Deliverable

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D5.3 User impact study (end users and institutions)

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This deliverable contains original unpublished work except where clearly indicated otherwise.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

Contents

1. Executive Summary

LoCloud, funded under the European Commission's CIP ICT PSP programme, has the overall goal of supporting small and medium-sized institutions in making their content and metadata available to Europeana by exploring the potential of cloud computing technologies. The project has provided a series of services which aim to help reduce the technical, semantic and skills barriers faced by smaller institutions, which typically have limited access to either IT infrastructure or staff with the requisite skills in digital libraries.

This report summarises the findings from several studies which aim to monitor the achievement of the objectives of LoCloud and their impact on the different user communities.

The most important conclusions of the LoCloud User Impact Study are:

- Lack of technical staff and support was the greatest resourcing problem small and medium sized organisations identified, in making their content available online and that training and knowledge is required primarily in the area of metadata.
- Small and medium sized organisations found that the LoCloud Collections service provided the greatest benefit to their institutes; providing increased access, visibility and usage of their digital collections and was frequently used by these organisations.
- It is often cumbersome for small and medium sized organisations to provide metadata content to Europeana. LoCloud has a very good focus which could alleviate these problems, however, a successful business model is required to sustain the services into the future.

LoCloud has provided a series of services which are helping smaller institutions to "cross the bridge", to publish their collections online with improved quality of metadata and to publish their metadata in Europeana. Our surveys confirm that such institutions face barriers in achieving this task. They have limited resources – financial, technical and staff – and frequently rely on volunteers. LoCloud services and in particular LoCloud Collections are proving useful for smaller institutions, who are also benefiting from the support and training that the project has made available.

To sustain and increase the number of collections published by smaller institutions, it will be important to guarantee the continuity of LoCloud services and qualified assistance.

The findings of the LoCloud User Impact Study based upon the different user communities include:

Aggregators

- Aggregators identified that small and medium organization's data is not fully represented in Europeana caused by a range of issues including: lack understanding and awareness of Europeana and its publishing process, and lack of financial and technical resources being the greatest barrier to content contribution.
- Over two-third of the Aggregators recorded that their experience of providing small and mediums sized content to Europeana was challenging due to the inability to enrich the metadata provided. Over half of the aggregators who participated were dissatisfied with the metadata they process for Europeana.
- Following the introduction of the LoCloud services aggregator identified that there had been a marked improvement in the publishing process, particularly the process of metadata enrichment. Additional benefits also arose including the formation of regional aggregators through participation in the LoCloud project
- Aggregators identified that the LoCloud MORe and MINT services provided the greatest benefits to their processing chain with only moderate to little additional costs.
- Aggregators also identified that the LoCloud services provided improvements in the processes of online publishing, metadata enrichment and validation, with their resulting collections having increased visibility, integration and access

Small and Medium Sized Organisations

- Small and medium sized organisations identified that a lack of technical staff and support was the greatest resourcing problem which existed in making their content available online, and that training and knowledge is required primarily in the area of metadata
- Small and medium sized organisations found that the LoCloud Collections service provided the greatest benefit to their institutes; providing increased access, visibility and usage of their digital collections and was frequently used by these organisations
- It is often cumbersome for small and medium sized organisations to provide metadata content to Europeana and that LoCloud has a very good focus which could alleviate these problems, however, a successful business model is required to sustain the services into the future

Europeana Organisation

- The inclusion of small and medium sized organisations metadata into Europeana provides many benefits to the organisations, including: increased visibility, improved understanding of IPR.

- Europeana also benefits from the inclusion of small and medium sized organisations who display great enthusiasm, adaptability and strong understanding of their domains

End User Survey Findings

- The majority of end users reported they benefitted from the content delivered or enriched by LoCloud and a majority (75%) said they would revisit content again in the future.
- Continued monitoring of the Europeana analytics should be continued to observe the effect of the LoCloud data after the project has ended.

Section 2 describes the overarching methodological approach in the identification and assessment of the different user groups involved in the publishing processing or use of LoCloud content and metadata

Section 3 presents the results of the **aggregator** online survey and examines the application of the different LoCloud services to the metadata processing chain. This survey evaluates the experience of the aggregators in processing metadata, before and after the introduction of the LoCloud services and their relative merit.

Section 4 explores the costs benefits from the perspective of the **small and medium sized organisations** who wish to contribute their content to Europeana. This section provides the results of the online survey, providing information about: assessment of the activities and methods of the organisations before they utilised LoCloud services, documenting their experiences from utilising LoCloud services, assess the relative benefits and costs of utilising LoCloud, and identify the potential from reuse of LoCloud enriched content

Section 5 evaluates the value of the LoCloud services to **Europeana** and their long term use and sustainability. This section also explores the relative challenges and benefits SMOs encounter when enabling online access to their digitised data and providing their metadata for reuse to aggregators and Europeana

Section 6 of this report describes the methodology and results of the online survey designed to identify the benefits of LoCloud content to **end users**. It includes details about: end user information, discovery results specific use, discovery results non-specific use and general feedback.

Section 7 summarizes the findings in this report and draws some (tentative) conclusions.

2. Introduction

LoCloud, which is funded under the European Commission's CIP ICT PSP programme, has the overall goal of supporting small and medium-sized institutions in making their content and metadata available to Europeana. The project aimed to provide a series of services that help to reduce the technical, semantic and skills barriers faced by smaller institutions. A main objective has been to add over four million digitized items to Europeana by enabling the institutions involved to use LoCloud services to render their content more discoverable.

This report summarises the findings of studies which monitored the achievements of the LoCloud project and their impact on the user communities.

2.1. LoCloud Services

The infrastructure components of the LoCloud comprise of MINT, MORE and LoCloud Collections. A series of micro services were also developed to help cultural institutions to enrich their data. The services include Historic Place Names service, Geolocation enrichment service, Geocoding service, Vocabulary services, Vocabulary Matching service and Background Linking Service.

LoCloud Collections provides cultural institutions with a service for hosting their digitized collections and metadata in the cloud. It is designed to enable a new digital library to be created in a few minutes, and provides a cataloguing interface, easy publication to a public website and supports remote harvesting for Europeana. This service is available in the so-called Software-as-a-Service model.

MINT is a web-based platform designed to support metadata mapping and ingestion for cultural heritage content and metadata in Europe.

The MOnument Repository (**MORe**) platform provides a store for the metadata aggregated from content providers and offers services including metadata validation and enrichment, and the delivery of content to Europeana. MORe was developed as a cloud prototype under LoCloud based on a pluggable storage architecture where multiple technologies can be combined to extend the system.

The LoCloud micro services can be used singly or combined as needed by the content providing institutions. All micro services have been implemented on virtual machines in a cloud test lab and most of the services are also integrated in the LoCloud aggregation platform MORe. Figure 2-1 below depicts the LoCloud infrastructure and services.

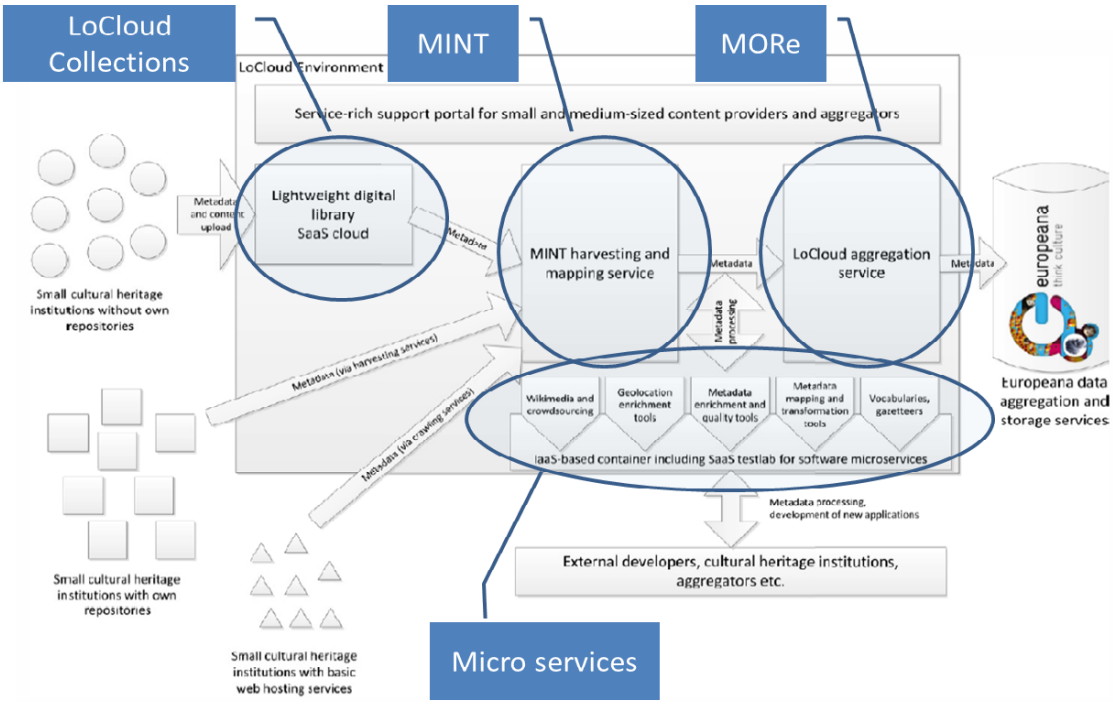


Figure 2-1 Options for using LoCloud services during various stages of the metadata ingestion workflow

Users can choose which services should be called to enrich the metadata within the **MORe** platform, or to use the service to capture data from selected Wikimedia resources.

Alternatively, users can also choose to implement selected micro services in their local cataloguing applications by calling the **API**s of the services. Implementation of the services directly in cataloguing applications requires some IT knowledge.

Some of the LoCloud micro services are deployed as **online tools**, including the geocoding, vocabulary and historic place names applications. These services may be used directly to manage vocabularies and place names, or to crowd-source the enrichment of cultural datasets with place data and map coordinates.

2.2. Establishing the service user communities

The report takes a broad view of costs and benefits, including indirect and longer-term effects, reflecting the interests of all stakeholders affected by the introduction of the LoCloud services. It was important to ensure that the analysis was as comprehensive as possible. To evaluate the effectiveness of the LoCloud project as completely as possible this study looked at a broad range of individuals and institutions who are potential users of LoCloud services (see figure 2-2 below).

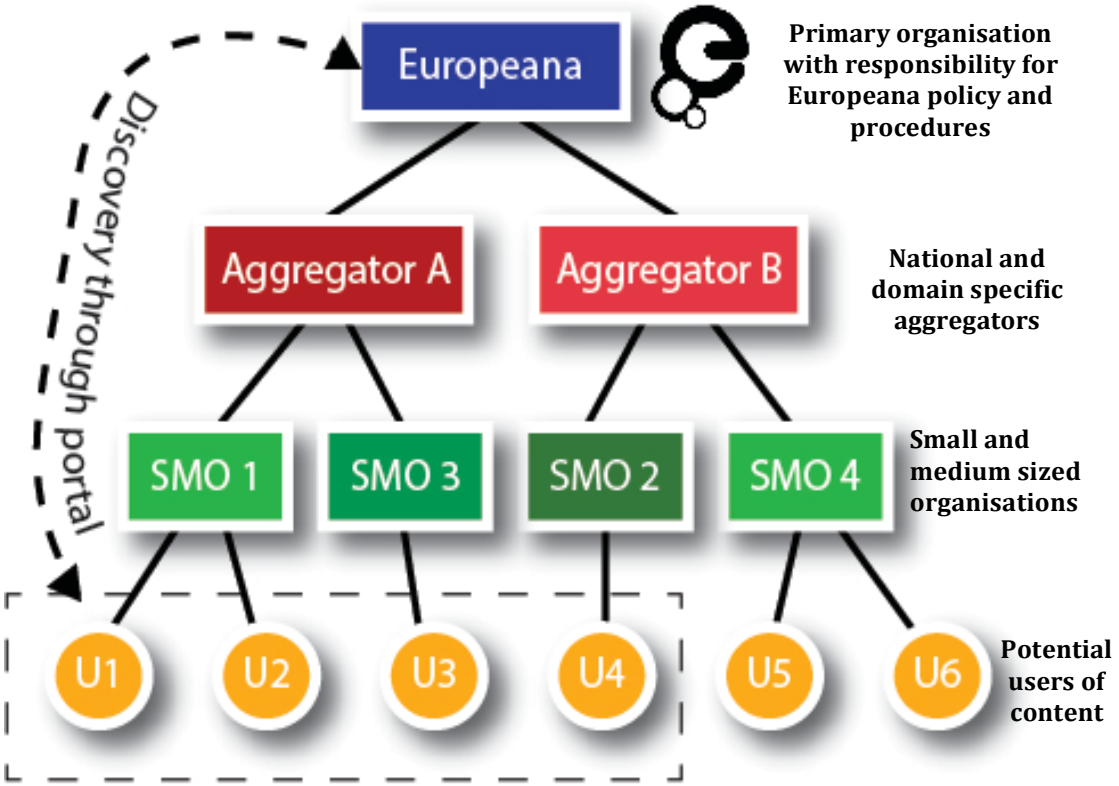


Figure 2-2 Diagram illustrating potential users of LoCloud services at different levels in the processing and publication chain, and the inter-relationships between user levels.

By evaluating the impact of the LoCloud services at each level of processing and publication chain we were able to:

- Establish the effectiveness and ease of use/integration of LoCloud services for specific user groups.
- Identify barriers and enablers to publication of metadata within the pipeline and possible solutions.
- Explore the interrelationship and roles the different organisations have in relation to the implementation of the LoCloud Services.

Separate survey methodologies were employed for each of the designated user communities who could be potentially affected by the introduction of the LoCloud services, including:

- End users survey.
- Small and medium sized organisation (SMO) Survey.
- Aggregator online survey.
- Europeana interview.

2.3. Criteria in establishing Cost & Benefits

When designing an appropriate cost benefit analysis (CBA) methodology to assess the LoCloud project from a user's perspective, several criteria must be taken into account.

2.3.1. Define the Project Base Case

The "Base Case" is a do nothing approach - what is likely to occur in the absence of a LoCloud solution. Note, this is a not a costless option: 'doing nothing' does not necessarily mean 'spending nothing'. The base case provides the benchmark against which LoCloud's costs/benefits are measured. This can be done by assessing the creation of metadata and delivery of digital data by SMOs pre LoCloud.

2.3.2. Determine the level of detail required

The CBA should take a broad view of costs and benefits, including the indirect and longer-term effects, to reflect the interests of all stakeholders potentially affected by LoCloud services. It is important to ensure the analysis is as comprehensive as possible.

2.3.3. Identify Quantitative Costs

Costs and benefits that can be expressed in economic terms are referred to as 'quantitative' or 'hard costs'; 'quantitative' in this sense means quantified in monetary terms. As the LoCloud services had only been running for a relatively short period, it was difficult to identify, quantify and monetise direct costs and benefits. The statistics that were derived are based upon a small sample of responders.

There may be a number of capital and other cost components incurred over time that need to be included in the CBA such as:

- Capital (or investment) items (e.g. equipment or software) – typically high cost expenditure which have a 3-5 year depreciation cycle which are necessary for the SMO to make their content available online e.g. computers, servers, online storage
- User costs - Amount of human effort required to create metadata, upload images. If this is volunteer effort there maybe difficulties in applying a real cost to this (although the related staff time involved in managing volunteers can be calculated).
- Training costs for staff/volunteers

2.3.4. Identify Qualitative Costs

Costs or benefits that cannot be quantified in economic terms are referred to as "qualitative costs/benefits" or "soft costs/benefits"; 'soft' in this sense means qualitatively non-monetisable impacts. These could include a range of factors such as:

compliance of metadata, availability of support, greater access to staff training and conformity to international standards.

An exhaustive list of all the different costs and was generated in consultation with project partners to ensuring that no important aspects of the analysis were overlooked.

2.3.5. Calculate user benefits

There may be a range of benefits to be estimated and, where possible, quantified such as:

- Improved visibility of institution.
- Reuse of data.
- Direct revenue from online content.
- Possible impact on the number of visitors of the institution.

In addition to actual (or delivered) benefits realised from the project, there may be a number of enabled benefits that materialise as a result of a future project building on the results of LoCloud.

3. Aggregator Survey

This section reports on the survey that was carried out capture the actual and perceived costs and benefits observed by content aggregators during the course of the LoCloud project. A questionnaire was designed with the aim of recording and contrasting the experiences of the aggregators before the introduction of LoCloud services (the "Base Case") and after, including: the perceived value of the services, their ease of use/implementation within the aggregation process, and to identifying potential benefits organisations experienced through the use of LoCloud services

3.1. Survey Design and Methodology

3.1.1. Target groups

This questionnaire was aimed at the aggregators of metadata for Europeana who participated within the LoCloud project. These aggregators provide both an aggregation service and support to the many small and medium sized organisations in their networks (who are the primary content providers of LoCloud). Several partners in LoCloud acted as aggregators for the project but do not normally perform this role or act as the national contact point for Europeana.

3.1.2. Methods and research design

The questionnaire (see appendix 1) was carried out utilising an online survey tool: Survey Monkey. It was divided into several sections to enable the respondent to focus on the different themes. The sections included:

- Background information of aggregator.
- Experiences of the Aggregator before the use of the LoCloud Services.
- Experiences of the Aggregator of utilising the LoCloud Services.
- The benefits experienced from utilising the LoCloud Services.
- The costs experienced from utilising the LoCloud Services.
- Details of any feedback from content providers who have utilising the LoCloud Services.

As many of the costs or benefits cannot be quantified in economic terms a "qualitative costs/benefits" or "soft costs/benefits" approach was adopted when constructing the survey.

The online survey was available for completion for approximately two months from the dates 29th June 2015 to 7th September 2014. Over the course of this period twenty aggregators responded to the survey.

3.2. Survey Results

3.2.1. Organisational background

The geographical distribution of the survey respondents is summarised in the image below.

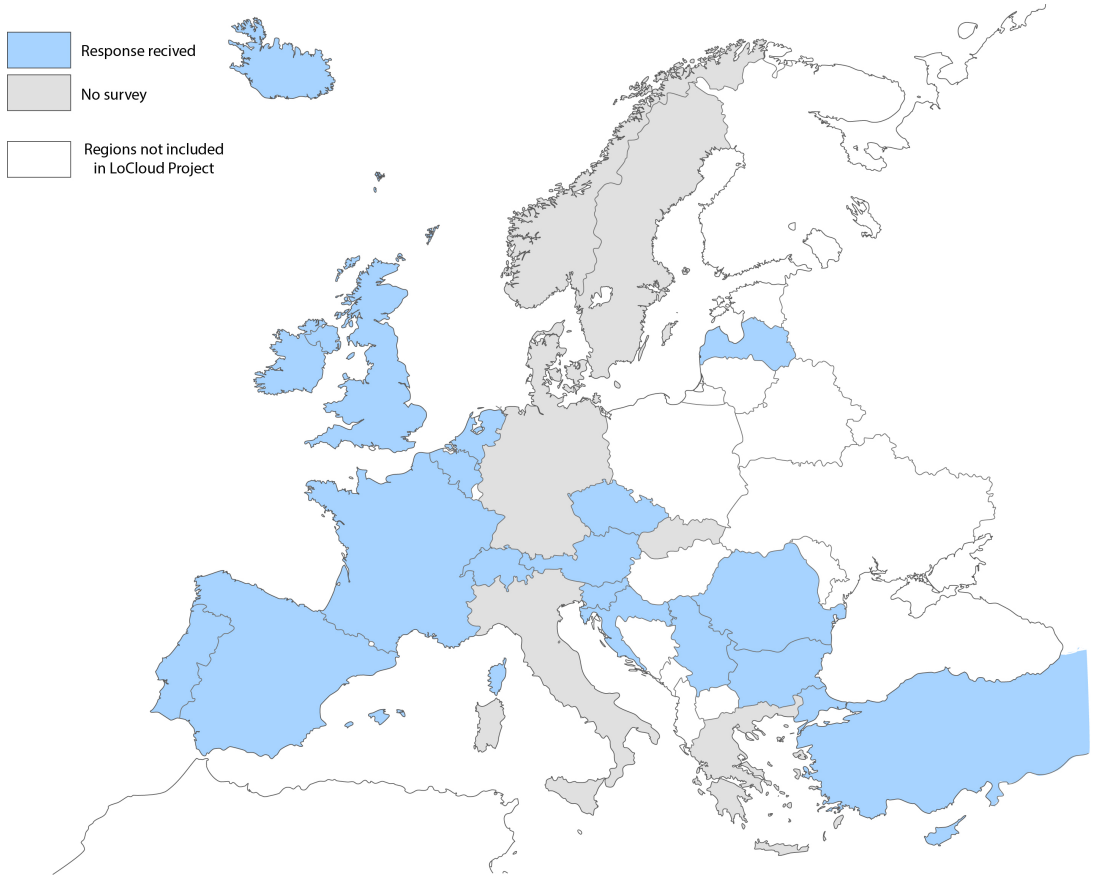


Figure 3-1 Map illustrating the distribution of aggregators who participated in the survey

No aggregator survey results were supplied by the following countries, although LoCloud Services were used during the course of the project:

- Denmark
- Germany
- Greece
- Italy
- Norway
- Sweden

The majority of institutions who responded to the questionnaire classified themselves as Public Institutions (18), only two classified themselves as private organisations.

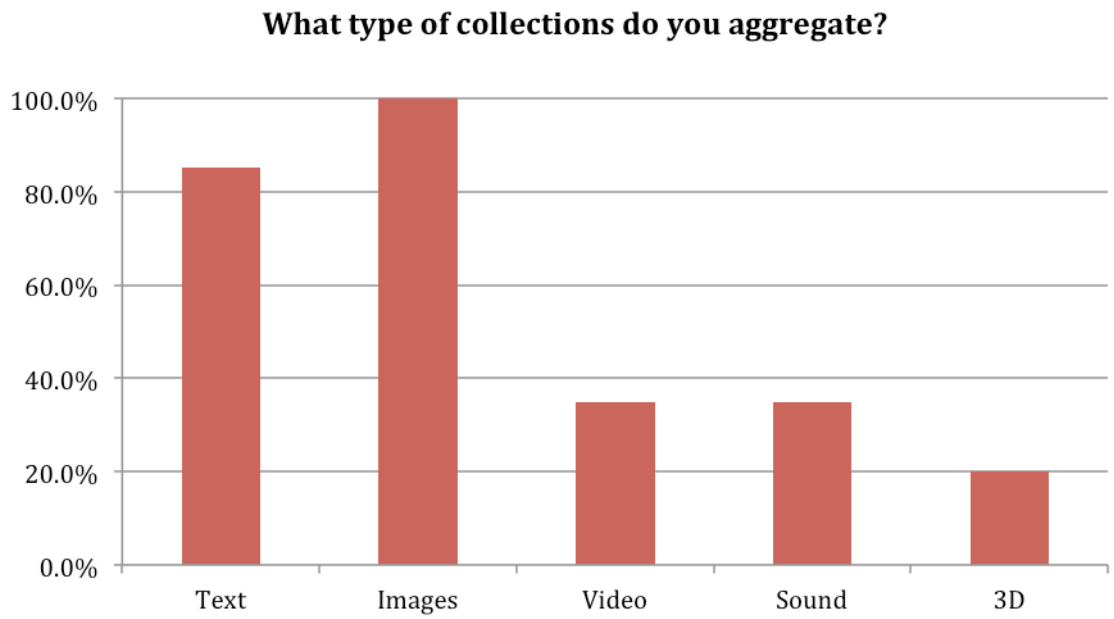


Figure 3-2 Graph illustrating the different content types that aggregators process

Of the organisations surveyed, the majority of collections aggregated consisted of images (100%) and text based documents (85%), with a smaller number of organizations (35%) also facilitating aggregation of video or audio content. Finally, a small number of organizations (20%) also enabled the aggregation of 3D content. Three organizations also specified that they also aggregate additional data types from across the cultural heritage domain, primarily the descriptive records/databases of tangible heritage objects (monuments and artefacts) and additional spatial datasets (CAD and GIS)

3.2.2. Experiences of Europeana before LoCloud

Of the twenty organizations surveyed, just over half (55%) had supplied aggregation services to provide content to Europeana before LoCloud services were available. Of the content they supplied there was a notably significant proportion from small and medium sized organization. These results may be slightly biased as the organisations surveyed were chosen to participate in the LoCloud Project in the first instance for their involvement with SMOs.

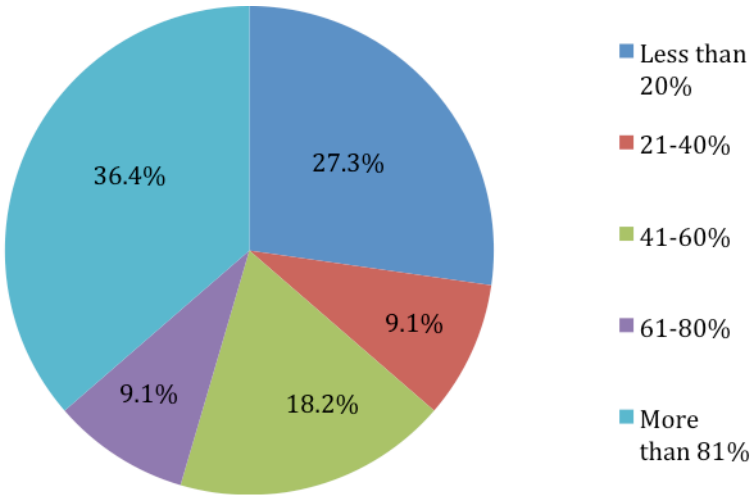


Figure 3-3 Pie chart illustrating the relative amount of content aggregators received from small and medium sized organisations before LoCloud

Of the content supplied by small or medium sized organizations, much of the material related to local or municipal history, including: museum collections and documentary records. For other organizations the content supplied could be classified as more specialist and of interest to a select audience, e.g. the bureaucratic records of Ottoman Empire and audio recordings from the St. Emilion Wine Order.

When asked "Do you think that small to medium organization's data is fully represented in Europeana?" the majority of respondents (84%) stated that they didn't think this was the case. Explanations for the lack of representation included:

- Lack of understanding of the Europeana publishing process.
- Europeana's focus is very technically orientated which often excludes such organizations that have little experience of the skills and infrastructure.
- Suitable web accessible digital content is not available.
- An overall lack of resources within this sector (human, financial and technical).
- Supporting institutions are required to assist small and medium sized organizations.

For one aggregator (Netherlands), it was thought small and medium organisation's data were represented fully in Europeana. They reported having an established relationship with the organisations they were supporting and that any potential difficulties and challenges had been addressed already.

In terms of the visibility, just under half of the responders (45%) thought that small and medium organisations are aware of Europeana and its role. Lack of awareness was caused by several factors including:

- Unless small and medium institutions are directly connected to a supporting aggregator they are often unaware of Europeana.
- Often national dissemination and promotion of Europeana does not reach smaller institutions.
- Conservative attitudes to sharing data can leave organization blinkered to the presence of Europeana.

For those aggregators who thought that small and medium organisations are aware of Europeana, they still thought that lack of resources (time, technical & financial) was a barrier to providing content; and that many organisations do not know how to participate with Europeana. One respondent indicated that where there was visibility of Europeana it was the portal that was known rather than the greater "Europeana" organization which was really only evident to larger institutions.

Where there is evidence of high visibility of Europeana and its functions this has been created through strong national communication policies (Netherlands) and digitization activities (Lithuania) which created high awareness amongst cultural institutions at all levels.

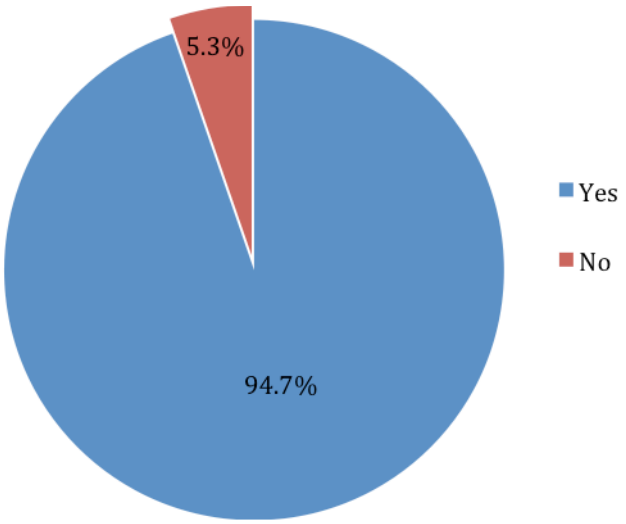


Figure 3-4 Pie chart illustrating the results of the question "Do you think it is difficult for small and medium sized organisations to provide content to Europeana?"

An overwhelming majority of respondents (94.7%) stated that they thought that it was difficult for small and medium sized organisations to provide content to Europeana before the use of LoCloud Services.

The responses to the question about what resourcing challenges are summarised in table 3-1.

Resourcing Challenge	Percent
Lack of financial resources	94.7%
Lack of technical staff/technical support	94.7%
Lack of systems for enabling metadata harvesting	78.9%
Lack of curatorial staff	73.7%
Lack of systems for managing digital assets	68.4%
Lack of systems for publishing content online	68.4%
Lack of hardware for scanning/digitising content	52.6%
Lack of software for cataloguing collections	52.6%
Too much effort is required to produce metadata	42.1%

Table 3-1 Summary of the what resourcing challenges to small and medium sized organisations

In summary from these results it is clear that all respondents think that a range of problems exist including: financial, technical, infrastructural and staff levels. The responses highlight the relative lack of resourcing, especially financial resources, which exists within the cultural heritage sector at present. Dependency on outsourced technical support was also highlighted as issue.

When asked to identify the knowledge gaps that prevent small and medium sized organisations from providing content to Europeana, a lack of understanding of IPR (84% of respondents) and metadata (84%) were identified as the greatest challenges. Two aggregators specifically stated increased awareness and understanding of metadata standards was required. Approximately half (52%) thought that digitisation presented an issue. Only a small proportion (32%) thought that cataloguing was a problem, which would be expected as this would be one of the inherent skills required within any cultural institution.

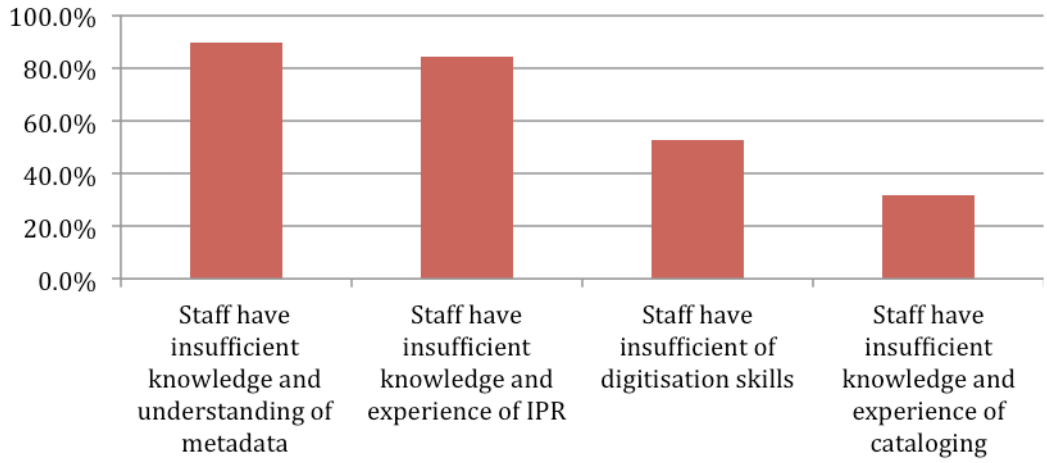


Figure 3-5 Graph illustrating the relevant training and knowledge problems aggregators think exist in organisations that make it difficult to provide content to Europeana

Aggregators were asked to summarize their experience of providing small and mediums sized content to Europeana. The inability to enrich the metadata provided was the biggest problem with 71% of respondents stating that their experience was poor. The other main issues included the lack of use of controlled vocabulary and the quality of geospatial metadata. Their overall satisfaction with the metadata provided was below 50%, with 65% of aggregators stating that metadata quality was poor to moderate. When asked to rate the overall experience of the aggregation process before LoCloud half of the respondents stated that their satisfaction was good to excellent.

3.2.3. Use of the LoCloud Services

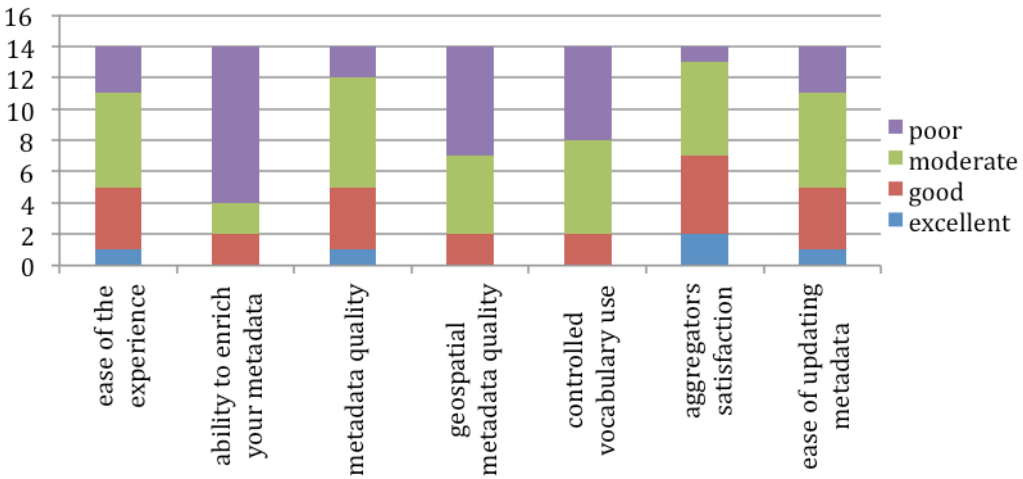


Figure 3-6 Graph illustrating the user satisfaction of aggregators contributing small and medium sized organisations content to Europeana before using LoCloud services

3.2.4. Utilising LoCloud Services

Aggregators were asked to comment on how often the different LoCloud services where utilized by them and the frequency of use. MORe and MINT were the two most frequently utilised services, probably due to their central requirement within the LoCloud project. Of the metadata data enrichment services, the vocabulary and geo-enrichment tools were the most utilized (72-83% usage respectively). The LoCloud collections service was employed by only 28% of aggregators; however, this would be expected as this service is primarily aimed at being implemented within small and medium organisation. The service with the poorest uptake was the Wikimedia service; however, at the outset this service was developed as demonstrator and utilised by only one partner within the consortium.

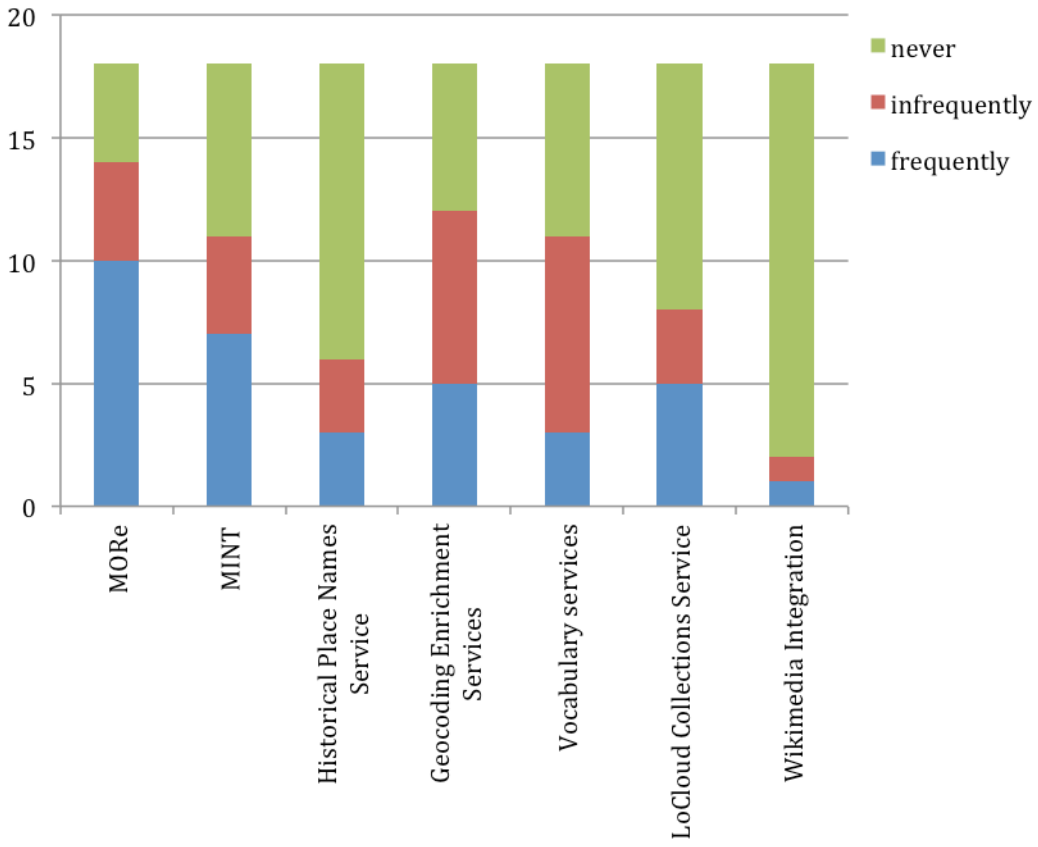


Figure 3-7 Graph illustrating the relative use of the different LoCloud services

When asked to comment on the amount of content provided by small and medium sized organisations following the introduction of LoCloud, all respondents identified a marked increase in contributions from this group. Increases were identified for those aggregators which have a large and small overall proportion of content from small and medium sized organisations.

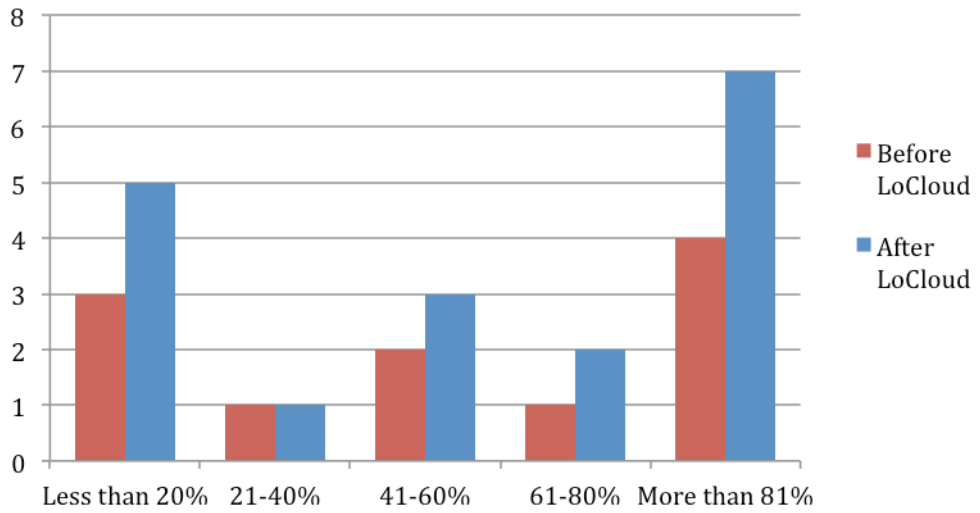


Figure 3-8 Graph illustrating the amount of content received by aggregators from small and medium sized organisations before and after the introduction of LoCloud services

The type of content provided by SMOs utilising LoCloud is very similar to that provided prior to the project (see Figure 3-8). The only slight difference was that SMO's provided less audio and video content which may be an effect of what type of cultural organizations were involved.

When asked if LoCloud enabled aggregators to engage with collections from new content providers and new networks the majority of respondents (66.7%) replied that it had. New providers included archaeologists and public libraries. Specific comments include:

- LoCloud has enabled the formation of regional aggregator.
- LoCloud has enabled the dissemination of archaeological data via Europeana and has provided another incentive for organisations to deposit data with them.
- Enabled organizations to provide an online digital collection of their assets.
- LoCloud has created a shortcut for small and medium institutions to deliver their content to Europeana.

When asked to comment on the user satisfaction following the introduction of the LoCloud services, all respondents indicated that there had been a marked improvement of the aggregation process in all areas questioned. Specific comments include:

- No respondents expressed that the aggregating process content was poor.
- There was a major improvement in metadata enrichment satisfaction.
- Slight improvement in metadata quality, geospatial metadata, use of vocabularies and updating process.
- No marked difference in overall satisfaction of the aggregation process.

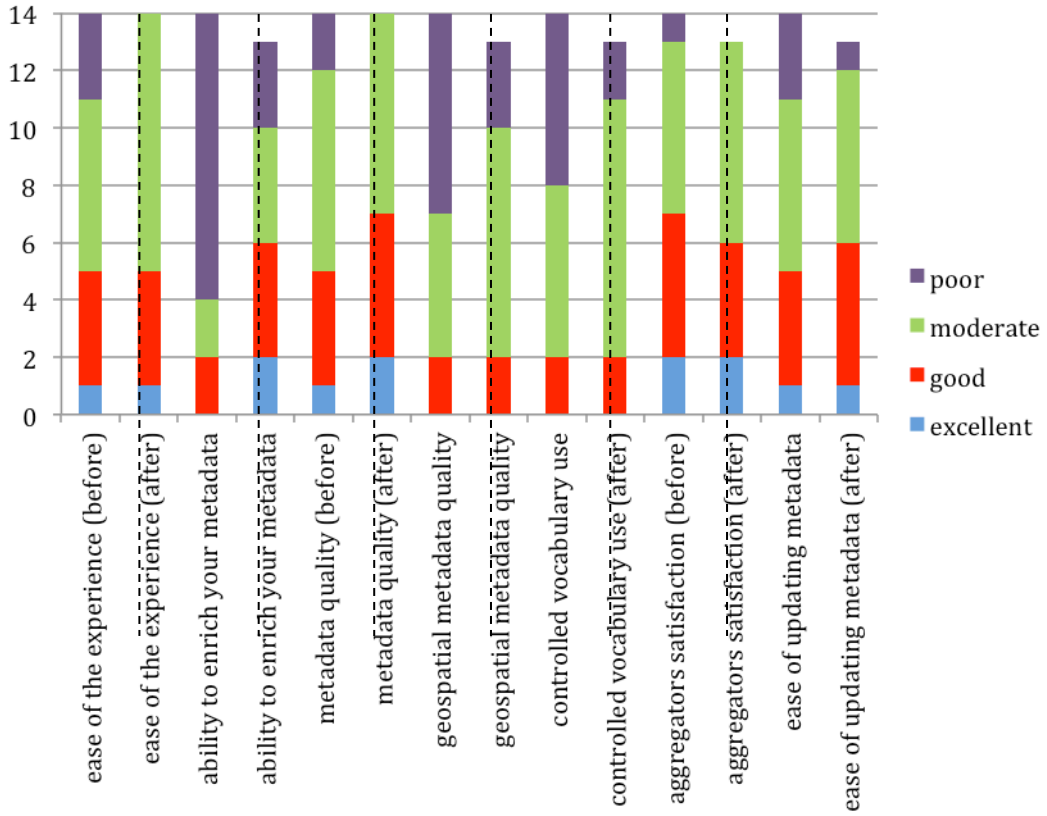


Figure 3-9 Graph illustrating the aggregators user experience in providing small and medium sized organisations content to Europeana before and after using LoCloud services

3.2.5. Benefits of Using LoCloud

When questioned on the tangible benefits to utilizing LoCloud services, the responses can be grouped as follows:

Visibility

- Contributes to increased awareness of content within Europeana.
- Increased the online presence of an institution, including: increased visitors to websites, remote access to collections for researchers.
- Ability to be able to participate within a European network – reducing isolation of some institutions.
- Increased visitors to museums.
- Overall improved visibility of the collections and improved image of the institution.
- Increased redirect from Europeana to content.

- Provides excellent advocacy tool by enabling organisations to present their content on Europeana to politicians and other local stakeholders which in turn brings recognition and better support.

Skills & Learning

- Abilities within the organisations have improved including: digitization, metadata creation, online publishing, digital asset management skills.
- Provided technical staff with the ability to map and publish metadata through the use of MORe & MINT.
- Training and expertise which will benefit the wider community beyond the life cycle of the project.
- Providing IPR solutions.

Some organisations were unable to comment on the benefits experienced as their specific implementation of the LoCloud services was too recent to produce any additional improvements.

When comparing each specific LoCloud service and its potential benefits to their aggregation process, the respondents were asked to firstly record the relative benefit of each service and rank the services in order of usefulness.

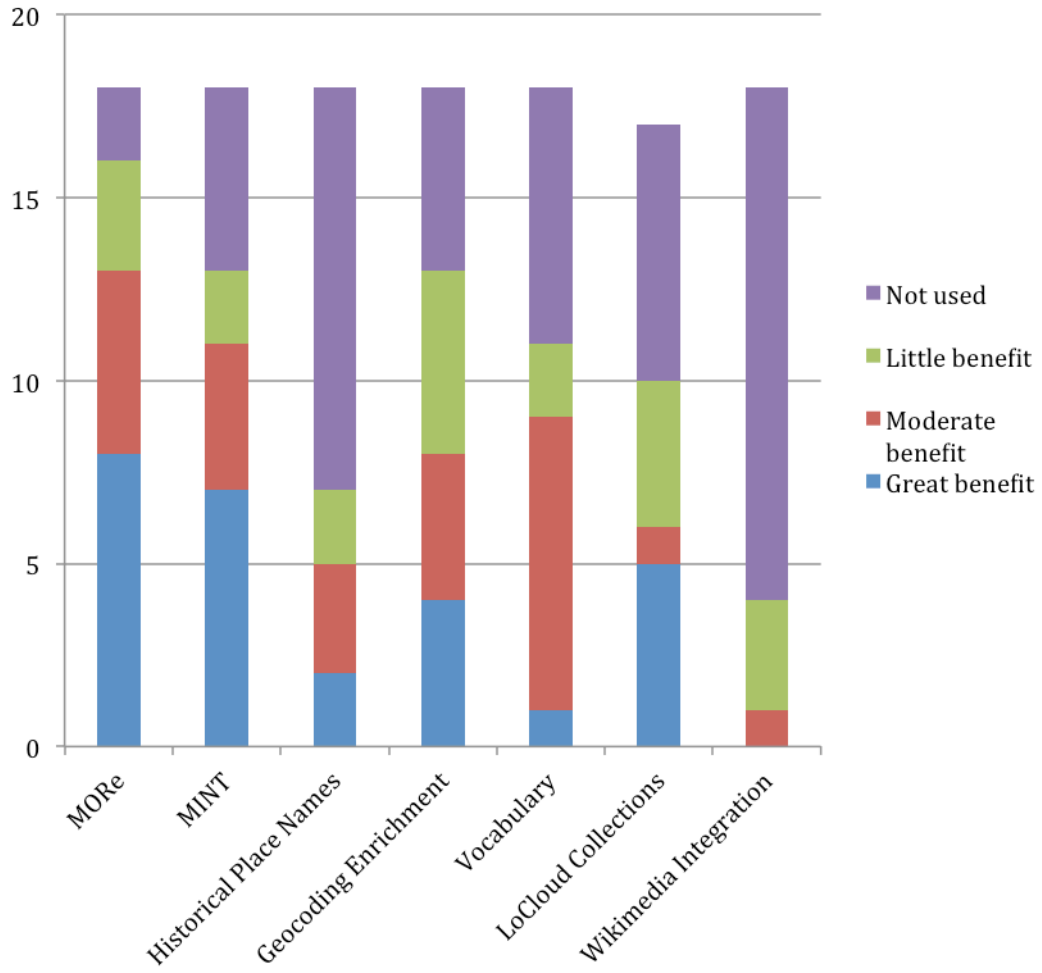


Figure 3-10 Graph illustrating the relative benefits of the different LoCloud services to aggregators providing small and medium sized organisations content to Europeana

Service	Average Ranking
MORe	2.35
MINT	2.39
LoCloud Collection	3.56
Geocoding Enrichment	3.82
Vocabulary	4.65
Historic Place Names	4.82
Wikimedia Integration	6.44

Table 3-2 Summary of the average ranking for each of the LoCloud services based upon aggregator scoring

Both survey questions indicate that for the majority of aggregators, the MORe and MINT services provide moderate to great benefit. Both were ranked closely as the two top services. These services would have been heavily utilised by the aggregators during the publishing process, therefore the investment to understand how to successfully implement them would have been made by the aggregators.

For those individuals who used the LoCloud Collections service, 50% reported that they found great benefit to the service. Of the four enrichment processes, geocoding and vocabulary services provided moderate to great benefit to over half of their users. For those small number of aggregators who utilised the historic place names service similarly over two thirds found moderate to great benefit. The value of such a service may need to be promoted more amongst the other aggregators in the future. The final service: Wikimedia integration was identified as being the least beneficial service and for those few organisations that used it there was little advantage produced.

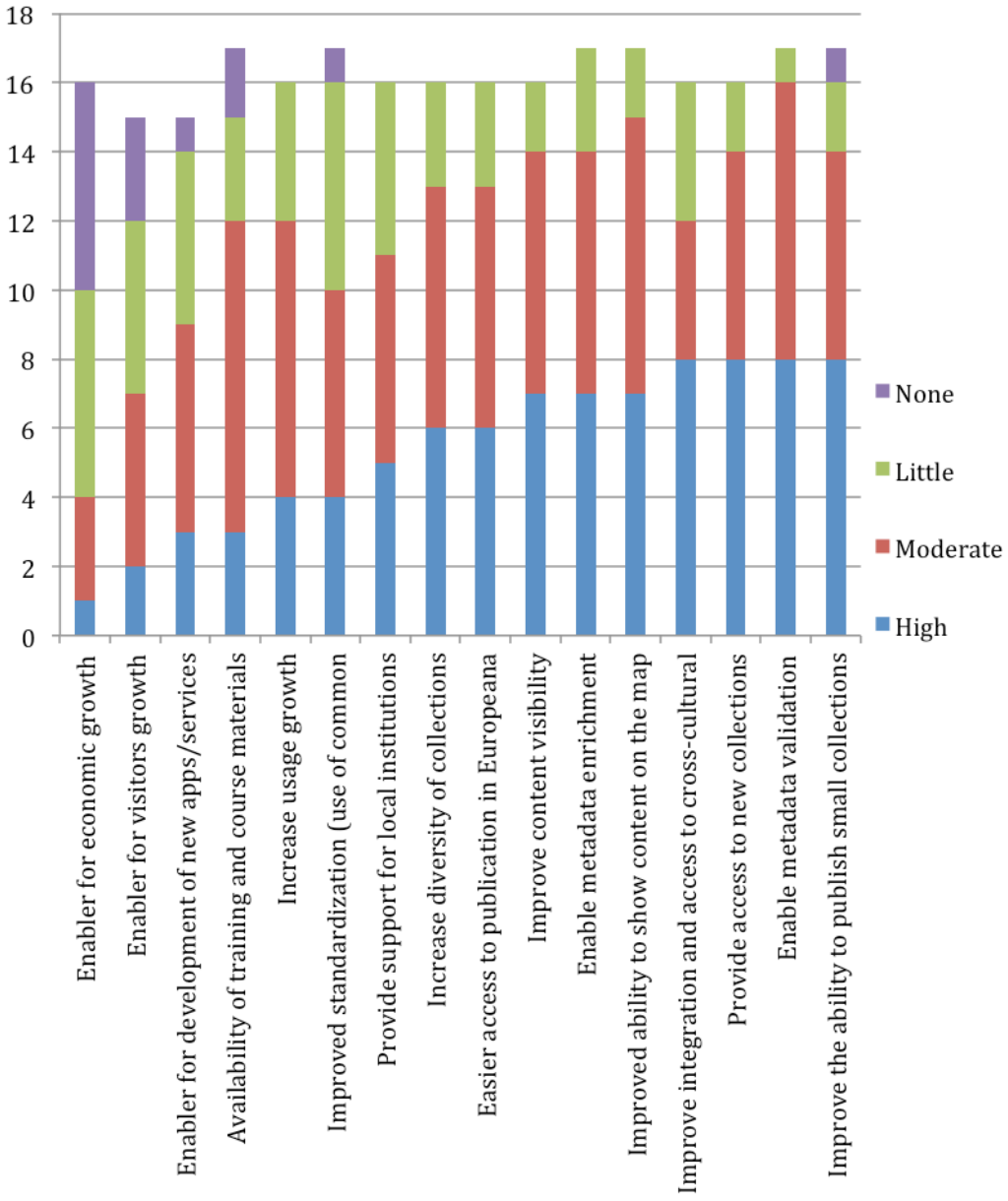


Figure 3-11 Graph illustrating the benefits of LoCloud Services provided to aggregators

When asked about the specific benefits they have encountered by utilising the LoCloud services, many of the respondents reported that the services improved and assisted in overcoming many of the technical challenges associated with online collections and their management. These challenges included: online publishing, metadata enrichment and validation improvement. The aggregators also identified that their collections now had increased visibility, integration and access.

Secondary benefits featured less significantly (economic growth, increased visitor numbers and the development of new apps) in the responses. This may be caused by

the short period in which the services have been available, thus their indirect effect may not have been propagated as yet. The other factors could be that these benefits are usually hard to quantify or identify so they were not recorded within this survey.

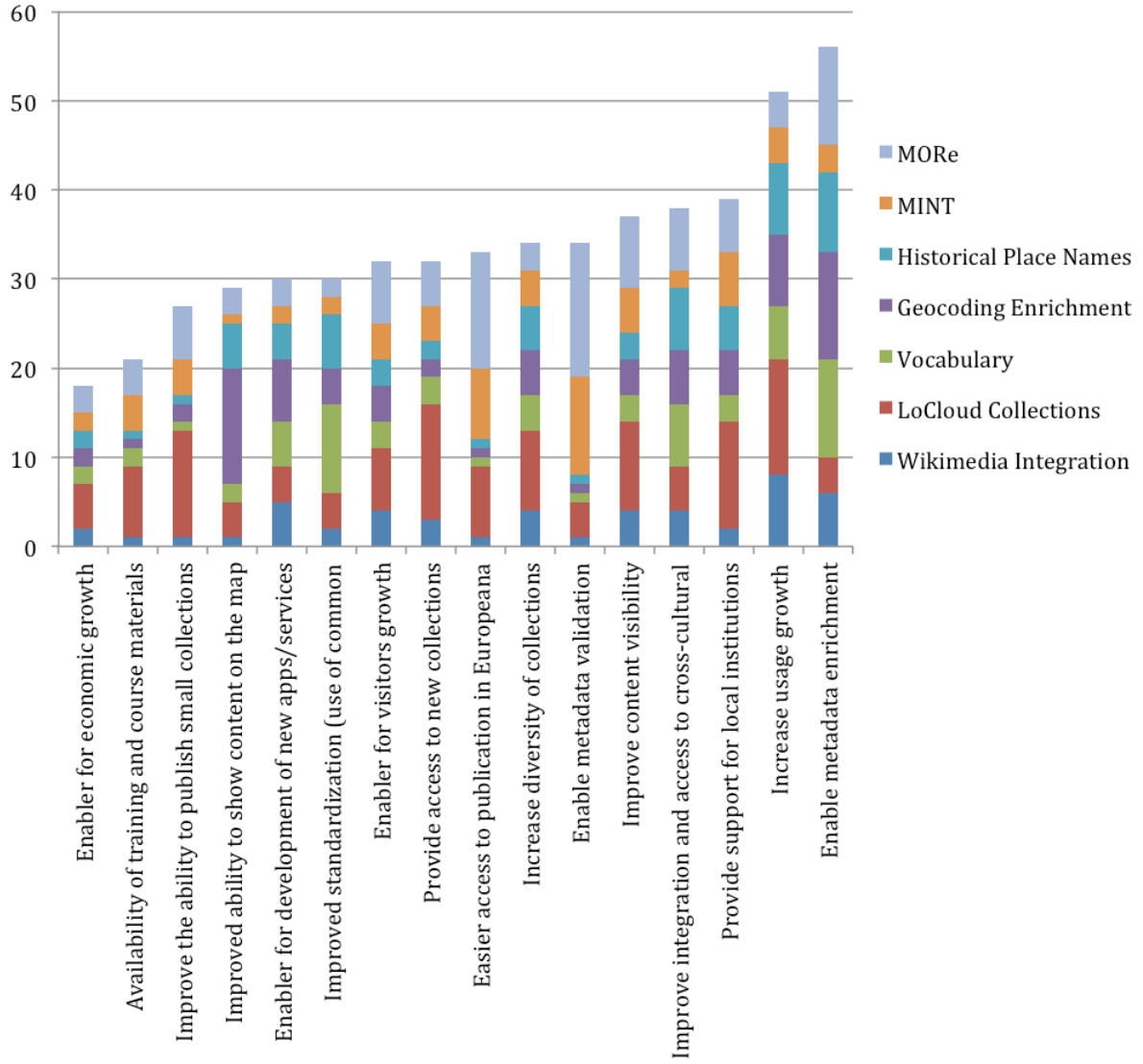


Figure 3-12 Graph illustrating the wider benefits the LoCloud services provides to organisations

The technical benefits provided by LoCloud include metadata enrichment (where organisations benefited from the Vocabulary, Geocoding and Historic Place Name services), improvements in mapping of content due to the geolocation services. MINT and MORe were highlighted as being beneficial to the technical publishing and validation of the data once enriched.

Visibility and increased access and growth benefited primarily from the use of LoCloud collections. This service also provided direct benefits to smaller institutions and organizations who have not published their content in the past. Where secondary benefits have been identified by aggregators such as economic or increased visitor numbers, all services have been identified as providing assistance.

3.2.6. Costs of Utilising LoCloud Services

When asked about the cost of implementing the different LoCloud services, the majority of users identified that there was no significant level of high cost/effort to the processes. Most services are identified as having a moderate costs/effort, with the vocabulary service being noted as requiring the least amount to implement. As reported earlier, both MORe and MINT have been widely used by the aggregators; however, they seem be the two services which require the most effort and cost to implement. One respondent noted that ideally the services should be better integrated because offering them as separate services obliges a potential user to do a lot of thinking about the use and usefulness of each individual service.

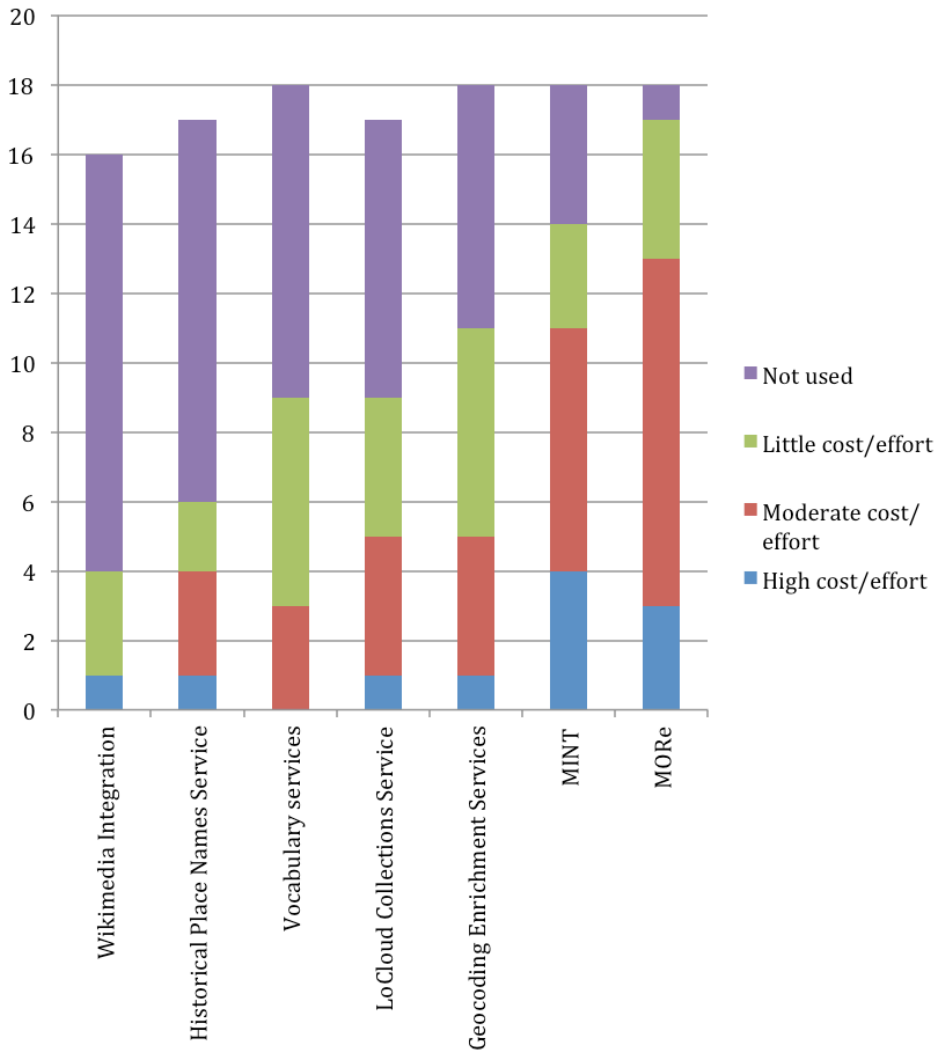


Figure 3-13 Graph illustrating what level of additional cost/effort was required to utilise the following LoCloud Services

For each service, aggregators were asked to comment on any particular additional costs/effort which occurred during their usage. The results are summarised in the table below.

Service	Additional costs/effort
MORe	• Training • Resubmission Procedure • The tool was not always reliable and some micro-services are unstable • Actual time required to process service was high • Personnel costs where volunteers were not available. In

	one instance a metadata expert was hired
MINT	• Training • Good understanding of XML and XSLT required to fully use this service • Testing of the mappings took longer than expected • Mapping and adjustment of data within databases took longer than expected • Personnel costs where volunteers were not available
Geocoding Enrichment	• To enable a correction geolocation some minimal location information was still required, e.g. name of state/county
LoCloud Collections	• Additional financial costs to maintaining service • Integration to other services still needs improvement as the current setup requires effort • One content contributor was required to increase the level of volunteering in their organisation to provide content • Translation required to implement service in different countries

Table 3-3 Summary of additional costs and benefits to SMOs for each of the LoCloud Services

For some services (HPN, Vocabulary & Wikimedia Integration) no additional comments were made, however this was probably due to the relative lack of implementation of these services during the project.

3.3. Feedback from Content Providers

Aggregators were questioned about the ability to capture feedback and information about the services directly from their content providers. In total, twelve aggregators were able to record this information through a range of methods as summarised in Figure 3-14 below. The majority of aggregators have no formal feedback mechanism and often rely on comments from their content providers in the form of email, telephone or face to face contact. One aggregator added that they have established a user forum which assisted in the feedback process.

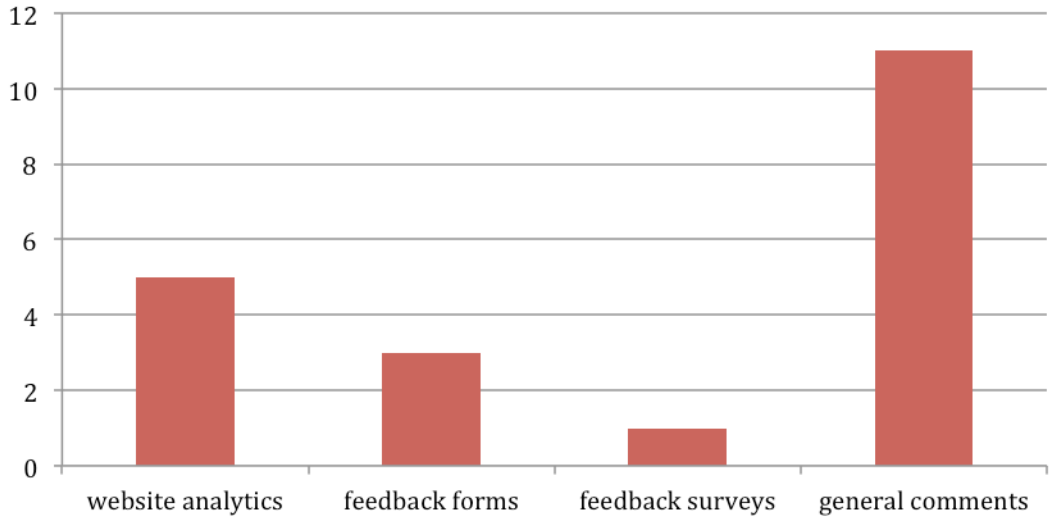


Figure 3-14 Graph illustrating the different mechanisms aggregators utilise to capturing feedback from the content providers

Specific comments made by the content providers included:

- Errors and bugs were found within the software.
- LoCloud Collection was very useful by the content providers but many of the other services were aimed at an advanced and expert level so they were not used.
- LoCloud Collections provided a low cost solution to online publishing of content and for many providers this was the key tool in making their content available to a wider audience.
- Content providers were not using many of the services directly, rather providing the information required to the aggregators who would implement publication and enrichment process.

Several comments were of a more general nature and expressed that the services were easy to use and the project had done excellent work in bringing small and medium organisation's content online.

Organisations were asked to comment if there had been any increase in traffic to their content provided through LoCloud in comparison to other online content. Of the eleven responses, 31% recorded a measurable increase. However, many respondents noted that their content had only just been published within Europeana so they were not expecting to see any immediate response from increased viewing or they do not collect statistics at present therefore they could not identify any increase. One respondent

noted that they had recorded an increase in referrals from Europeana following the publishing of their metadata.

In terms of reuse of online content, nine of the aggregators reported that they recorded the use and reuse of their data with feedback captured on the whole through website analytics. Again many aggregators noted that it was too early to expect any significant reuse of content as much of their content was only currently being published to Europeana.

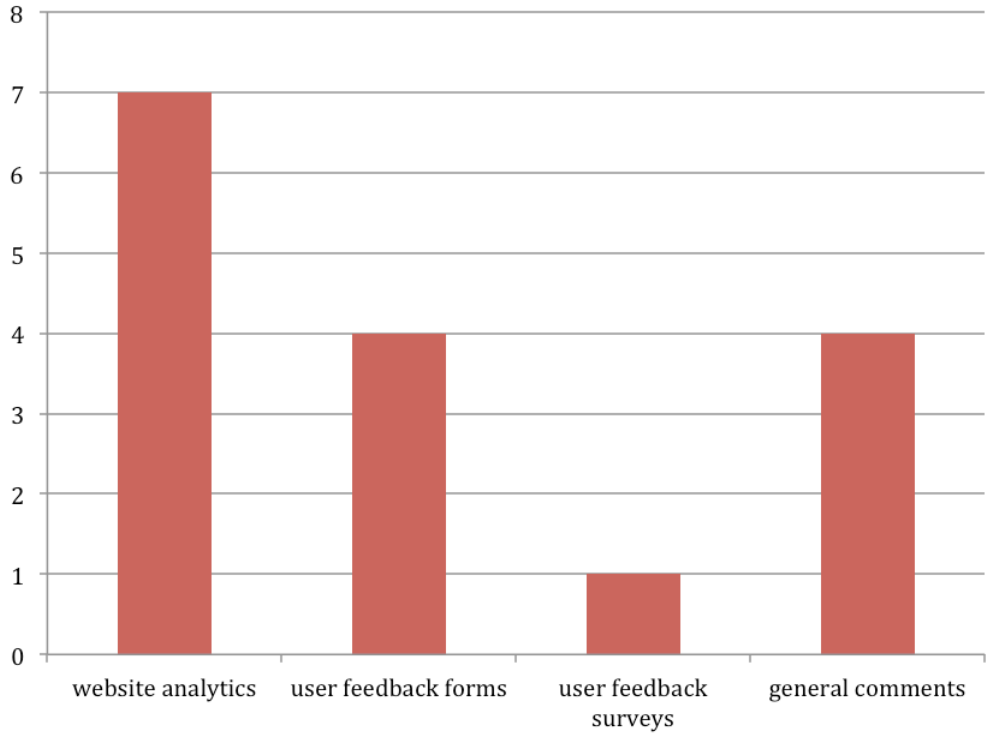


Figure 3-15 Graph illustrating the different mechanisms organisations utilise to capturing user feedback

For those organisations who could monitor use of their data through shares, citations or monitoring media only limited amount of reuse had actually occurred including:

- 1 Press /media event
- 2 Social media articles
- 1 Research paper
- 2 exhibitions

Two organisations also reported that there had been interest from other organisations to use their content including for education product development and for Google Fieldtrip. However, local content licenses prevented such use.

4. Small and Medium Organisations (SMO) Survey

4.1. Context

The questionnaire (see Appendix 2) was designed to identify the costs and benefits to small and medium organisations (SMO) using the LoCloud services to publish their content to Europeana.

The questionnaire covered the following topics:

- Organisation information.
- Assess the activities and methods of the SMOs before they utilized LoCloud services.
- Document their experiences from utilizing LoCloud services.
- Assess the relative benefits and costs of utilizing LoCloud.
- Identify potential from reuse of LoCloud enriched content.

4.2. Overview

Twenty-seven small and medium sized organisations answered the survey from across Europe.

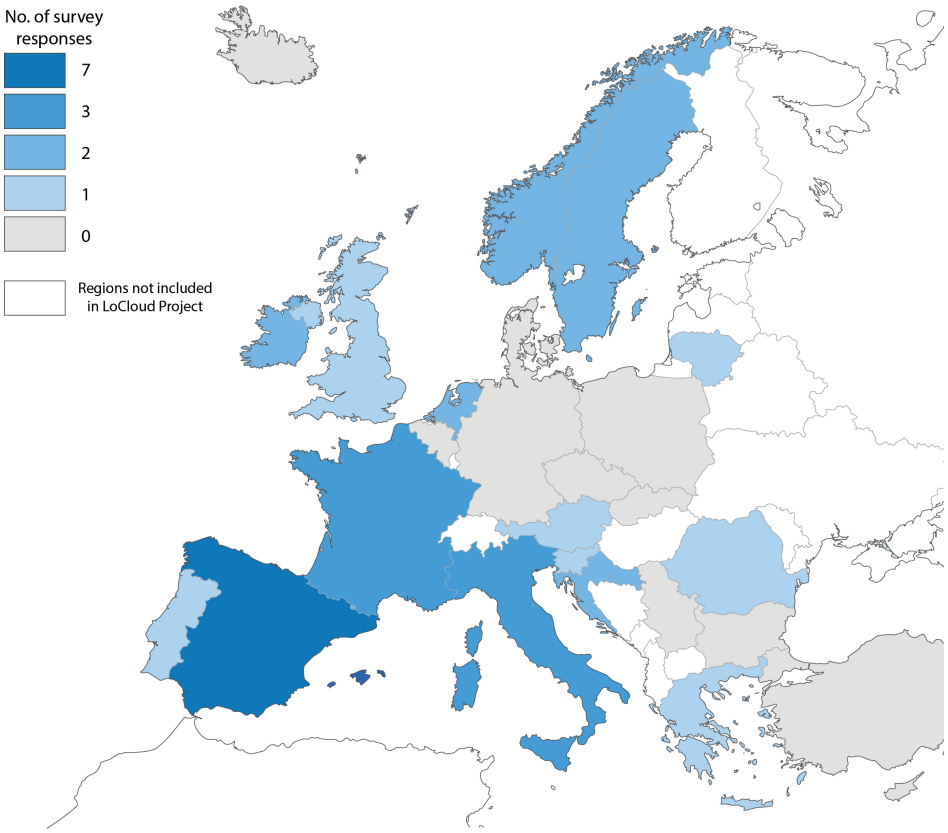


Figure 4-1 Map illustrating the number of survey responses by country

Analysis of the responses indicated that the SMO's that took part in the survey were predominantly Public organisations (21 organisations, 68 %); 10 Private organisations participated (32 %). This profile is not unexpected among organisations working within the cultural heritage.

When asked to describe the collections which they manage (Q7) there were two main types of content:

- Traditional digital content: Images and Text (>60 % each)
- New wave digital content: Video, Sound, 3D (<30 % each)

Note that traditional digital content is highly predominant.

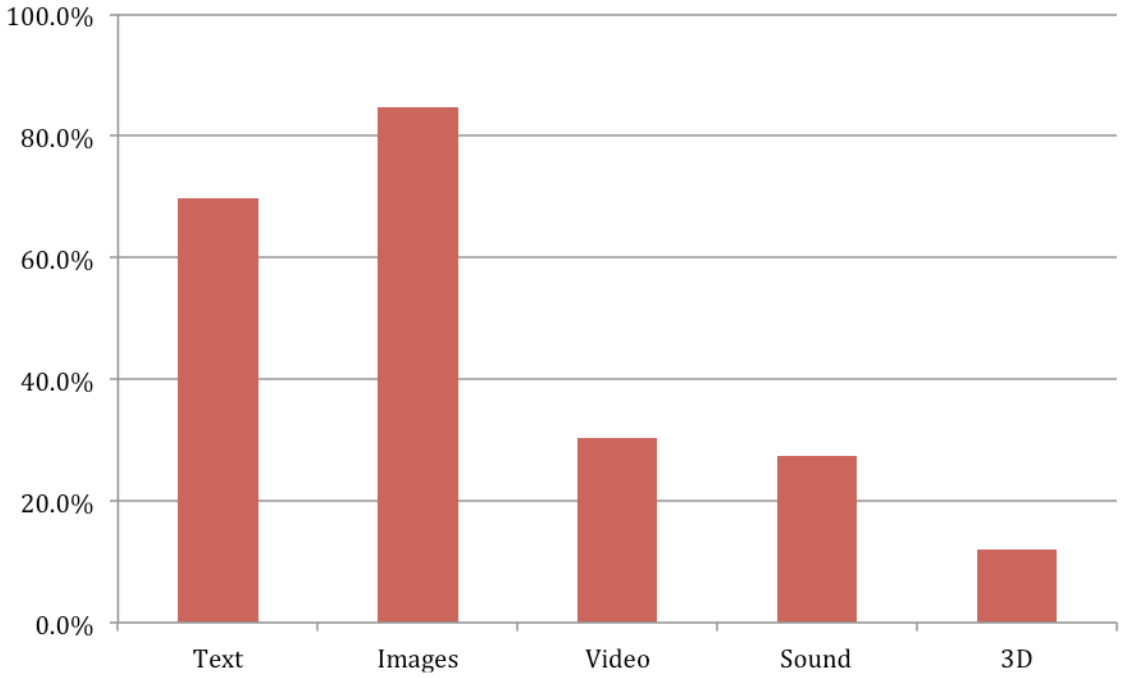
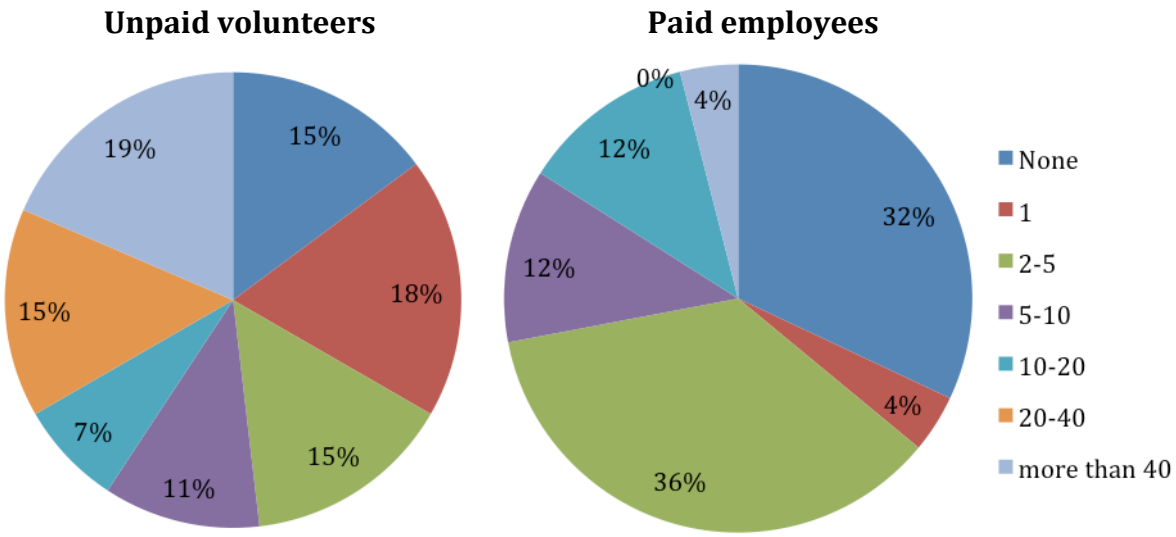


Figure 4-2 Graph illustrating the different collection types managed by the organisations

Questions 10 and 11 addressed employment (Q10, how many people are in paid employment at your organisation?, Q11, how many unpaid volunteers assist in the running of the organisation?).

The results are quite surprising (figure 4-3 below). The answers revealed more very small organisations (2-5 people and less) and big organisations (up to 20 people and more) than average sized organisations. They also showed the importance of volunteer's assistance in small sized organisations, with 2-5 people and less.

Figure 4-3 Pie charts illustrating the number and proportions of paid employees (right) and unpaid volunteers (left) who work within the surveyed organisations



4.3. Trends and dynamics

4.3.1. Aggregators's activities before the introduction of LoCloud services

A large majority of organisations reported that they already knew of Europeana before engaging in LoCloud (Q12, 73%). The results also show that the respondents thought that other organisations of their types also knew of Europeana (Q13, 65%). This could be related to the connections links these organisations with each other and through working in the heritage domain. But, the survey also showed that a significant percentage of organisations were unaware of Europeana (Q12, 26%), and were not sure that others know of Europeana (Q13, 34%). This indicates that Europeana is still not well known right across the heritage domain.

The survey results revealed a feeling that Small to Medium organisation data is not fully represented in Europeana (Q14, 84% responded No) and also that it is difficult for them to submit content (Q15, 85% replied Yes). This illustrates the need for more "user-friendly" tools, such as those which LoCloud aimed to provide.

Concerning the issues that make it difficult for SMOs to send content to Europeana (Q16), the biggest problem identified by the survey was:

- Lack of technical staff and support (75%).

Then in similar proportions:

- Lack of financial resources (58%).
- Lack of systems for managing digital assets (54%).
- Lack of curatorial staff; and lack of systems for enabling metadata harvesting (both 45%).
- Lack of systems for publishing content online; and too much effort is required to produce metadata (both 41%).

The two least significant problems were:

- Lack of hardware for scanning / digitising content (33%)
- Lack of software for cataloguing collections (29%)

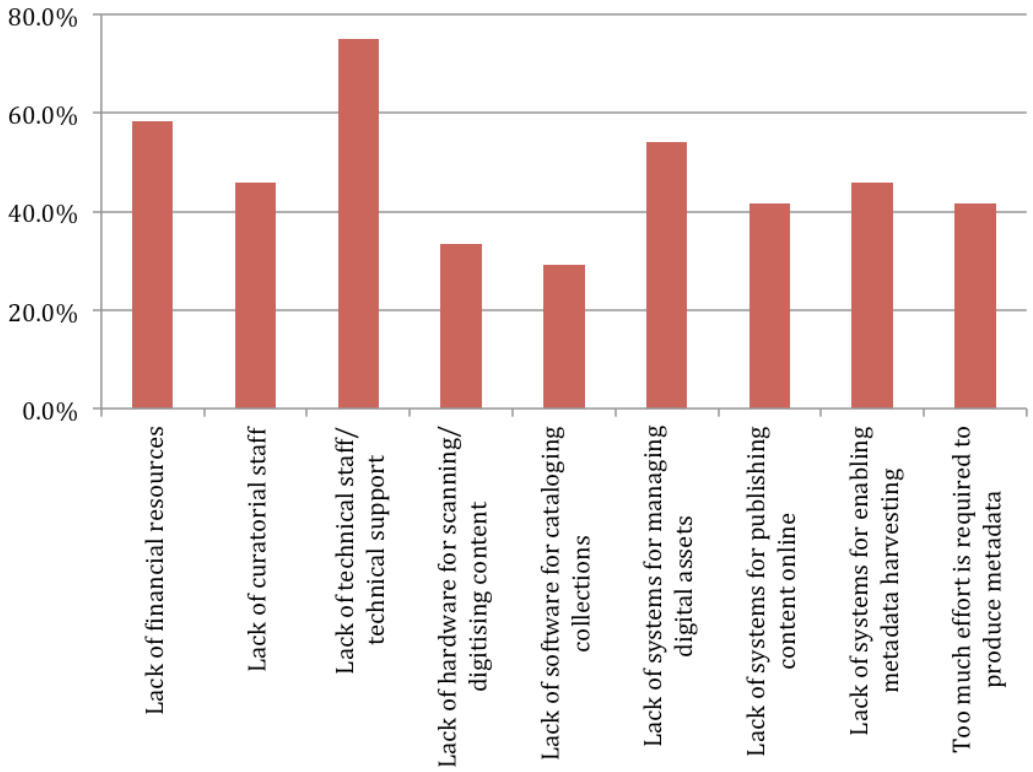


Figure 4-4 Graph illustrating the different resourcing problems which exist in organizations that make it difficult to provide content to Europeana

The survey results suggest that the first issues SMOs face in sending content to Europeana are technical ones, expressed in the first answer and in the 3rd to 7th. There are specific technical issues relating to metadata, as shown by the answers to Q17 about training problems that can make it difficult to provide content to Europeana.

Insufficient knowledge of metadata dominates the responses:

- Insufficient knowledge and understanding of metadata (84%)
- Insufficient digitisation skills; knowledge and experience of IPR (both 52%)
- Insufficient knowledge and experience of cataloguing (31%)

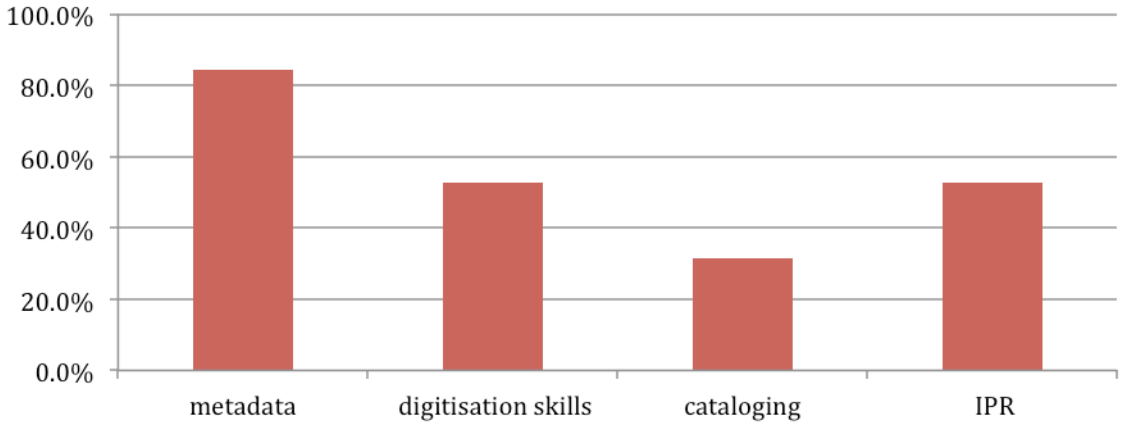


Figure 4-5 Graph illustrating the relevant training and knowledge problems which exist in organizations that make it difficult to provide content to Europeana

A majority of the SMOs who responded to the survey had not provided content to Europeana before LoCloud (Q18, 76 % responded No).

For the six organisations who had provided content previously, this was mainly through EU project/initiatives (Q19). The answers reveal that the organisations had used national aggregators (Kamra for Slovenia). Respondents reported a "moderate" experience of using a state-agreed private firm in Spain (Q20). Only one organisation rated their previous experience as "excellent", whilst twenty-three SMOs described the experience as "moderate".

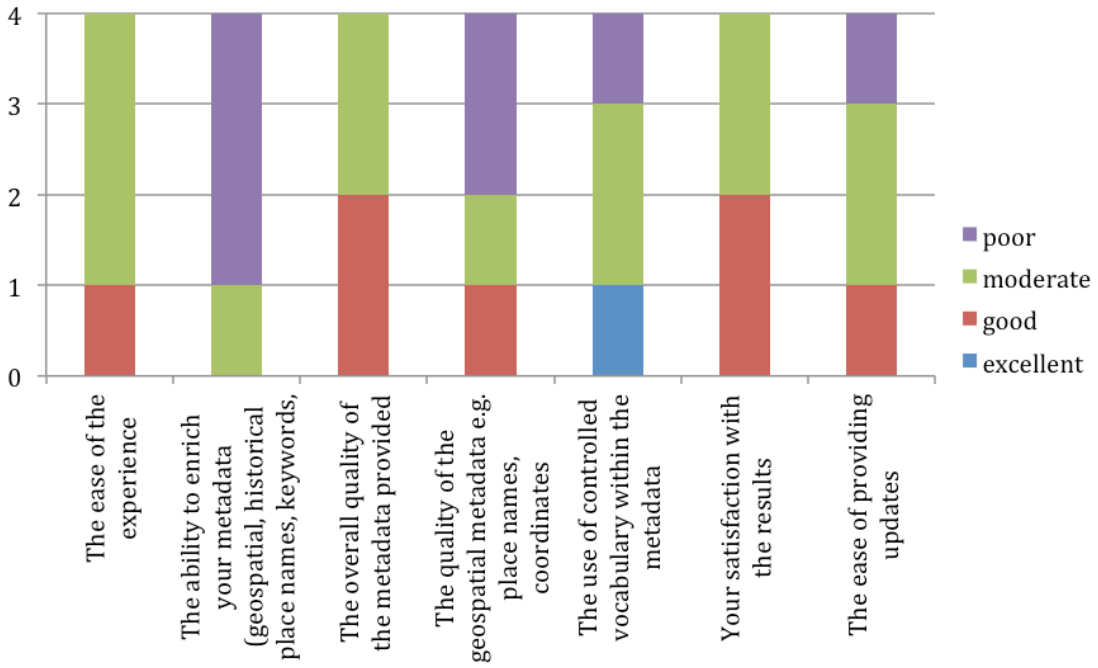


Figure 4-6 Graph illustrating the user satisfaction of contributing content to Europeana before using LoCloud services

4.3.2. Experiences of utilising LoCloud services

Q21 asked which LoCloud services were used by the SMO and how often. The responses indicated that the most used service was LoCloud Collections with MORe and MINT the 2nd and 3rd most frequently used tools. Geocoding Enrichment and Vocabulary services were reported as being used infrequently, but more often than the Historical Place Names Service and the Wikimedia Integration tool. It is perhaps unsurprising that LoCloud Collections was most used as it was developed specifically to aid SMOs.

All of the tools were used to send "traditional digitised content" to Europeana. All of the institutions reported providing images (100%). Documents (57%) were also commonly provided, while video and audio represented only 5% of the content provided (Q22, what type of documents have been added to Europeana utilizing LoCloud).

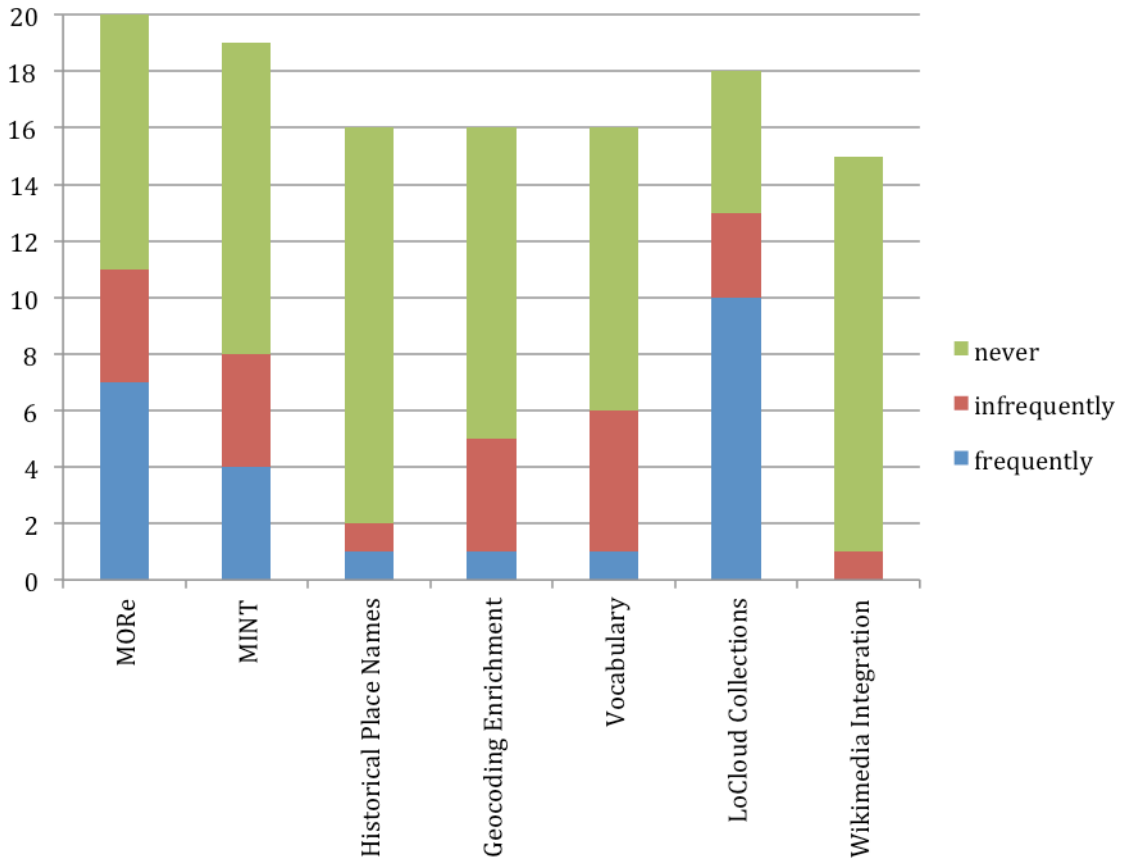


Figure 4-7 Graph illustrating the use of LoCloud services by the organisations

Q23 asked the respondents to rate the experience of using LoCloud to add content to Europeana (with 4 being excellent and 1 being poor). With no doubt, using LoCloud services provided a good experience with over 79% of respondents stating that they had a good to excellent experience across all the services. The highest level of satisfaction reported was for the quality of the geospatial metadata (93% good to excellent), the quality of the metadata provided (88% responded good to excellent). All other aspects are also positive: the use of controlled vocabulary (81%), the ease of experience (79%), the ability to enrich metadata (82%) and the ease of providing updates (82%).

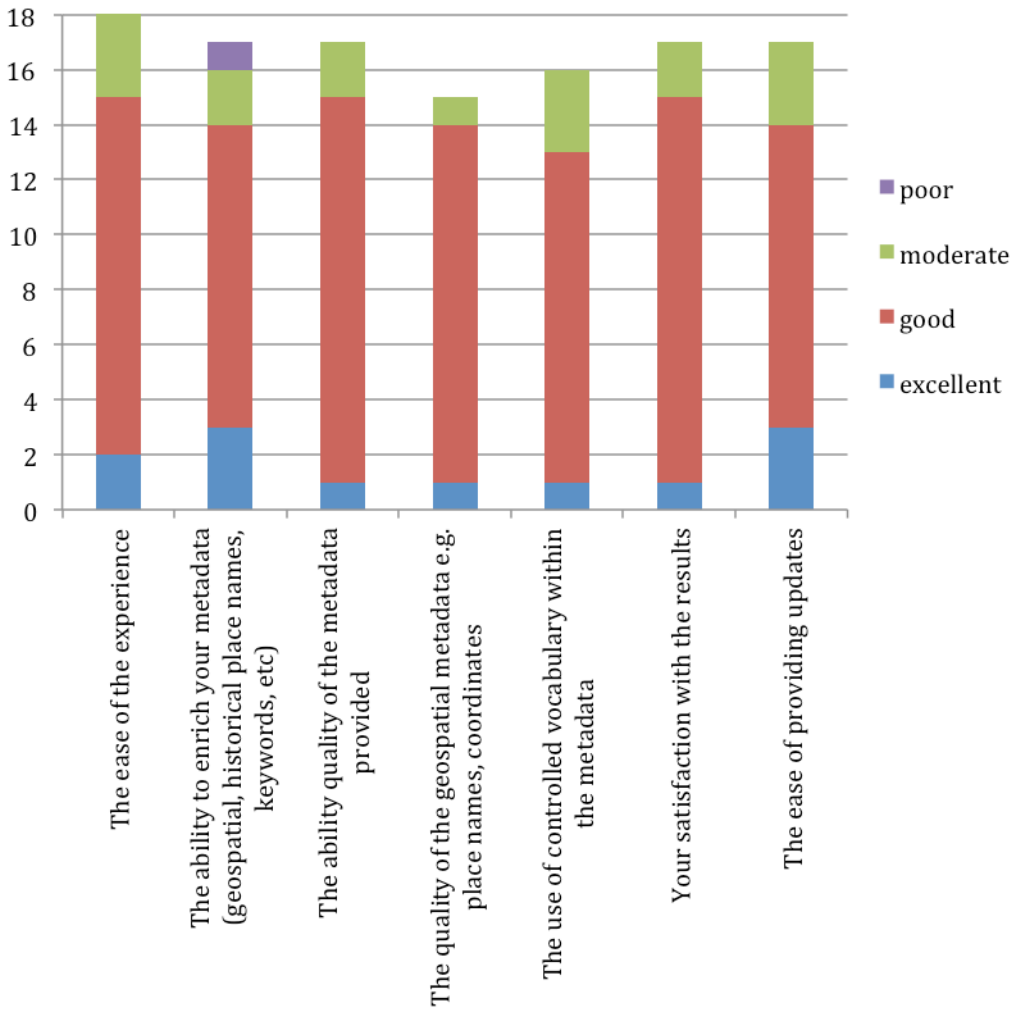


Figure 4-8 Graph illustrating the user satisfaction of contributing content to Europeana using LoCloud services

A small percentage of respondents (less than 21%) recorded that their experience in using LoCloud services was poor to moderate. This suggests that there is still some room for improvement in delivering the LoCloud services.

4.3.3. Assess the relative benefits and costs of utilizing LoCloud

Q26 asked respondents to rate the benefits of the LoCloud services. LoCloud Collections received the most positive response with 52% finding it of "great benefit". MORe and MINT were rated "great" by 22% and 17% of respondents respectively; but a significant percentage of respondents recorded that these services were "not used". All other services were mainly reported as "not used" and when used the results balanced to "moderate".

These responses suggest that only LoCloud Collections emerged for small and medium organisations. But given the relatively small number of respondents to the survey it is difficult to come to any conclusions about the relative benefits of using the LoCloud micro-services for small and medium sized organisations.

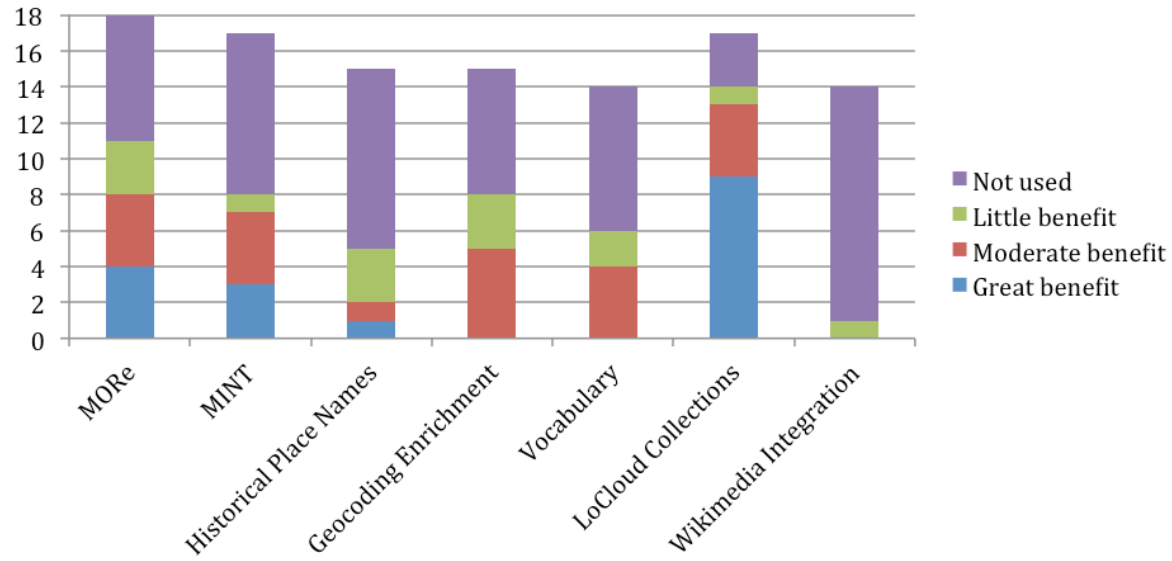


Figure 4-9 Graph illustrating the relative benefits to organisations from utilising the different LoCloud services

Q27 asked respondents to rank LoCloud services based upon their experiences. The responses show that MINT had the best interest (average rating 5.60), just followed by MORe (5.08) and Geocoding Enrichment (4.7).

Taken together LoCloud services were ranked "moderate" (Q28) in terms of benefits to:

- Increase usage growth
- Provide support for local institutions
- Enable metadata enrichment
- Enable metadata validation
- Enabler for development of new apps/services
- Improved standardization
- Improved ability to show content on the map
- Availability of training and course materials
- Enabler for visitor growth

7 services were ranked as "high" in terms of benefit to:

- Improve integration and access to cross-cultural content
- Provide access to new collections

- Increase diversity of collections
- Improve content visibility
- Easier access to publication in Europeana
- Improve the ability to publish small collections online
- Enabler for visitor growth

Overall LoCloud Collections was rated highest by the survey respondents in terms of benefits to:

- Increase usage growth
- Improve integration and access to cross-cultural content
- Provide access to new collections
- Increase diversity of collections
- Improve content visibility
- Provide support for local institutions
- Enables for development of new apps/services
- Easier access to publications in Europeana
- Improve the ability to publish small collections online
- Availability of training and course materials
- Enabler for economic growth
- Enabler for visitor growth

Geocoding enrichment was the second most highly rated service (Q28) to:

- Enable metadata enrichment
- Improve ability to show content on the map

MORe (for the enabling of metadata validation) and the Vocabulary Service (for the improvement of standardization) were the next highest ranked LoCloud services by the survey respondents.

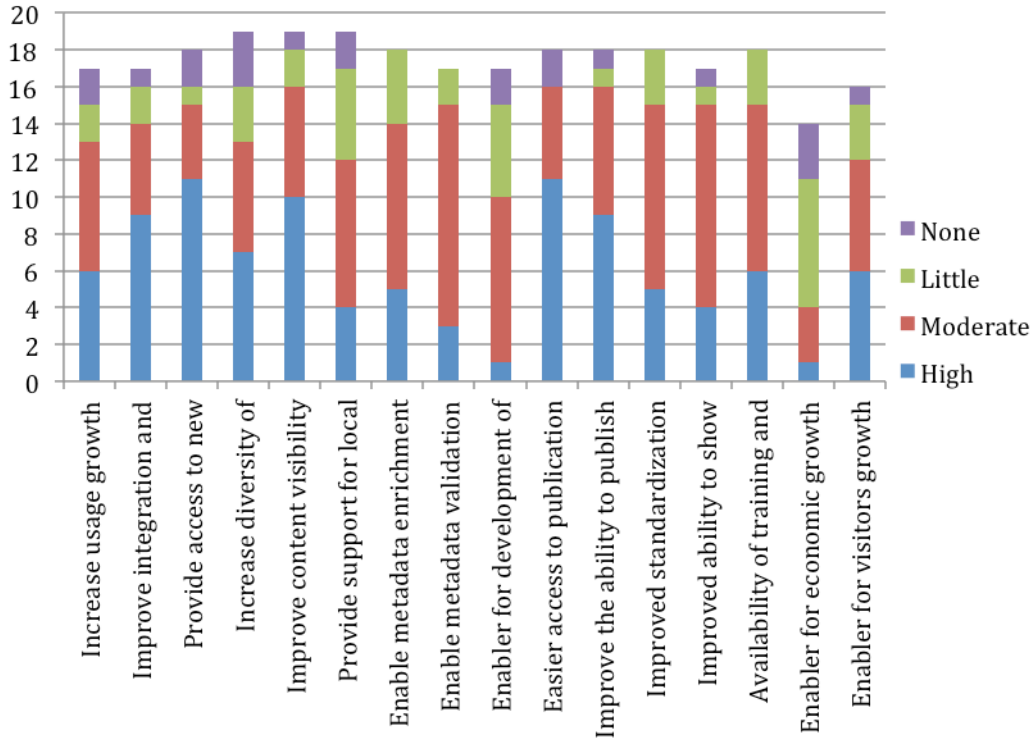


Figure 4-10 Graph illustrating the specific benefits to organisations from utilising LoCloud services

Q30 to Q36 asked for each LoCloud service, "have there been any costs to your organisation of using the service". The responses show that when a service was used (*i.e.* mainly LoCloud Collections) no additional costs or efforts were observed.

4.3.4. Identify potential from reuse of LoCloud enriched content

Only a third of the survey respondents reported capturing feedback on the use of their collections (Q37), thus it is difficult to provide a detailed picture.

In general, user feedback is mainly from website analytics (Q38) or general comments.

Many of the SMOs who responded to the survey didn't know if their users had visited their LoCloud enriched content (Q40, 50% no). When they knew, the responses suggest that less than 20% of their users did.

83% of the SMOs reported that they hadn't noticed any increase in use of the collections provided to Europeana through LoCloud (Q41) in comparison to other content not in Europeana). This is not surprising given the relatively recent publication of LoCloud content in Europeana and the limited availability of web statistics.

Many of the respondents reported that they didn't know if the users are looking for specific content (Q42, 66% were unsure). When known, the major source of traffic to

SMO websites is from search engines (Q43, 66%). Few of the respondents answered the question asking if they knew whether the public found the content that they were looking for (Q44, 5 responses, 100% unsure), all who responded recorded that they were unsure. 80% reported being unsure if the public found the results useful (Q45), or if they considered it easy to find what they were looking for (Q46, 100% responded unsure). In general, respondents reported that visitors come to SMO websites to browse content (Q47), with 40% estimated as returning to the website in the future (Q48).

No increase was reported regarding the number of citations/links/shares, (Q49, 53% reported No). A small proportion noticed impact on media/press (15%) and social media (38%). The survey results suggest that there is no evidence to date of any economic use of the content (Q50), e.g. for tourism.

70% of the respondents reported their web-users have a good experience of their website (Q51, on a scale of 1 to 4, with 4 being excellent and 1 being poor, how would you rate your user experience of the website).

4.4. Recommendations

All of these results indicate a few aspects LoCloud could work on, to improve the overall service:

- Increase LoCloud communication to SMOs (which could help provide a bigger panel of responses).
- Continue efforts to increase the involvement of SMOs in Europeana.
- Continue the efforts to simplify metadata cataloguing, which is the first challenge for these organisations.
- Continue to produce tools with no (or very low) financial cost for SMOs, LoCloud tools are already successful in this regard.
- Continue to improve geographic mapping abilities, as geocoding services are appreciated and beneficial to SMOs.
- Develop user feedback functions, as very few SMO do it for their own websites.
- Improve audio and video provision to LoCloud. Approaching other types of heritage organisation which have a wider range of multimedia content could be a first step.

5. Europeana Organisation Survey

5.1. Methodology

Three different sections in the Europeana organisation were consulted as part of this exercise to ensure that several perspectives were recorded. These sections were:

- Product Development
- Data Partner Services
- Policy, Research, Knowledge & Programme Management

Interviews were the preferred methodology for this survey, as only a few individuals were being consulted and their information was critical to the study. Face to face interview would have been preferable; however, to ensure efficient use of time and to save the additional cost of travel, audio interviews were carried out by Skype.

Direct interview has several advantages over online questionnaires, these include:

- The interviewer can explain questions that the respondent has not understood and can ask for further elaboration of replies.
- Being asked survey questions by an experienced listener is more rewarding for respondents than the chore of filling in a form and will usually obtain a greater amount of information from them.

Audio interviews were conducted with the three members of the Europeana organisation utilising Skype and audio recording technology. Care was taken to ensure that there was no interview bias introduced into the survey via the interviewer revealing their own opinions towards the subjects discussed.

Interview lasted for approximately 30 minutes and took place on the following dates:

- 7th September 2015
- 8th September 2015
- 14th September 2015

5.2. Interview Results

Following the completion of the interviews, conversations were transcribed and summary answers where provided for each question

Q1: Describe the relationship between Europeana and small and medium organisations prior to LoCloud?

- Europeana is not in touch with the institutions directly, it works with the aggregators which act as middle men mainly due to an issue of scale as it is currently being provided information from over 3,000 institutions, talking to them directly would not be scalable.
- Aggregators therefore take some of the workload so Europeana can work in a more focused way on getting the data in Europeana, especially where smaller institutions do not have the technical ability to work with Europeana directly.
- There was feeling that unless the respondent was part of the aggregation process that they could not comment on Europeana's relationship to SMOs as they were too distant from this interaction. There was awareness that some previous projects such as Europeana Local have targeted this audience.

Q2: Are there any specific problems with the data provided by SMOs?

- Metadata quality is the most significant issue in the aggregation work flow is the quality of metadata. Referred to *Report and Recommendations from the Task Force on Metadata Quality*, where "smaller institutions do not apply even general guidelines and instead develop their own rules around metadata creation".
- In terms of metadata quality one responder stated that they had no awareness that there are any key differences between small and large organisations which provide metadata to Europeana. The problems that exist are for all types of institutions including: understanding of rights and how it applies to the different types of data, how to ensure that the correct data is being completed in the correct metadata fields and making sure that the values which are filled in are meaningful to humans and computers.
- Wider problems which exist in comparing large to small institutions, is that larger institutions may not really need Europeana or the help Europeana provides in bringing data online, were SMOs do need that help as they don't have the expertise, knowledge or the technical ability in terms of server management, bandwidth requirements, but they are very keen in providing their content.
- There is always the problem of SMOs having enough technical resources and staff with the right skills to engage with the aggregation workflow, which has been an obvious problem in the Europeana network for some time. Having the right staff and/or the right assistance is essential. Providing services and guidelines can therefore only benefit them.
- Content will probably come from the medium sized organisations.
- SMOs often don't have an understanding of the rights issues and the time and money to make these changes to share their data openly through Europeana.

- Europeana actually struggles with larger organisations. Although initiatives such as Apex which is focussing on the archive sector, can attempt to solve this problem there are difficulties with some larger institutions such as museums in providing content to Europeana.
- Smaller and medium institution's metadata is normally what dominates within Europeana.

Q3: Before LoCloud what type of content where SMOs providing access to?

- Respondents replied that the full range of data was being received and that it followed generic content types seen in all areas of Europeana.
- Library data is strongly represented e.g. The European Library providing more that 10 million metadata records, approximately a quarter of Europeana total collection and within this collection are numerous smaller libraries.
- There is a lack of 3D and audio visual content.

Q4: Within Europeana are there any sectors where SMOs are not represented?

- Small archives are an area which Europeana struggles with, but the feedback from SMOs isn't always passed to us from supporting aggregators and activities such as Apex.
- Looking at metadata content in Europeana, there can also be geographical and regional areas which are not equally represented and this is where projects like LoCloud can help to actually kick start the process in a country.
- There are an estimated 3,000 providers to Europeana whilst there are around 60,000 cultural heritage institutions in Europe, therefore a lot more is required to provide access to their content.
- There is variable representation across Europe as smaller institutions do not have the technical infrastructure to make the data available that Europeana need
- There were initiatives in the past such as the projects to assist small and public libraries and archives. In the future there will be more metadata and effort to provide metadata within the thematic grouping or channels such as the Fashion Channel and Sounds Channel. Less of a focus at present on the audio visual sector as there have been previous initiatives in this area.
- It is often difficult to spot SMO data within the mass of larger institutions sea of data. The promise of Europeana is to provide increased visibility to the SMO so there has to be a balance between the small number of organisations with very large collection and the greater number of smaller collections provided by SMOs,
- Visibility depends on the quality of the metadata which will control how easy it is to find an object.

- What could be done by Europeana is to increase the connections between object from large and smaller institutions within the cultural ecosystem. Turning this vast amount of cultural content into a network will be one of the major challenges for Europeana in the coming years.

Q5: Do the aggregators have a greater role in promoting Europeana to SMOs?

- Respondents agreed that aggregators had a greater role in incorporating SMO data.
- The further away Europeana is to a source organisation, the more difficult it is to get the information and adjust it to suit Europeana's requirements.
- Even if there is an interest it would still be difficult to provide metadata, as sometimes Europeana can be difficult to understand and follow all the developments. This can often depend upon which area you look at and what aggregators in that domain or country have done already.

Q6: Are there any resourcing or technical problems in SMO who wish to provide metadata content to Europeana?

- Generally, significant amount of work needs to happen before organisations are ready to offer data openly with Europeana or any other services. Once you had a good technical policy and technical infrastructure setup in place this can be achieved, but this takes time.
- Respondents noted that it is difficult for SMOs with no technical knowledge or resources (staff) to provide metadata, but it is the job of the aggregators to try and help them which requires funding and support of the aggregators. Some aggregators also do not have sufficient technical resources to offer this advice.
- Technical issues include: server capacity and bandwidth is one of the problems encountered by SMOs and a lack of digitising facilities to enable the production of high quality digital content is a challenge to SMOs and they may need technical partners to make this happen
- Small institutions may struggle to carry out all these activities within their own organisation, therefore they must work collectively and cost efficiently with partner institutions across the full range of digitisation, distribution and publishing.
- Relying on individual curators to carry out all these activities on top of their normal work load is challenging, something will suffer either the physical object or the digital representation. For larger organisations with more staff this is not as much an issue.

Q7: Do SMO have sufficient understanding of the skills required?

- Respondents thought that there was a lot of speculation in what it really is that makes large institutions different from small institutions, and the influence that domain has upon this.
- Training is definitely something which all institutions require. There is a likelihood that in large institutions there will be more people learning the technical skills required.
- The lack of skills is a problem for human resources.
- In contrast respondents knew from experience that sometimes in SMOs the staff are more excited about proving digital content and find ways to help each other and adopt creative methods to move the process forward, often gaining the most benefit from their limited resource.
- SMO staff can often be more experienced and knowledgeable than members of larger organisations, but it would require more analysis to establish the full picture.
- Sometimes within smaller institutions there is more awareness, dedication and understanding of their collection by the staff.
- In terms of IPR conversely some smaller institutions can be more flexible and discuss with Europeana increasingly open access to their content.
- There may be a lack of technical skills but SMOs can have more knowledge of the content and its potential which can play a positive role provided the correct guidance, workflow and tools are provided.
- Larger organisations often suffer from institutional inertia when adopting new methods and techniques
- SMOs have the advantage that there are fewer people within the management structure of an organisation to convince of the benefits of providing access to content through Europeana.

Q8: In terms of getting metadata into Europeana how easy is the experience for SMO?

- Getting content published in Europeana is quite a cumbersome process as it takes time and is slow and involves quite a few number of steps.
- Europeana is prepared for a particular scale of content to ingest, i.e. bulk uploads are preferable than dealing with 5 individual items.
- What is required are easy to use tools and the tools which LoCloud has contributed or is still constructing are a great chance to make this happen, e.g. item based ingestion and publication and make it very simple for SMO to work within the process.

- The current Europeana tools and setup don't enable it to deal with SMOs directly as it would be very cumbersome for Europeana to process this data.

Q9: What are the tangible and intangible benefits for SMO in placing their metadata within Europeana?

- Increases exposure of their data as it will appear in Europeana portal and channels.
- For small institutions visibility counts for a lot and being part of something European is very attractive., e.g. staff at a small museum could go to their Director as say that by providing access to their content through Europeana the organisation has achieved something that conforms to their organisational goals.
- Helps organisations address the issues and challenges of providing open access to their data and the issues that come with it , i.e. licensing, EDM.
- Better staff awareness of data issues in terms of standardisation, sharing and openness.
- It makes an organisation feel it is part of Europe and important enough that their content is being presented.
- Where SMOs provide high quality content then they have the potential to be featured prominently with within and beyond the portal e.g. social media then this increases the importance of the action and makes the organisation increasingly visible.
- Has a value to an organisation in terms of promotion, e.g. a small organisation may only provide access to ten of their most interesting objects through Europeana in high quality, which in turn are noticed by the wider community and reused in apps and tourism initiatives. The result could be an increase in visitor to the city, region or museum which may provide smaller financial benefits both directly and indirectly.
- There are benefits to organisations if Europeana and aggregators do their respective jobs correctly by enriching and presenting metadata. This will facilitate the emergence of high quality metadata through the use of shared tools e.g. where domain experts and curators can contribute to vocabularies but the technical hosting is provided by a central tool through the aggregators would benefit everyone. Providing centralised tools also reduces and shares the cost across a wide group on organisation.
- By curating their own metadata SMOs may find that there are also additional far reaching benefits. Enrichment by third party services could be ingested back into the metadata systems of the providers thus providing assistance to their cataloguing workflow.

Q10: Of the collections within Europeana which have come through the LoCloud project is there any new type of content or domains represented?

- From what was seen so far there is a mixture of content from partners who have participated with Europeana in the past and some new providers, but it was hard to judge if domain gaps are being closed.
- It would be interesting question to what extent the LoCloud approach is more or less beneficial to providing content than the Digital Libraries approach, i.e. what method of aggregation and experience is superior for this group of content providers.

Q11: What is your evaluation of the LoCloud services?

- Respondents found it hard to fully answer this question as the services and data provided by LoCloud had only recently been available therefore they had not practically used the tools and services developed by LoCloud at this stage of the project, but hoped to start applying them and become familiar with their usage over the next few months.
- By enriching the metadata, it should be possible to improve the "find ability" of content. Economic impact unlikely but increase in hits and exposure of data, as it is more likely to be found.
- One respondent stated that they had evaluated the enrichment services. They did not have the best performance in terms of precision but there is an understanding that all the services require consolidation, refinement and promotion to the potential users. What is valuable at this stage is to make content providers aware of these tools.

Q12: Has there been any additional costs or benefits to Europeana to integrate LoCloud services into their established process?

- Challenges exist when multiple organisations are creating/managing services. Europeana must rely on the sustainability and commitment of each of these organisations rather than a centralised organisation. It was stated that Europeana has discussed the issues and many other technical integration issues with LoCloud.
- LoCloud is excellent and has a very good focus, however, it needs to work out its business model to sustain this effort in the long term which is very tricky but this is where greater cooperation with Europeana will make this happen.
- The Europeana toolsets is due to be redesigned and there has been discussion to what extent the experiences and tools developed within LoCloud can be incorporated into this change. Therefore, together we need to address the scalability of the LoCloud approach across the rest of Europeana.

Q13: Are there any specific services which display the most value and potential to Europeana and SMOs?

- MORe will be most interesting of all the services ways but it still requires full assessment the full benefit will be to Europeana.
- The other enrichment will provide benefit to both aggregators and SMO but still require technical knowledge, ability and power to make them work successfully within the SMOs.
- LoCloud collections will provide most benefit to SMOs as it is very easy to work with. They enable direct dealing with smaller datasets and individual items sounds interesting as the tools enable the processing of smaller datasets from XML to Excel files, which is something Europeana has not achieved previously to LoCloud.
- Europeana should be able to indicate improved metadata quality by provide better analytics and statistics. However, identifying the correct quality metrics may be difficult. Therefore, to identify the full benefits quality metrics per contributing institution should be evaluated. The research carried out within LoCloud could potentially assist in the formation of these metrics but care must be taken when comparing organisations against each other in terms of quality.
- Services such as the Historical Place Names or the Vocabulary Service really show the direction on where the process is going. They have not been evaluated to see if they are state of the art but they provide services which Europeana requires.
- For services such as LoCloud Collections which enable organisation to organise and publish their content it would be great to integrate many of these services into these tools directly over time but it will take time and should be done incrementally so as not to scare away potential providers.
- For something that can provide more assistance to specific domains then the aggregator should utilise the services, but in the long term the providers should take ownership of these services for themselves which will ultimately be based upon the expected value each enrichment and publication service provides. The best perspective is to create data within a networked environment so all the costs of creating catalogues and archive metadata would be shared amongst the actors depending on their specialties. There is definitely potential in distributing all the effort across the processing pipeline. However, this requires the content providers to learn how to work in a networked way and not catalogue in isolation, which has occurred slightly within the library sector with the union catalogues which has unified the reference systems in many countries. It has been historically monolithic systems with a very high cost of entry both

financially and technically. Now we are moving towards flexible and loosely coupled systems that can bring a lot of benefits when organisations learn to us them.

- The services will require consolidation in the coming years to enable their full benefit to be demonstrated in the long term.
- Some service may run at the Europeana level which may serve to fulfil some of their goals, but this is not optimal arrangement

6. End user benefits survey

6.1. Context

The purpose and scope of this section is to report the benefits observed by end users of LoCloud content in Europeana. The benefits for end users are difficult to define and measure mainly due to the different purposes for their visit, the variety of subjects they are interested in and their expectations about what they would encounter.

6.2. Survey Design and Methodology

End users are a target group that is hard to "capture". In general the small and medium sized heritage organisations, who are the focus of LoCloud, collect limited user feedback. Addressing end users with a pop-up questionnaire while they were browsing the LoCloud collection in Europeana, was not possible for technical reasons.

For these reasons, a questionnaire (see Appendix 3) was designed to identify the benefits of LoCloud content published in Europeana to end users. The questionnaire covered the following topics:

- End user information
- Discovery results specific use
- Discovery results non-specific use
- General feedback

The questionnaire was made available online using a survey tool: Survey Monkey.

The questionnaire consisted of 9 simple questions and took less than 10 minutes to finish. This was done to make it as easy as possible for end users to take part in the survey.

The first questions aimed to record the context and background of the respondent. The next questions invited respondents to rate the experience "find-ability" and usefulness of LoCloud content, ease of searching and overall satisfaction. A distinction was made between respondents who were searching for specific content and those that were browsing. Rating was done on a scale of 1 to 4, with 4 being "excellent" and 1 being "poor".

Respondents were given the opportunity to provide additional comments on their ratings and to make suggestions for improvement.

The online survey was available for completion for approximately two months from the dates 15th of September 2015 to 15th of November 2015. The survey was publicised by

partners and attendants at workshops, conferences and symposia on (digital) heritage, were called upon directly to participate.

In addition to the responses from end-users to the online questionnaire, Europeana analytics were used to compare the use of LoCloud content (collection LoCloud in Europeana) with the general use of Europeana. Some of the questions in the LoCloud survey discussing costs and benefits for small and medium sized heritage organisations also pertained to end user feedback. These results were used to add some context.

6.3. Overview of responses

Fifty-seven individual end users answered the questionnaire. Of these, thirty-seven completed the questionnaire; the remaining twenty respondents did not answer all questions. The questions that were answered were used in the results.

The data shows which website the respondents visited, but not their organisation or location.

Twenty-five respondents searched LoCloud content directly in Europeana. The other respondents used a variety of websites: national, regional and local heritage organisations, museums and libraries.

Two out of three respondents were interested in LoCloud content for professional reasons. Almost half of the respondents indicated they were (also) interested for personal reasons (e.g. for hobbies, personal interest). A little less than half of the respondents were looking for specific content; the others were "just browsing".

The majority of the respondents reported they were satisfied with the user experience and the content they found and three out of four said they will visit the LoCloud content again. The respondents suggested that there is room for improvement, especially concerning the Europeana user interface (however, this is more a Europeana issue than a LoCloud one.

6.4. End User Survey Results

6.4.1. End User Information

Twenty-five out of the fifty-seven respondents (43.8%) viewed LoCloud content directly in Europeana. The other thirty-two respondents viewed LoCloud content through a variety of websites of heritage organisations at national, regional and local level (Q1).

Thirty-six out of fifty-three respondents (66.4%) viewed LoCloud content for professional reasons, whereas twenty-four (45.3%) did so for hobby. Results show that seven respondents viewed the content both for professional reasons and hobby (Q2).

A great majority of respondents (71.4%) ticked Local History as their subject of interest (Q3). This is not surprising, considering the nature of the LoCloud collection. General History (42.9%) and surprisingly Photography (46.3%) also scored high as subjects of interest.

Paintings (34.7%), Monuments (32.6%) and Architecture and Buildings (28.6%) scored comparably. Sculpture (18.4%), Archaeology (16.3%) and Genealogy (14.3%) scored less.

Three respondents mentioned they were also interested in literature, books, manuscripts and handwritten letters, two were also interested in maps. Other respondents expressed their interest in performing arts (1), (local) people of interest (1), interiors of monuments (1), and collections of repositories (1), general culture (1) and research on access to digital resources (1).

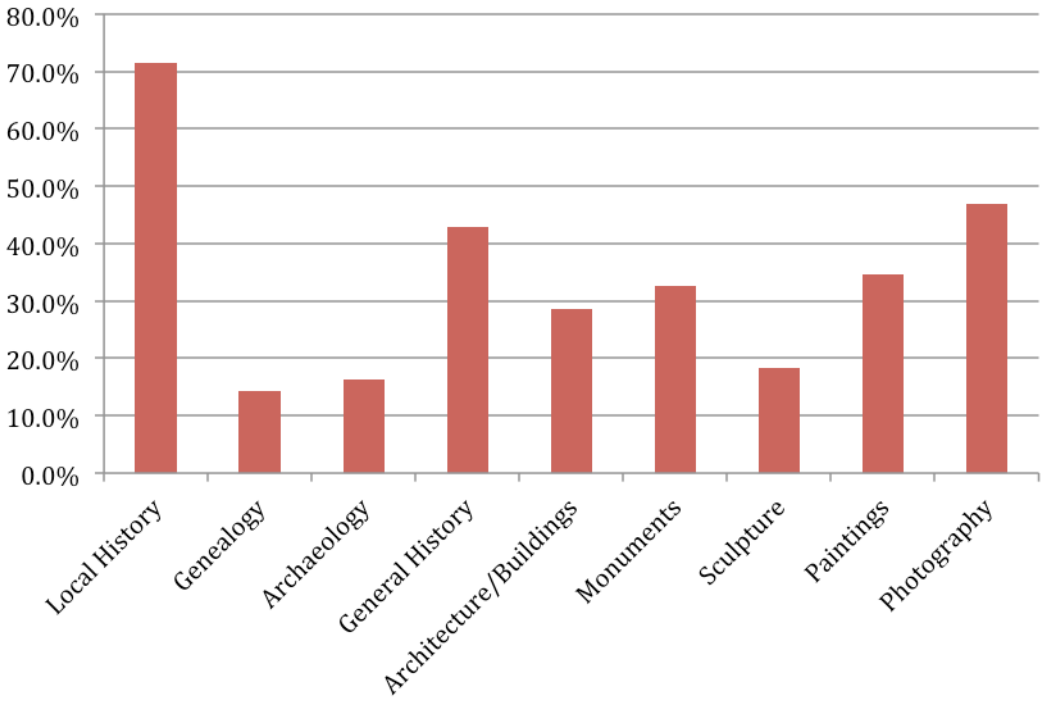


Figure 6-11. Graph illustrating the type of subjects end users are interested in

Out of fifty-two respondents, twenty-three (44.2%) were looking for something specific while viewing the LoCloud content. The other twenty-nine (55.8%) were not (Q4).

6.4.2. Discovery Results: Specific Use

The respondents looking for specific content (23) were asked to rate on a scale of 1 to 4, with 4 being "excellent" and 1 being "poor", how well they managed to find the content they were looking for (Q5.1).

- 2 respondents (8.7%) rated the experience as poor
- 6 respondents (26.1%) rated the experience moderate
- 13 respondents (56.5%) rated the experience as good
- 2 respondents (8.7%) rated the experience as excellent

Upon the question how useful the content identified was to them (Q5.2) the respondents looking for specific content rated:

- 0 respondents (0.0%) rated the experience as poor
- 6 respondents (26.1%) rated the experience moderate
- 16 respondents (69.6%) rated the experience as good
- 1 respondent (4.4%) rated the experience as excellent

The respondents looking for specific content also rated how easy it was for them to find what they were looking for (Q5.3):

- 2 respondents (8.7%) rated the experience as poor
- 6 respondents (26.1%) rated the experience moderate
- 11 respondents (47.8%) rated the experience as good
- 4 respondents (17.4%) rated the experience as excellent

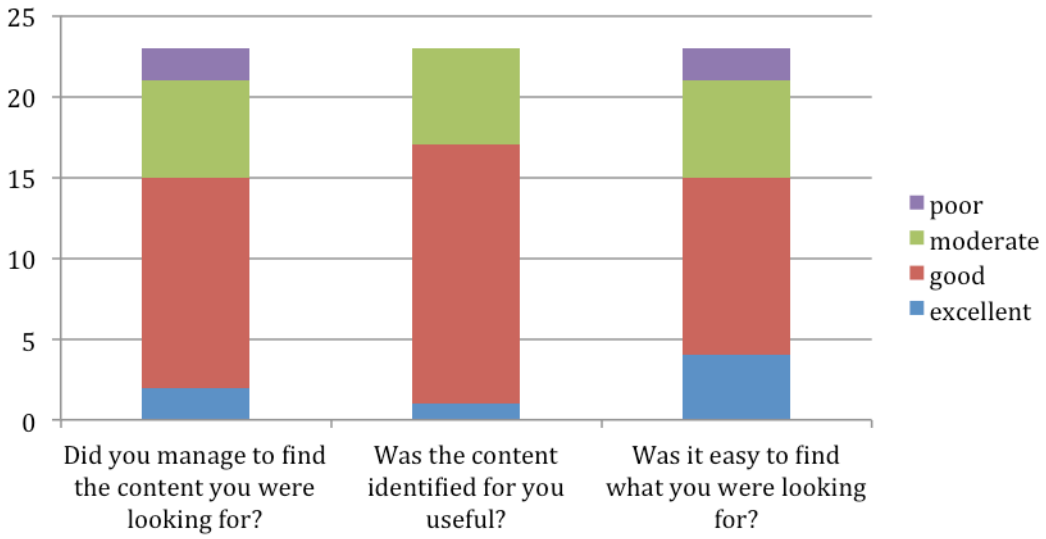


Figure 6-12 Graph illustrating aspects of user satisfaction when looking for content

A substantial majority of respondents (68.1%) was satisfied (rates 3 and 4) with the 'find-ability', usefulness and easiness of searching of LoCloud content. However, a substantial minority were not. Their remarks (in answer to Q6) are relevant for Europeana as a whole:

- Some comments address the user-interface: e.g. "too much clicking" before you reach the actual data.
- Another recurring comment is the lack of context: as only objects are presented, it is unclear what you are looking at, pictures are not visible or too small (thumbnails).
- A third recurring comment is that search results are not consistent or do not show up as was expected. Specific searches gave no results when the results did show up in a broader search.
- Unfamiliar languages were mentioned as a problem once. However, the translator was also stated once to be very useful for search results.

The comments on lack of context and inconsistency of search results, may well be related to a conclusion in the aggregator survey: *"Aggregators where asked to summarize their experience of providing small and mediums sized content to Europeana, the inability to enrich the metadata provided was the biggest problem with 71% of respondents stating that their experience was poor. The other main issue which provided a poor aggregator experience included that lack of use of controlled vocabulary and the quality of geospatial metadata."*

6.4.3. Discovery Results Non-Specific Use

The respondents who were **not** looking for specific content (26) were asked to rate on a scale of 1 to 4, with 4 being "excellent" and 1 being "poor", how satisfied they were with the content of the site (Q7).

- 4 respondents (15.4%) rated 1 (poor)
- 5 respondents (19.2%) rated 2
- 13 respondents (50.0%) rated 3
- 4 respondents (15.4%) rated 4 (excellent)

The reults from respondents are largely similar to those that were looking for specific content. A majority of respondents (65.4%) was satisfied (rates 3 and 4) with the content of the site. However, a substantial minority was not. Significantly more respondents rate poor (15.4% as compared to 5.8%) or excellent (15.4% as compared to 10.1%).

One might expect that the respondents looking for specific content are easier to disappoint if they don't find what they are looking for, or in a lesser quality. The respondents not looking for specific content may be easier to surprise by unexpected discoveries. The results show that this assumption is not wholly the case.

6.4.4. General Feedback

Both respondents looking for specific content and those **not** looking for specific content were asked to rate on a scale of 1 to 4, with 4 being "excellent" and 1 being "poor", how pleasant their visit to the site was (Q8):

- 1 respondent (2.5%) rated 1 (poor)
- 6 respondents (15.0%) rated 2
- 27 respondents (67.5%) rated 3
- 6 respondents (15.0%) rated 4 (excellent)

A large majority of 82.5% reported their visit to the site and the viewing of LoCloud content was pleasant (rates 3 and 4). When asked if they would visit the site again (Q10), 33 of 45 respondents (73.3%) answered "yes" and 12 (26.7%) answered "maybe". There were zero "no" responses.

Respondents were also asked for suggestions for improvements (Q9). The suggestions for improvements are not specific for the LoCloud collection, but seem to pertain to Europeana as a whole.

General suggestions for improvement:

- Improve the user-interface. Make it more attractive.
- More information on how to use the site. General information explaining what Europeana is all about and what you can use it for.
- Technical improvements on a more regular basis.
- Increase the number of countries and organisations that make their heritage information available through Europeana.

Suggestions for improvement of Searching:

- Searching is time consuming. Use standardised terminology/controlled vocabulary.
- Advanced search facilities are difficult to find and limited.
- Support on how to search.
- Make the search menu more user friendly and more intuitive.

Suggestions for improvement of Navigation:

- Show page location of the user, make it easier to go to the previous page.

Suggestions for improvement of Presentation:

- Rights to access and to use content of documents should be immediately visible, so you don't find out after going through several pages (that the use of content is restricted).
- Images take too long to load or do not load at all. Improve performance at loading/ viewing photographs.
- More data than just photographs in the database, sorting by date would be helpful. Improve scrolling facility through photographs and allow for direct opening of a picture.

Contextual data: LoCloud aggregator and SMO survey

One out of three aggregator organisations recorded a measurable increase in traffic to their content provided through LoCloud in comparison to other online content. This was despite the fact that most content had only just been published within Europeana and that many of the organisations do not collect statistics at present.

The above may indicate a notable interest in LoCloud content by end users, especially in these early days of publishing. How this interest develops in time can only be measured after the end of the LoCloud project.

Contextual data: Europeana website analytics

The analytics were gathered from the 1st of October 2014 till the 1st of September 2015.

Website analytics of the LoCloud content in Europeana show a stepwise increase of page views, starting in October 2014 with an average number of page views per day of 31.3 up to April 2015. In the same period Europeana had approximately 1000 page views per day.

From April 2015 up to September 2015, the average number of daily page views of the LoCloud content increased to 145.2. In that same period Europeana had approximately 3000 page views per day.

One might conclude the LoCloud content had grown relatively popular in Europeana from April 2015 on. However, some of the page views might have been caused by partners in the LoCloud project checking their published data.

Firm conclusions can only be drawn by studying analytics obtained some time after the LoCloud project has finished.

6.5. Findings of the survey

The majority of the respondents reported that they benefitted from the content delivered or enriched by LoCloud. The majority were satisfied with the user experience and the content found and three out of four said they will visit the LoCloud content again. However, there is room for improvement, especially in the Europeana user interface (this is more a Europeana issue than a LoCloud one).

The responses are similar for professional and hobby visitors, for those looking for specific content and those not looking for specific content. Two out of three respondents looking for specific content are satisfied with 'find-ability', usefulness and easiness of searching of LoCloud content. Two out of three respondents not looking for anything specific are satisfied with the content they discovered.

The respondents who were unsatisfied (one out of three) made comments that are not specific for LoCloud, but are relevant for Europeana as a whole. Suggestions were made for improvement of the user interface, searching facilities, navigation through and presentation of content.

The contextual data of the LoCloud aggregator and the SMO survey and the Europeana website analytics, show a notable interest in LoCloud content by end users. The results may have been influenced by project activities. How this interest develops in time, could be ascertained by studying Europeana analytics gathered some time after the LoCloud project has finished.

7. Conclusions

This section summarises the findings of the LoCloud User Impact Study from the different user communities. It combines several investigations aimed at monitoring the achievement of the objectives of LoCloud and their impact on the different user communities. The conclusions are drawn from the findings.

Findings of the LoCloud User Impact Study

Findings of the LoCloud User Impact Study for the different user communities include:

Aggregators

- Aggregators noted that small and medium organization's data is not fully represented in Europeana because of a range of issues including: lack of understanding and awareness of Europeana and its publishing process, and lack of financial and technical resources being the greatest barrier to content contribution.
- Over two-third of the Aggregators recorded that their experience of providing small and mediums sized content to Europeana was challenging due to the inability to enrich the metadata provided with over half of aggregators recording dissatisfaction with the metadata they process for Europeana.
- Following the introduction of the LoCloud services aggregator identified that there had been a marked improvement in the publishing process, particularly the process of metadata enrichment. Additional benefits also arose including the formation of regional aggregators through participation in the LoCloud project
- Aggregators identified that the LoCloud MORe and MINT services provided the greatest benefits to their processing chain with only moderate to little additional costs.
- Aggregators also identified LoCloud services provided improvements in the processes online publishing, metadata enrichment and validation, with their resulting collections having increased visibility, integration and access

Small and Medium Sized Organisations

- Small and medium sized organisations identified that a lack of technical staff and support was the greatest resourcing problem which existed in making their content available online. This conclusion is confirmed by the Aggregators, who add that a lack of financial resources is also a problem for SMO's.
- Small and medium sized organisations found that the LoCloud Collections service provided the greatest benefit to their institutes; providing increased

access, visibility and usage of their digital collections and was frequently used by these organisations.

- It is often cumbersome for small and medium sized organisations to provide metadata content to Europeana and that LoCloud has a very good focus which could alleviate these problems, however, a successful business model is required to sustain the services into the future.
- Training and knowledge is required primarily in the area of metadata.
- The lack of technical staff and financial resources, but also the unfamiliarity with Europeana, lead to under-representation of SMO's collections in Europeana.
- Small and medium sized organisations found that the LoCloud Collections service provided the greatest benefit to their institutions; providing increased access, visibility and usage of their digital collections and was frequently used by these organisations.

  Upon introducing LoCloud services to SMO's, Aggregators noticed a marked improvement in the publishing process of SMO's collections to Europeana. They especially noticed improvements in metadata enrichment.

  The above improvements also showed up in the end user survey: The majority of end users reported they benefitted from the content delivered or enriched by LoCloud and a majority (75%) said they would revisit content again in the future.

- It is often cumbersome for small and medium sized organisations to provide metadata content to Europeana. LoCloud has a very good focus which could alleviate these problems, however, a successful business model is required to sustain the services into the future.

  Again, this conclusion was confirmed by the aggregators, with over half of the aggregators recording dissatisfaction with the metadata they provide to Europeana.

Europeana Organisation

- The inclusion of small and medium sized organisations metadata into Europeana provides many benefits to the organisations, including: increased visibility, improved understanding of IPR. Europeana also benefits from the inclusion of small and medium sized organisations who display great enthusiasm, adaptability and strong understanding of their domains

End User Survey Findings

- The majority of end users reported they benefitted from the content delivered or enriched by LoCloud and a majority (75%) said they would revisit content again in the future.

Monitoring of the Europeana analytics should be continued in order to observe the effect of the LoCloud data after the project has ended.

Conclusions

LoCloud has provided a series of services which are helping smaller institutions to "cross the bridge", to publish their collections online with improved quality of metadata and to publish their metadata in Europeana. Our surveys confirm that such institutions face barriers in achieving this task. They have limited resources – financial, technical and staff – and frequently rely on volunteers. LoCloud services and in particular LoCloud Collections are proving useful for smaller institutions and for aggregators, who are also benefiting from the support and training that the project has made available.

To sustain and increase the number of collections published by smaller institutions, it will be important to guarantee the continuity of LoCloud services and qualified assistance.

Appendix 1: LoCloud Aggregator Survey questionnaire

Survey Introduction

Introduction to the LoCloud Services

LoCloud (www.locloud.eu) is a network of 31 partners around Europe, aiming to add to over 4 million digital resources from

European small and medium sized cultural organisations (SMO), to the Europeana portal.

To help SMO (whose content are still under-represented in Europeana) to send content, LoCloud explores the potential of cloud computing technologies, working on the development of a cloud infrastructure (IaaS) and on the creation of a software service (SaaS) aimed to benefit content providers and users. This software service has produced a set of specialized tools:

- LoCloud Collections
- MORe aggregator: metadata harvesting, validating, enriching a publishing service
- MINT metadata mapping tools
- Historical Place Names
- Geocoding Enrichment: facilitates
- Vocabulary Matching: multilingual tool to create, manage, publish, share, re-use of ontologies, taxonomies and thesauri;
- Wikimedia integration

Rational for Questionnaire

The following questionnaire is designed to identify the costs and benefits to the aggregates in using LoCloud services in the publishing of small and medium sized organisations content to Europeana

The questionnaire covers the following topics:

- Aggregator information
- Asses the activities and methods of the aggregators before they utilized LoCloud services were introduced
- Document their experiences from utilizing LoCloud services
- Asses the relative benefits and costs of utilizing LoCloud
- Record feedback received from small and medium sized organisations
- Identify potential from reuse of LoCloud enriched content

The questionnaire will take approximately **15 mins** to complete

Aggregation Information

1. Name of your institution or organisation *

2. In which country is your institution or organisation located?

3. Website (if available) *

4. Contact Name

5. Contact email *

6. Status

- ○ Public
- ○ Private

Other (please specify)

7. What type of collections do you aggregate?

- ☐ Text
- ☐ Images
- ☐ Video
- ☐ Sound
- ☐ 3D

Other (please specify)

8. Description of your institution or organisation, in a few words (max 1,000 characters)

Experiences before LoCloud

9. Did any small or medium sized organisations use your aggregation service to provide content to Europeana before LoCloud services were available?

- [ ] Yes
- [ ] No

0. If yes, what percentage of your content came from small and medium sized organisations?

- [ ] Less than 20%
- [ ] 21-40%
- [ ] 41-60%
- [ ] 61-80%
- [ ] More than 81%

11. If you received content from small and medium organisations before LoCloud please describe the contents type (i.e. images, documents) and its subject matter, e.g. local history, archaeology

12. Do you think that Small to Medium organisation data is fully represented in Europeana?

- [ ] Yes
- [ ] No

Please comment on your answer

13. On the whole, do you think small and medium organisations are aware of Europeana?

- ◯ Yes
- ◯ No

Please comment on your answer

Experiences before LoCloud

14. Do you think it is difficult for small and medium sized organisations to provide content to Europeana?

- ◯ Yes
- ◯ No

What resourcing problems do you think small and medium sized organisations have in providing content to Europeana?

- ☐ Lack of financial resources
- ☐ Lack of curatorial staff
- ☐ Lack of technical staff/technical support
- ☐ Lack of hardware for scanning/digitising content
- ☐ Lack of software for cataloguing systems
- ☐ Lack of systems for managing digital assets Lack of
- ☐ systems for publishing content online
- ☐ Lack of systems for enabling metadata harvesting
- ☐ Too much effort is required to produce metadata

Other (please specify)

16. What training problems do you think small and medium sized organisations have in providing content to Europeana?

- [ ] Staff have insufficient knowledge and understanding of metadata
- [ ] Staff have insufficient of digitisation skills
- [ ] Staff have insufficient knowledge and experience of cataloguing
- [ ] Staff have insufficient knowledge and experience of IPR

Other (please specify)

17. On a scale of 1 to 4, with 4 being excellent and 1 being poor, for those small and medium sized organisations who have added content to Europeana before using LoCloud how would you rate:

	1 (poor)	2 (moderate)	3 (good)	4 (excellent)
The ease of the experience	○	○	○	○
The ability to enrich your metadata	○	○	○	○
The overall quality of the metadata provided	○	○	○	○
The quality of the geospatial metadata e.g. place names, coordinates	○	○	○	○
The use of controlled vocabulary within the metadata	○	○	○	○
Your satisfaction with the results	○	○	○	○
The ease of providing updates	○	○	○	○

Utilising LoCloud

18. Which LoCloud services were used by your the content providers and how often?

	never	infrequently	frequently
MORe	○	○	○
MINT	○	○	○
Historical Place Names Service			
Geocoding Enrichment Services	○	○	○
Vocabulary services			
LoCloud Collections Service	○	○	○
Wikimedia Integration			

19. Following the introduction of LoCloud, what percentage of your content now comes from small and medium sized organisations

- ○ Less than 20%
- ○ 21-40%
- ○ 41-60%
- ○ 61-80%
- ○ More than 81%

20. What type of documents have been aggregated utilizing LoCloud?

- ☐ Images
- ☐ Documents
- ☐ Video
- Audio
- ☐ 3D

Other (please specify)

21. Has LoCloud enabled you to aggregate collections from new content providers and new networks?

- ○ Yes
- ○ No

Please comment on your answer

22. On a scale of 1 to 4, with 4 being excellent and 1 being poor, for those small and medium sized organisations who have added content to Europeana before LoCloud, how would you rate

	1 (poor)	2 (moderate)	3 (good)	4(excellent)
The ease of the experience	○	○	○	○
The ability to enrich your metadata (geospatial, historical place names, keywords, etc)	○	○	○	○
The overall quality of the metadata provided	○	○	○	○
The quality of the geospatial metadata e.g. place names, coordinates	○	○	○	○
The use of controlled vocabulary within the metadata	○	○	○	○
Your satisfaction with the results	○	○	○	○
The ease of providing updates	○	○	○	○

Benefits of LoCloud

23. Please describe what tangible benefits (e.g. increased visitors to museum) small and medium sized organisations derive from placing their content in Europeana?

24. Please describe what intangible benefits (e.g. improvement in technical skills in staff) small and medium sized organisations derive from placing their content in Europeana?

25. In terms of benefits, please rate the LoCloud services utilized by your institution

	Not used benefit	Little benefit	Moderate benefit	Great
MORe	○	○	○	○
MINT	○	○	○	○
Historical Place Names	○	○	○	○
Geocoding Enrichment	○	○	○	○
Vocabulary	○	○	○	○
LoCloud Collections	○	○	○	○
Wikimedia Integration	○	○	○	○

26. Please rank the LoCloud Services based upon your experiences

MORe

MINT

Historic Place Names

Geocoding Enrichment

Vocabulary

LoCloud Collection

Wikimedia Integration

Benefits of LoCloud

27. Rate the LoCloud services in terms of benefits to:

	None	Little	Moderate	High
Increase usage growth	○	○	○	○
Improve integration and access to cross-cultural content	○	○	○	○
Provide access to new collections	○	○	○	○
Increase diversity of collections	○	○	○	○
Improve content visibility	○	○	○	○
Provide support for local institutions	○	○	○	○
Enable metadata enrichment	○	○	○	○
Enable metadata validation	○	○	○	○
Enabler for development of new apps/services	○	○	○	○
Easier access to publication in Europeana	○	○	○	○

Improve the ability to publish small collections online	○	○	○	○
Improved standardization (use of common vocabularies)	○	○	○	○
Improved ability to show content on the map (availability of geographic indexing)	○	○	○	○
Availability of training and course materials	○	○	○	○
Enabler for economic growth	○	○	○	○
Enabler for visitors' growth	○	○	○	○

Additional Comments

○

28. Which LoCloud services provided benefits to:

	MORe	MINT	Historical Place Names	Geocoding Enrichment	Vocabulary	LoCloud Collections	Wikimedia Integration
Increase usage growth	☐	☐	☐	☐	☐	☐	☐
Improve integration and access to cross-cultural content	☐	☐	☐	☐	☐	☐	☐
Provide access to new collections	☐	☐	☐	☐	☐	☐	☐
Increase diversity of collections	☐	☐	☐	☐	☐	☐	☐
Improve content visibility							
Provide support for local institutions	☐	☐	☐	☐	☐	☐	☐
Enable metadata enrichment	☐	☐	☐	☐	☐	☐	☐
Enable metadata validation	☐	☐	☐	☐	☐	☐	☐
Enabler for development of new apps/services	☐	☐	☐	☐	☐	☐	☐
Easier access to publication in Europeana	☐	☐	☐	☐	☐	☐	☐
Improve the ability to publish small collections online	☐	☐	☐	☐	☐	☐	☐

Improved standardization (use of common vocabularies)	☐	☐	☐	☐	☐	☐	☐
Improved ability to show content on the map (availability of geographic indexing)	☐	☐	☐	☐	☐	☐	☐
Availability of training and course materials	☐	☐	☐	☐	☐	☐	☐
Enabler for economic growth	☐	☐	☐	☐	☐	☐	☐
Enabler for visitors' growth	☐	☐	☐	☐	☐	☐	☐

Additional Comments

This series of questions are designed to allow you to comment on the specific benefits in utilizing each LoCloud service

29. Has there been any additional benefits in utilizing the LoCloud MINT service for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

30. Has there been any additional benefits to utilizing the LoCloud MORe service for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

31. Has there been any additional benefits to utilizing the LoCloud Historical PlaceNames service for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

32. Has there been any additional benefits to utilizing the LoCloud Geocoding Enrichmentservices for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

33. Has there been additional benefits to utilizing the LoCloud Vocabulary services for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

34. Please comment on any additional benefits to utilizing the LoCloud CollectionsService for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

35. Has there been any additional benefits to utilizing the LoCloud Wikimedia Integrationservice for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

This series of questions are designed to allow you to comment on the specific costs in utilizing each LoCloud service

36. What level of additional cost/effort was required to utilise the following LoCloud Services?

	Not used cost/effort	Little cost/effort	Moderate cost/effort	High
MORe	○	○	○	○
MINT	○	○	○	
Historical Place Names Service	○	○	○	○
LoCloud Collections Service	○	○	○	
Wikimedia Integration	○	○	○	○

Additional Comments

37. Has there been any costs in utilizing the LoCloud MINTservice for your aggregation process?

- ☐ Yes
- ☐ No
- ☐ Not used

Please comment on your answer

38. Has there been any costs to utilizing the LoCloud MOReservice for your aggregation process?

- ☐ Yes
- ☐ No
- ☐ Not used

Please comment on your answer

39. Has there been any costs to utilizing the LoCloud HistoricalPlace Namesservice for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

40. Has there been any costs to utilizing the LoCloud Geocoding Enrichmentservices for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

41. Has there been any costs to utilizing theLoCloud Vocabularyservices for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

42. Please comment on any costs to utilizing the LoCloud Collections Service for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

43. Has there been any costs to utilizing the LoCloud WikimediaIntegrationservice for your aggregation process?

- [ ] Yes
- [ ] No
- [ ] Not used

Please comment on your answer

Content Providers Feedback

44. Do you capture feedback from your contentproviders?

- ○ Yes
- ○ No

45. How do you capture feedback from your contentproviders?

- [ ] website
- [ ] analytics user
- [ ] feedback
- [ ] forms user
- [ ] feedback
- [ ] surveys
- [ ] general
- [ ] comments

Other (please specify)

46. Please comment on any feedback received by contentproviders on their use of LoCloud services.

User Feedback

47. Have you noticed any increase in use of the collections that you have provided to Europeana via LoCloud, in comparison to other content not in Europeana?

- ○ Yes
- ○ No

Please comment on your answer

48. Do you capture feedback on the use of your collections?

- ○ Yes
- ○ No

49. How do you capture feedback on the use of your collections?

- ☐ website analytics
- ☐ user feedback
- ☐ forms user
- ☐ feedback surveys
- ☐ general comments

Other (please specify)

50. Please comment on any specific feedback received by users on their use of content which has utilised the LoCloud services.

Use and Reuse of Content

51. Has the number of citations/links/shares to your content increased?

- [ ] Yes,
- [ ] media/pre
- [ ] ss Yes,
- [ ] social
- [ ] media Yes,

research

papers

Yes,

exhibitions

No increase noted

Other (please specify)

52. Is there any evidence of any economic use of the content provided by small and medium organisations through LoCloud, e.g. tourism applications, education applications?

- ○ Yes
- ○ No

Please comment on your answer

End of Survey

Thank you for taking the time to complete the LoCloud Aggregator Questionnaire

Your answers will assist in the assessment and improvement of the services

If you wish to provide any additional comments and suggestions which will improve the LoCloud Services please use the following contact form at http://www.locloud.eu/Contact

Additional information about the project can be found at http://www.locloud.eu

Appendix 2. LoCloud Small and Medium Organisations survey questionnaire

Introduction to the LoCloud Services

LoCloud (www.locloud.eu) is a network of 31 partners around Europe, aiming to add to over 4 million digital resources from

European small and medium sized cultural organisations, to the Europeana portal.

To help small and medium sized cultural organisations, whose content are still under-represented in Europeana, LoCloud explores the potential of cloud computing technologies, working on the development of a cloud infrastructure (IaaS) and on the creation of a software service (SaaS) aimed to benefit content providers and users. This software service has produced a set of specialized tools :

- LoCloud Collections
- MORe aggregator: metadata harvesting, validating, enriching an publishing service
- MINT metadata mapping tools
- Historical Place Names
- Geocoding Enrichment: facilitates
- Vocabulary Matching: multilingual tool to create, manage, publish, share, re-use of ontologies, taxonomies and thesauri;
- Wikimedia integration

Rationale for Questionnaire

The following questionnaire is designed to identify the costs and benefits to your organisation in using the LoCloud services in the publishing your content to Europeana

The questionnaire covers the following topics:

- Organisation information
- Asses the activities and methods of the aggregators before they utilized LoCloud services were introduced
- Document their experiences from utilizing LoCloud services
- Asses the relative benefits and costs of utilizing LoCloud
- Identify potential from reuse of LoCloud enriched content

The questionnaire will take approximately **30 mins** to complete

Organisation Information

1. Name of your institution or organisation *

2. In which country is your institution or organisation located?

3. Website (if available)

4. Contact Name *

5. Contact email *

6. Status

- ○ Public
- ○ Private

Other (please specify)

7. What type of collections do you manage?

- ☐ Text
- ☐ Images
- ☐ Video
- ☐ Sound
- ☐ 3D

Other (please specify)

8. What is the subject matter of your content, e.g. local history, archaeology

9. Description of your institution or organisation, in a few words (max 1,000 characters)

10. How many people are in paid employment at your organisation?

- ○ 0
- ○ 1
- ○ 2-5
- ○ 5-10
- ○ 10-20
- ○ 20-40
- ○ more than 40

11. How many unpaid volunteers assist in the running of your organisation?

- ○ None
- ○ 1
- ○ 2-5
- ○ 5-10
- ○ 10-20
- ○ 20-40
- ○ more than 40

Knowledge of Europeana

12. Were you aware of Europeana before your engagement with the LoCloud Project?

- ○ Yes
- ○ No

13. Do you think small and medium organisations similar to your own institution are aware of Europeana and what it does?

- ○ Yes
- ○ No

Please comment on your answer

14. Do you think that Small to Medium organisation data is fully represented

- ○ Yes
- ○ No

15. Do you think it is difficult for small and medium sized organisations to provide content to Europeana?

- ○ Yes
- ○ No

16. In your organisation, what resourcing problems exist that make it difficult to provide content to Europeana?

- ☐ Lack of financial resources
- ☐ Lack of curatorial staff
- ☐ Lack of technical staff/technical support
- ☐ Lack of hardware for scanning/digitising content
- ☐ Lack of software for cataloguing collections

☐

Lack of systems for managing digital assets

Lack of systems for publishing content online

Lack of systems for enabling metadata harvesting

☐ Too much effort is required to produce metadata

Other (please specify)

17. In your organisation, what training problems exist that make it difficult to provide content to Europeana?

☐ Staff have insufficient knowledge and understanding of metadata

☐ Staff have insufficient of digitisation skills

☐ Staff have insufficient knowledge and experience of cataloguing

☐ Staff have insufficient knowledge and experience of IPR

Other (please specify)

18. Has your organisation provided content to Europeana before the LoCloud services were available?

○ Yes

○ No

Experiences before LoCloud: Previous Contributor

19. If your organisation has provided content to Europeana before how was this done?

- [ ] National Aggregator
- [ ] EU Project/Initiative
- [ ] National Project/Initiative

Other (please specify)

20. If you have added content previously to Europeana before LoCloud please answer the following question. On a scale of 1 to 4, with 4 being excellent and 1 being poor, when contributing content to Europeana without the assistance of LoCloud services how would you rate:

	1 (poor) (excellent)	2 (moderate)	3 (good)	4
The ease of the experience	○	○	○	○
The ability to enrich your metadata (geospatial, historical place names, keywords, etc)	○	○	○	○
The overall quality of the metadata provided	○	○	○	○
The quality of the geospatial metadata e.g. place names, coordinates	○	○	○	○
The use of controlled vocabulary within the metadata	○	○	○	○
Your satisfaction with the results	○	○	○	○
The ease of providing update	○	○	○	○

Utilising LoCloud

21. Which LoCloud services were used by your institution and how often?

MORe	○	○	○
MINT	○	○	○
Historical Place Names Service	○	○	○
Geocoding Enrichment Services	○	○	○
Vocabulary services	○	○	○
LoCloud Collections Service	○	○	○
Wikimedia Integration	○	○	○

22. What type of documents have been added to Europeana utilizing LoCloud?

- [ ] Images
- [ ] Documents
- [ ] Video
- [ ] Audio
- [ ]
- [ ] 3D

Other (please specify)

23. On a scale of 1 to 4, with 4 being excellent and 1 being poor, how would you rate the process of adding content to Europeana using the LoCloud Services?

	1 (poor) (excellent)	2 (moderate)	3 (good)	4
The ease of the experience	○	○	○	○
The ability to enrich your metadata (geospatial, historical place names, keywords, etc)	○	○	○	○
The ability quality of the metadata provided	○	○	○	○
The quality of the geospatial metadata e.g. place names, coordinates	○	○	○	○
The use of controlled vocabulary within the metadata	○	○	○	○
Your satisfaction with the results	○	○	○	○
The ease of providing updates	○	○	○	○

Benefits of LoCloud

24. Please describe what tangible benefits (e.g. increased visitors to museum) you have experienced
by placing your content in Europeana and participating in the LoCloud Project?

25. Please describe what intangible benefits (e.g. improvement in technical skills in staff) you have experienced by placing your content in Europeana and participating in the LoCloud Project?

26. In terms of benefits, please rate the LoCloud services utilized by your institution

	Not used benefit	Little benefit	Moderate benefit	Great
MORe	○	○	○	○
MINT	○	○	○	○
Historical Place Names	○	○	○	○
Geocoding Enrichment	○	○	○	○
Vocabulary	○	○	○	○
LoCloud Collections	○	○	○	○
Wikimedia Integration	○	○	○	○

27. Please rank the LoCloud Services based upon your experiences

	MORe
	MINT
	Historic Place Names
	Geocoding Enrichment
	Vocabulary
	LoCloud Collection
	Wikimedia Integration

28. Rate the value of the overall LoCloud service in terms of benefit to:

	None	Little	Moderate	High
Increase usage growth				
Improve integration and access to cross-cultural content				
Provide access to new collections				
Increase diversity of collections				
Improve content visibility				

Provide support for local institutions	○	○	○	
Enable metadata enrichment	○	○	○	○
Enable metadata validation	○	○	○	
Enabler for development of new apps/services	○	○	○	○
Easier access to publication in Europeana	○	○	○	
Improve the ability to publish small collections online	○	○	○	○
Improved standardization (use common vocabularies)	○	○	○	○
Improved ability to show content on the map (availability of geographic indexing)	○	○	○	○
Availability of training and course materials	○	○	○	○
Enabler for economic growth	○	○	○	○
Enabler for visitors' growth	○	○	○	○

Additional Comments

29. Which LoCloud services provided <u>benefits</u> to:

	MORe	MINT	Historical Place Names	Geocoding Enrichment	Vocabulary	LoCloud Collections	Wikimedia Integration
Increase usage growth	☐	☐	☐	☐	☐	☐	☐
Improve integration and access to cross-cultural content	☐	☐	☐	☐	☐	☐	☐
Provide access to new collections	☐	☐	☐	☐	☐	☐	☐
Increase diversity of collections	☐	☐	☐	☐	☐	☐	☐
Improve content visibility	☐	☐	☐	☐	☐	☐	☐
Provide support for local institutions	☐	☐	☐	☐	☐	☐	☐
Enable metadata enrichment	☐	☐	☐	☐	☐	☐	☐
Enable metadata validation	☐	☐	☐	☐	☐	☐	☐
Enabler for development of new apps/services	☐	☐	☐	☐	☐	☐	☐
Easier access to publication in Europeana	☐	☐	☐	☐	☐	☐	☐
Improve the ability to publish small collections online	☐	☐	☐	☐	☐	☐	☐

Improved standardization (use of common vocabularies)	☐	☐	☐	☐	☐	☐	☐
Improved ability to show content on the map (availability of geographic indexing)	☐	☐	☐	☐	☐	☐	☐
Availability of training and course materials	☐	☐	☐	☐	☐	☐	☐
Enabler for economic growth	☐	☐	☐	☐	☐	☐	☐
Enabler for visitors' growth	☐	☐	☐	☐	☐	☐	☐

Additional Comments

Costs in Utilizing the LoCloud Service

This series of questions are designed to allow you to comment on the specific costs in utilizing each LoCloud service

30. Has there been any costs in utilizing the LoCloud MORe service to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

31. Has there been any costs in utilizing the LoCloud MINT service to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

32. Has there been any costs in utilizing the LoCloud Historical PlaceNames Service to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

33. Has there been any costs in utilizing the LoCloud Geocoding Enrichment Services to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

34. Has there been any costs in utilizing the LoCloud Vocabulary Services to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

35. Has there been any costs in utilizing the LoCloud Collections Service to your organisation?

- ☐ High Costs/Effort
- ☐ Moderate Cost/Effort
- ☐ Little Cost/Effort
- ☐ No Additional Cost/Effort
- ☐ Service Not used

Please comment on your answer

36. Has there been any costs in utilizing the LoCloud Wikimedia Integration Service to your organisation?

- [ ] High Costs/Effort
- [ ] Moderate Cost/Effort
- [ ] Little Cost/Effort
- [ ] No Additional Cost/Effort
- [ ] Service Not used

Please comment on your answer

User Feedback

37. Do you capture feedback on the use of your collections?

- ○ Yes
- ○ No

38. How do you capture feedback on the use of your collections?

- [ ] website analytics
- [ ] user feedback forms
- [ ] user feedback survey
- [ ] general comments

Other (please specify)

39. Approximately how many users visit your online collection each month?

40. Approximately what percentage of these users visited your LoCloud

Less than 20%

20-40%

40-60%

60-80%

More than 80%

Don't know

41. Have you noticed any increase in use of the collections that you have provided to Europeana via LoCloud, in comparison to other content you have not placed in Europeana?

Yes

No

Please comment on your answer

42. Were your users looking for specific content?

Yes

No

Unsure

43. What is the major traffic source for your website

Search Engine (Google, Bing etc.)

Email

Social Media (Facebook, Twitter etc.)

Europeana

Referral/News Site (Reddit, Pinterest)

Forums/Blogs

- ☐ Paid Traffic Sources (Adwords, Social Media Adverts)
- ☐ We dot record these analytics
- ☐ Other (please specify)

User Feedback

44. Did they find the content they were looking for?

- ☐ Yes
- ☐ No
- ☐ Unsure

Additional Comments

45. Did they find the results useful?

- ☐ Yes
- ☐ No
- ☐ Unsure

Additional Comments

46. Did they consider it easy to find what they were looking for??

- ☐ Yes
- ☐ No
- ☐ Unsure

Additional Comments

47. what percentage of your website visitors are coming:

	less than 20% than 80%	20-40%	40-60%	60-80%	more
to spend time looking for specific content (% visitors entering using specific subject keywords)	○	○	○	○	○
to browse the content (% duration of visits longer than 2 minutes)	○	○	○	○	○
to visit the home page and leave (the bounce rate)	○	○	○	○	○

48. Approximately what percentage of your users are returning to your site?

- ○ Less than 20%
- ○ 20-40%
- ○ 40-60%
- ○ 60-80%
- ○ More than 80%
- ○ Don't know

Use and Reuse of Content

49. Has the number of citations/links/shares to your content increased?

- [ ] Yes, media/press
- [ ] Yes, social media
- [ ] Yes, research papers
- [ ] Yes, exhibitions
- [ ] No increase noted
- [ ] Other (please specify)

50. Is there any evidence of any economic use of the content provided by small and medium organisations through LoCloud, e.g. tourism applications, education applications?

- ○ Yes
- ○ No

Please comment on your answer

51. On a scale of 1 to 4, with 4 being excellent and 1 being poor, how would you rate your user's experience of the website?

1 (poor) (excellent)	2 (moderate)	3 (good)	4
○	○	○	○

52. Please comment on any suggestions for improvement received from users

End of Survey

Thank you for taking the time to complete the LoCloud Questionnaire

Your answers will assist in the assessment and improvement of the services

If you wish to provide any additional comments and suggestions which will improve the LoCloud Services please use the following contact form at http://www.locloud.eu/Contact

Additional information about the project can be found at http://www.locloud.eu

Appendix 3. LoCloud End User Survey questionnaire

LoCloud: Making cultural heritage visible

Small and medium-sized cultural organizations in Europe together manage more than 4 million digital resources, which are now not visible to a larger audience. LoCloud is a network of 32 partners from 26 European countries and is dedicated to Local Content in a Europeana Cloud. LoCloud makes it possible to create easy and free access to these files through Europeana.eu. This way, everybody can enjoy European culture.

Why this Questionnaire?

By building on the evaluation of the end users, we can improve on and therefore better disperse LoCloud services to the general public.

That is why we ask you to do a search in the LoCloud collections of Europeana (http://www.europeana.eu/portal/search.html?qf=PROVIDER%3a%22LoCloud%22) and complete this online survey.

Completing the survey takes **approximately 5 minutes**.
This will help us to make LoCloud even easier and more user friendly.

We appreciate the time you have taken to complete this survey and ensure the improvement of LoCloud!

Organisation Information

* 1. Which website did you visit?

2. Why did you visit the site?

- [ ] Work/Professional
- [ ] Hobby

Other (please specify)

3. What type of subjects are you interested in?

- [ ] Local History Genealogy
- [ ] Archaeology
- [ ] General History
- [ ] Architecture/Buildings/Monuments
- [ ] Sculpture/Paintings
- [ ] Photography

Other (please specify)

4. Were you looking for something specific?

- ○ Yes
- ○ No

Discovery Results: Specific Use

5. On a scale of 1 to 4, with 4 being excellent and 1 being poor:

	1 (poor) (excellent)	2	3	4
Did you manage to find the content you were looking for?	○	○	○	○
Was the content identified for you useful?	○	○	○	○
Was it easy to find what you were looking for?	○	○	○	○

6. Please provide any additional comments on your ratings

7. On a scale of 1 to 4, with 4 being excellent and 1 being poor:

	1 (poor) (excellent)	2	3	4
Were you satisfied by the content of the site?	○	○	○	○

Additional Comments

General Feedback

8. On a scale of 1 to 4, with 4 being excellent and 1 being poor:

	1 (poor) (excellent)	2	3	4
Was your visit to the site pleasant?	◯	◯	◯	◯

Additional Comments

9. Do you have any suggestions for improvement?

10. Will you visit it this site again?

- ◯ Yes
- ◯ No
- ◯ Maybe

Additional Comments

End of Survey

Thank you for taking the time to complete the LoCloud End-user Questionnaire

Your answers will assist in the assessment and improvement of the services

If you wish to provide any additional comments and suggestions which will improve the LoCloud Services please use the following contact form at http://www.locloud.eu/Contact

Additional information about the project can be found at http://www.locloud.eu