitter reach increased by 5% (~ 41,300 followers) and LinkedIn by 34% (~ 8,500 followers).

Europeana Communicators' community
Our work was supported by the Europeana Communicators community, whose goals are to: contribute to supporting the development and promotion of training resources, tools or activities; equip ENA members with digital communications skills; and share examples of digital culture in action, demonstrating the relevance

of Europeana today. The community grew in the past year by 112.5% (reaching ~ 2,500 people in total).

The community Task Force Europeana as a powerful platform for storytelling highlighted the importance of digital storytelling for the cultural heritage sector. It also suggested that Europeana is well-placed to support institutions to develop their capacity for developing and using digital storytelling practices, whether their final publication is on Europeana or elsewhere. One outcome of this TF is the resource 'Seven tips for digital storytelling for the cultural heritage sector'. The tips can be used across the Initiative, in fact, the sector, to foster greater public engagement with cultural heritage, thereby enhancing the role, relevance and reputation of digital cultural heritage and its institutions.

Maintain and develop the Europeana Pro website
EF maintained and developed Europeana Pro as a main element of the Europeana DSI. Over the whole Europeana DSI-4 period, we see a steady increase of traffic to Europeana Pro (see graph). In the past year, we saw an increase of 21% (which equates to ~ 340,600 visits in total). We saw a spike in November, which was a direct result of hosting our first digital conference, Europeana 2020. We also saw that users continue to be happy with our services on Europeana Pro with an average user return rate of about 36%.
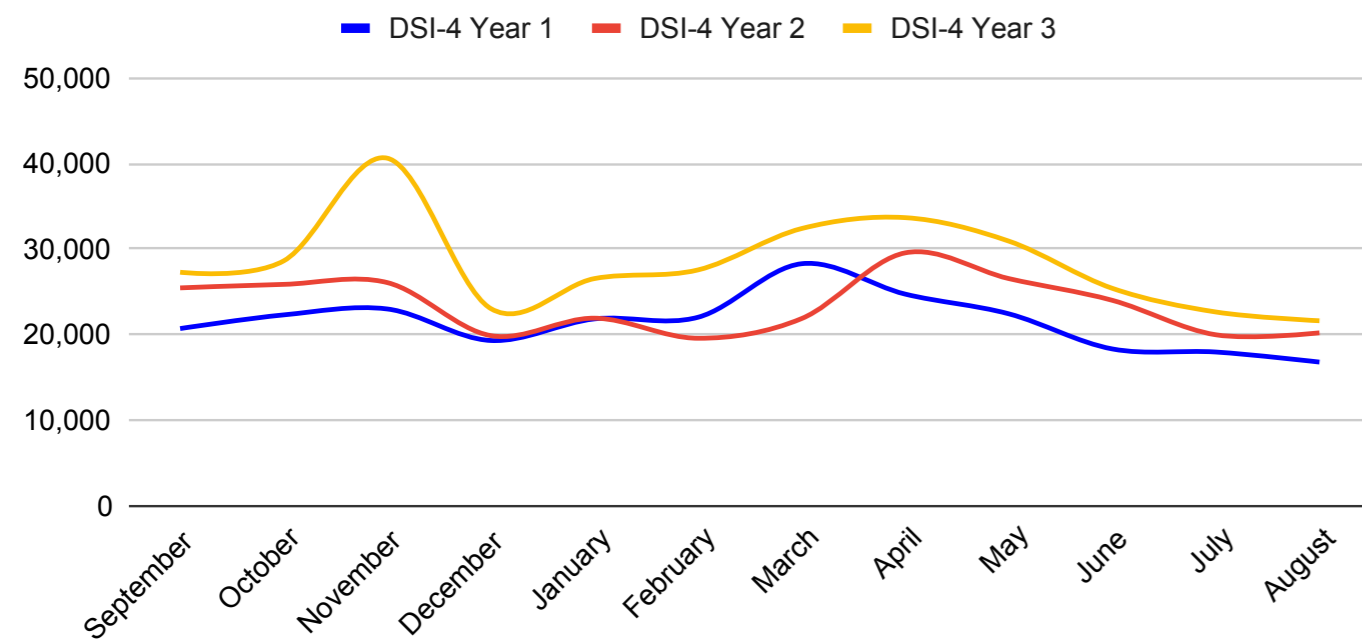
Traffic to Europeana Pro website comparing Europeana DSI-4 Y1, Y2, and Y3.

We regularly consulted our users to understand their needs which helped us iterate on the website to increase its value and ease of use. In January 2021, we ran a user survey to help us better understand who our audiences are, what their motivations are and how they are involved with Europeana. We received 1,250 responses, providing robust data to analyse. The results confirmed that the main users are from the cultural heritage sector, followed by the higher education/

academic research sectors. Broadly speaking, people use Europeana Pro to gather information and to look for resources to support professional development, which Europeana is well-placed to provide. Interestingly, large numbers of the respondents were not personally involved in the European Initiative in any way which provides room for growth, and shows that we attract new users.

We worked closely with editors to enrich and refine content, ensuring that the website continues to provide relevant and up-to-date information and that there is a coherent editorial approach that supports and conveys Europeana's key messaging.

In the past year, we focused on refining the new website structure introduced in DSI-4 Y2, and we maintained and developed the website at a much higher rate than previously seen. Key efforts included updated events and webinars sections to reflect the increased expectations of online events, new FAQ functionality related to copyright, oEmbed service for images to facilitate sharing of Europeana website items, and work to improve code quality and accessibility.

In July 2021, we ran a satisfaction survey in which respondents were asked to rank their satisfaction with Europeana Pro. 87.5% of respondents were either 'very' or 'completely' satisfied and the average score given was 88%. This shows a high satisfaction with the website.

Strengthen national infrastructures

We maintained and developed activities that demonstrate the value of the Europeana Initiative to national infrastructures. We facilitated the adoption of our Licensing Framework and reinforced the value in a common legal framework. We developed and maintained the Europeana Impact Framework and an evidence base to establish a measure of change and progress across the sector. We also engaged with EU Member States to raise awareness of the Europeana Initiative and engaged in relevant policy areas.

Develop and maintain interoperable licensing framework
EF used its expertise to develop, influence and organise global efforts to label digital cultural heritage with accurate international interoperable rights information. We maintained and further developed the Europeana Licensing Framework to address emerging technological and societal challenges.

In September 2020, we published the Europeana strategy to manage copyright from 2020 onwards. This document provides clarity on the objectives that Europeana works towards when it comes to copyright, aligned with the Europeana Strategy 2020-2025.

Nova et Accurata totius Europæ descriptio, Frederik de Wit, 1706, National Library of Israel, Public Domain

We shared good practices and information around the national adoption of the DSM Directive through a [dedicated space](#) on Europeana Pro, forums, newsletters and social media. The transfer of copyright knowledge was also part of training and events for professionals and aggregators. We also collaborated with other initiatives to build stronger connections with networked associations working in and around the field of copyright and [OpenGLAM](#).

Our outreach was successful in the past year, showing an increase of 45.8% for people reached via key communications channels (mailing list, Twitter, newsletter). In August 2021, for example, we recorded almost 3,800 followers for those channels.

Europeana Copyright community
EF continues to support and collaborate with the [Europeana Copyright community](#). From September to December 2020, [four webinars](#) directed at aggregators and other heritage professionals interested in copyright took place (336 participants in total). 40 participants answered an evaluation survey, in which 71% indicated they felt more confident in accurately assigning a rights statement or licence to digital content after watching the webinars; 85% agreed that they had gained skills or knowledge that they could now apply to their work or professional setting thanks to the webinars; and 92% indicated they wanted Europeana to provide more copyright training.

In December 2020, OpenGLAM and the Europeana Copyright and Communicators' communities organised [two translation sprints](#) to make key guidelines and articles about the public domain available to more people in their native languages. As a result, the [Europeana Public Domain Charter](#) is now available in 14 languages and the [Public Domain Usage Guidelines](#) are available in 19 languages.

This year, we also introduced the [Copyright Office Hours: Supporting Each Other with Copyright Challenges](#) consisting of a set of calls organised by the copyright community steering group with the aim of supporting practitioners in the cultural heritage sector in their copyright, open access and policy challenges. Evaluation showed that the copyright office hours helped 69% of participants to find answers to their questions, that 76% would participate in future copyright office hours sessions, and that 76% would recommend the copyright office hours to a friend or colleague.

In July 2021, we completed the Copyright community [Task Force on rights labelling](#). The TF facilitated the replication of a tool (developed by the National Library of Lithuania) that helps cultural heritage professionals assign an accurate rights statement to an item of digital cultural heritage. The Task Force developed a [guide and recommendations](#) on how to replicate the tool, based on the rights statements of the Europeana Licensing Framework, thus making it a valuable resource for Europeana data partners.

RightsStatements.org (rs.org)

EF continued to support the development and adoption of global interoperable rights statements provided through the RightsStatements.org Consortium. As a member of the Statements Working Group, we continued to represent Europeana partners' needs in developing the statements. We also shared good practices from Europe, to shape and influence international practices.

We published the RightsStatements.org 2021 work plan. It foresees three objectives at the operational level: to develop a sustainable business model, to support a sustainable adoption of the rights statements, and to prioritise the translation of member (and potential member) languages. At the strategic development level, the Consortium will work to explore approaches to express indigenous cultural and intellectual property rights through the rights statements, and to develop a version two of the statements.

In May 2021, the RightsStatements.org Task Force on supporting the implementation of statements provided recommendations on how the consortium can best raise awareness of the benefits of using standardised rights information, and on the type of support that the Consortium should provide to those seeking to adopt the statements, including materials, an up-to-date website and a network of practitioners.

In August 2021, we recorded the percentage of active aggregators (accredited aggregators) that integrated rs.org into their infrastructure. 72.50% have integrated rs.org in their infrastructure (1.5% increase over DSI-4 Y3). We also recorded that currently 82.50% of accredited aggregators share data on Europeana using a rights statement from rs.org. Currently, about 18.3 million objects (~ 35% of the whole repository) are published with a rs.org rights statement on the Europeana website.

Developing the evidence of digital transformation

Europeana provided expertise and resources to monitor and assess the impact of activities that facilitate digital transformation. We developed further the Impact Framework and toolkit with an update to Phase three of the Europeana Impact Playbook. Phase three is the third of four stages in the Impact Playbook. Building on the first two phases (impact design and assessment respectively), it goes deeper into the process of how to build a story out of your data (providing, for example, a narrative building template). It also provides tools, tricks and examples on data visualisation and presentation, and offers ways to think about who to share findings with. Importantly, it also considers ways of using the findings (e.g. learning and improving internally, advocacy).
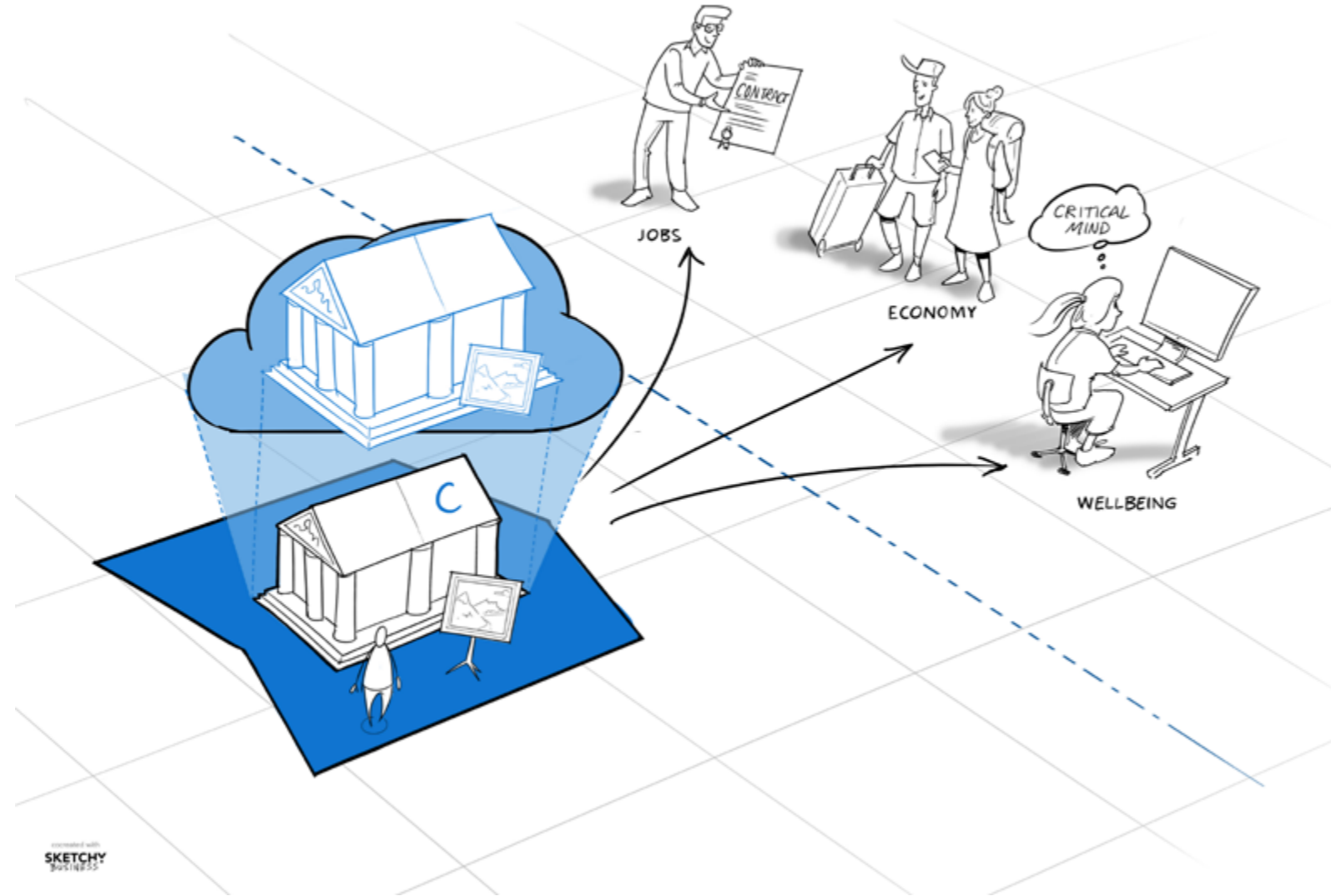
Impact, Europeana Foundation and Sketchy Business, 2020, Public Domain

In May 2021, we also published the Europeana Impact Question bank that facilitates standardisation of data collection that can be used by anyone. As a constantly updated resource, it aims to support CHIs and our partners in their data collection and impact assessment practices, particularly surveying stakeholders. Most of the questions included have been used and refined in practice. Others are being developed in response to our work and the conditions in which we and the sector are operating.

Throughout the year, we also worked on various impact assessments and data collection exercises, including on Europeana's digital programming events, while evaluating limitations, challenges and opportunities to our approach.

Europeana Impact community
We collaborated with the Europeana Impact community to share good practices, case studies and information around the assessment of impact. The transfer of knowledge and development of impact skills was also part of training and events for professionals and aggregators.

The New Professionals Task Force explored the challenges and barriers facing new professionals working in the cultural heritage sector, while also identifying opportunities to include and support them within the Europeana Network

Association. This, in turn, aims to encourage new voices in the ENA and its communities, to help support a more diverse, inclusive, and sustainable network. The TF provided recommendations on how the Europeana Initiative can include, support and encourage new professionals within the network.

The Impact Lite Task Force investigated a possible crash course structure and a train-the-trainer approach that supports the use and implementation of the Europeana Impact Playbook. We learned that a train-the-trainer model might be unsustainable and that instead an Impact Lite Playbook, as an agile learn-by-doing methodology and a toolkit, would be more helpful.

Our outreach to the impact community was successful with an increase in reach of 56% via key communication channels (newsletter, LinkedIn). In August for example, we recorded over 1,900 followers for all channels in total.

Engage with Member States
Together with the Member States holding the presidency of the Council of the EU, EF organised two presidency conferences to share and reinforce the value delivered by the Europeana Initiative towards digital transformation of the cultural heritage sector.

In collaboration with the Deutsche Nationalbibliothek and under the auspices of the German Presidency of the Council, EF organised a digital conference on copyright for digital cultural heritage, its role in digital transformation, and needs for capacity building in the sector. The conference titled 'The role of copyright in the digital transformation of the cultural heritage sector' took place in October 2020. More than 40 people from 21 countries participated in the event, from DCHE members to copyright advocates and experts. Despite a small response rate, the survey respondents indicated a high level of satisfaction with the conference programme and experience.

To follow up on the conference, we published recommendations that propose approaches for the Europeana Initiative and for the Member States to support the sector. Among others, Member States are advised to adopt clear, simple and broad provisions transposing the Copyright in the Digital Single Market Directive to ensure their effectiveness in consultation with the stakeholders. The recommendations also suggest that the Europeana Initiative cooperates with the EUIPO and relevant stakeholders on out-of-commerce works (OOCWs). The Member States are expected to encourage CHIs and professionals in their respective countries to implement these recommendations. Europeana will follow up on this work and will continue the conversation with the Member States to find out about progress, discuss the challenges and share best practices.

The Portuguese Presidency Europeana conference [Towards recovery: digital capacity building in the cultural heritage sector](#) was held online in June 2021, in collaboration with the Ministry of Culture and the National Library of Portugal. It involved 89 cultural heritage professionals from 42 countries across the sector. The conference was part of a series of ongoing efforts at Europeana to get a shared understanding of digital transformation and investigate digital capacity building across the sector. We found a range of considerations are critical to support digital capacity building: integration of cultural heritage goals into national strategies, clear policy direction, advocacy for the sector, allocation of sufficient funds to the cultural sector and its digital transition, the European Commission's support and leadership, training, multilingualism, collaboration within the sector and cross-sectoral collaboration at local, national and European level.

An impact assessment for the Portuguese presidency event showed that the event brought new voices into the discussion: more than half (51%) of the registered invited audience and 84% of the registered public audience had never been to a Europeana Presidency event before. The event appears to have delivered against its key short-term objectives of creating (for the invited audience) an increase in understanding of the concepts of digital transformation and capacity-building and an increase in knowledge about the [Recovery and Resilience Fund](#). The event achieved a good average satisfaction of 70%.

Groepsportret van een waaiergroep [...], 1919, Het Utrechts Archief, Public Domain

EUROPEANA GENERIC SERVICES PROJECTS

This section describes the support given by EF to the Europeana Generic Services (GS) projects throughout the project year and elaborates on the integration of the outcomes in the Europeana core service platform (CSP) for GS projects completed during in the past year. EF supported all GS projects with the following:

- Advice on the correct implementation of Europeana frameworks and policies relevant and/or requested by the Generic Services calls, e.g. Europeana Publishing Framework, Europeana Data Model, Editorial Guidelines, Impact Framework.
- Sustainable integration of the project results into the Europeana platform, e.g. ingestion of content and metadata (if applicable), enrichments, editorials and tools.
- Promotion of the project outcomes on Europeana Pro, mainly in the Tools and Services section and Projects space, as well as dissemination to the relevant Europeana audiences.

Four projects from the Europeana CEF-TC-2018-1 call were concluded during the past year: Linking Bioheritage and culture information - LinBi and Europeana Archaeology in October 2020, Europeana Common Culture in December 2020 and Judaica Europeana 2.0 in January 2021.

EF delivered reports on the compliance of the project results with the Europeana CSP for each of these projects and joined their validation meetings with the European Health and Digital Executive Agency (HADEA).

The table below showcases the main project outcomes according to their contribution to the key performance areas of the Europeana DSI.

Area	Outcomes	Project(s)
Data	*Data ingestion:* More than 6.1 million new records in Tier 2+ More than 4.6 million of updated records to Tier 2+ More than 660 new 3D records *Metadata enrichments:* More than 1 million; more than 300,000 items crowdsourcing enriched; *Vocabularies created:* LinBi Simple Vocabulary	Europeana Common Culture LinBi Judaica 2.0 Europeana Archaeology
User engagement	124 editorials in Europeana.eu, including: 60 blogs, 52 galleries, 5 exhibitions (3 of them in more than 2 EU languages), 6 clustered content sets; 1 feature page 24 project related entries in Europeana Pro, including: 4 project spaces, 3 event pages, 6 webinar recordings as online resources under the webinar section, 9 Pro News posts; 2 tool and services entries 2 crowdsourced campaigns	Europeana Common Culture LinBi Judaica 2.0 Europeana Archaeology
Infrastructure	Development of METIS Sandbox; Linked Open Data Aggregator (LODA) pipeline; Lightweight 3D viewer; LinBi enrichment platform; development of clustered sets functionality on Europeana.eu; Europeana Archaeology Vocabulary Services tool	Europeana Common Culture LinBi Judaica 2.0 Europeana Archaeology
Capacity building	8 webinars and a series of 6 webinars on the topics of copyrights, data and FAIR principles, impact and its evaluation, state-of-the-art technologies. 1 educational workshop; 1 digital event for Jewish CHIs	Europeana Common Culture LinBi Judaica 2.0

[Portrait by car], 1920-1930, Girona City Council, Public Domain

BUDGET AND REALISATION

Europeana DSI-4 is funded under procurement by the European Union. The funding for DSI-4 Y3 is 7 million euro (period from 1 September 2020 to 31 August 2021). The work was performed in four separate work packages:

- Strengthen the infrastructure
- Improve data quality
- Build capacity
- Programme management

The realised division for the third year is close to the planned division from the tender. More effort was spent on WP1 Strengthen the infrastructure (+ 0.5%), WP2 Improve data quality (+ 0.29%), and WP4 Programme management (+ 0.65%). WP3 Build capacity took less resources than foreseen (- 1.45%).

The balance of efforts table below states the foreseen and actual percentages of resources allocated to each of the four work packages and its related tasks.

Balance of efforts per Work Package

	Foreseen	Actual August 2021
WP 1: Strengthen the infrastructure	**49.50%**	**50.00%**
Task 1.1. Easy data publishing	11.60%	12.46%
Task 1.2. Europeana website experience	14.90%	13.73%
Task 1.3. Reliable platforms	8.40%	9.21%
Task 1.4. Discoverability of digital cultural content	14.60%	14.60%
Work package 2: Improve data quality	**17.50%**	**17.79%**
Task 2.1. Quality assured data	12.50%	12.11%
Task 2.2. Enriched data	5.00%	5.68%
Work package 3: Build capacity	**26.50%**	**25.05%**
Task 3.1. Build capacity of aggregators and professionals	10.80%	11.34%
Task 3.2. Nurture networks	9.60%	8.37%
Task 3.3. Strengthen national infrastructures	6.10%	5.34%
Work package 4: Programme management	**6.50%**	**7.15%**
Task 4.1. Programme management of Europeana DSI-4	6.00%	6.31%
Task 4.2. Relations with Europeana DSI Generic Services projects	0.20%	0.66%
Task 4.3. Governance (DCHE)	0.10%	0.10%
Task 4.4. Phasing-in and phasing-out periods	0.20%	0.08%
TOTAL	**100%**	**100%**

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EUROPEANA DSI-4
ANNUAL REPORT 2020/2021

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