European
Commission

Stakeholders' Survey on a European Collaborative Cloud for Cultural Heritage

Report on the online survey results

Research and Innovation

Stakeholders' Survey on a European Collaborative Cloud for Cultural Heritage

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EUROPEAN COMMISSION

Stakeholders' Survey on a European Collaborative Cloud for Cultural Heritage

Report on the online survey results

Directorate-General for Research and Innovation
Culture, Creativity and Inclusive Society

2022

EXECUTIVE SUMMARY

The European Collaborative Cloud for Cultural Heritage, the Cloud, will connect cultural heritage institutions and professionals across the EU and will develop specific digital tools. It will help all cultural heritage institutions to work with their digital objects more visibly, more interconnected, more harmonized and more informed, to successfully cope with the challenges the digital transition poses to the sector. The European Commission launched this initiative upon the request of the European Parliament and the Council of the EU.

Highlights

- **More than 1000** researchers and cultural heritage professionals sent **detailed replies** to the survey while more than **800** of them wish to **become part of** the Cloud **stakeholder network**.

- Almost **half of the respondents (46%)** see the **lack of a digital collaboration platform with tools** adapted to the needs of Cultural Heritage professionals as the **main challenge in the digital transition** of the sector.

- **Digital interaction rank highest in the needs for tools** of the respondents including: tools for creating, sharing and re-using interactive content on the Cloud (43.3%); tools for AI-assisted metadata enrichment i.e. to make CH content interoperable (37%); tools for advanced interaction with the digital content of the Cloud (36.4%) and tools for analysing, designing and testing interactions with visitors (33.6%).

- Most of the respondents point out to the need for **clear information on the benefits of the Cloud (61.5%)** and **training on how to use the Cloud (55.1%)** as the main support that they would need for this initiative.

- Around 40% of the respondents consider that they would need **IT support (40.8%), training on digital skills (38.9%)**, and an **active user community (38.6%)**. Around one third of the respondents highlighted the need for **appropriate IT equipment (32.3%)**.

Conclusions

- The **high number of replies** to the questionnaire from the researchers and cultural heritage professionals **confirms the need** of the sector **for establishing a digital collaborative platform for cultural heritage**. The fact that 75.4% of the respondents expressed their interest to become members of the Cloud network, **underlines the support** of the sector **for this activity**.

- The proposed tools and services for the Cloud match the needs of the sector: each of them have been selected by part of the respondents as the most useful ones for their work. By this, the **infrastructure and the tools and services** for the Cloud as proposed by the expert report on a European collaborative cloud for cultural heritage **meet the wishes and expectations of the respondents.** In particular, **interactive collaboration** ranks the highest among the declared goals of the initiative.

- **The Cloud activities** will need to be **complemented by** other activities funded through other community funding opportunities like **Digital Europe, Creative Europe, the EIT, and the structural funds** to mobilise researchers and cultural heritage professionals **at a European scale.**

- **Training** for the **use of IT tools** will be **essential.** This could range from acquiring basic IT knowledge to the use of highly sophisticated IT tools developed for the Cloud. To this end, resources from **Horizon Europe, Digital Europe and Creative Europe** as well as from the **European Social Fund Plus** could be **mobilised.**

- Making **available up-to-date IT equipment and broadband internet** access to Cultural Heritage professionals at a broad scale throughout the European Research Area will be a **prerequisite for the wide use** of the Cloud by the sector. **Mobilising the structural funds** and the Connecting Europe Facility for this goal will be **essential.**

Table of contents

A EUROPEAN COLLABORATIVE CLOUD FOR CULTURAL HERITAGE: MEETING THE STAKEHOLDERS’ NEEDS

*The European Collaborative Cloud for Cultural Heritage, **the Cloud**, is a European Union’s initiative for a **digital infrastructure** that will **connect cultural heritage institutions and professionals** across the EU and develop specific **digital collaborative tools** for the sector. The Cloud will join and mutually re-inforce other past and future European initiatives such as **Europeana** and the **Common European Dataspace for Cultural Heritage**.*

*The Cloud will help cultural heritage institutions, of **all sizes and types**, to work with their digital objects more visibly, more interconnected, more harmonized and more informed, to successfully cope with the challenges the digital transition poses to the sector. It will unlock the **untapped potential of the sector** by organizing joint exhibitions, digitizing artefacts, researching artworks, and documenting data thus strengthening the digital dimension of cultural heritage preservation, conservation, and restoration as well as management, research and reach out.*

*The European Commission launched this initiative at the request of the European Parliament and the Council of the EU. Eight independent renowned experts in the field of cultural heritage were commissioned to carry out an **ex- ante impact assessment** that laid the basis for the concept of this initiative, by helping identify the existing technological solutions in the field. Please find here more: Report on a European collaborative cloud for cultural heritage - Publications Office of the EU (europa.eu)*

*Following the Research & Innovation Days session dedicated to the European Collaborative Cloud for Cultural Heritage, the European Commission launched an online survey to **collect detailed feedback** among a broader number of stakeholders focusing on their **needs and challenges**. In addition, the goals were to better **understand the diversity** within the Cloud’s stakeholders, to **disseminate the Cloud initiative** among potential users and to **create a network** of stakeholders for the Cloud, which could lay the foundations for a future community of practice. The survey was open in ‘EU Survey’ between September 30, 2022 and November 4, 2022. It **received 1081 replies** and was disseminated among relevant stakeholder’s networks and social media.*

*This document contains the analysis of the results of this survey and it is divided in to **three main chapters**.*

*In the first part, **demographic questions** of the survey are analysed outlining the profile of the respondents.*

*The second part is the **core of this survey.** It covers three main points: the **challenges** to fully take advantage of the digital transition, the specific **support that the sector would need** to use the Cloud in their daily work, and what are the proposed **tools for the Cloud that they find the most useful**. Results of the three questions were also analysed taking into account the different groups identified in the demographic questions. There is a fourth heading within this central part of the survey where results from an open feedback question are classified and presented.*

*Finally, the third section of this report includes a brief overview of the number of people willing to be part of **the Cloud stakeholder network**, which in turn will lay the foundations for a future community of practice.*

1. Demographic questions: who has answered the survey?

Highlights

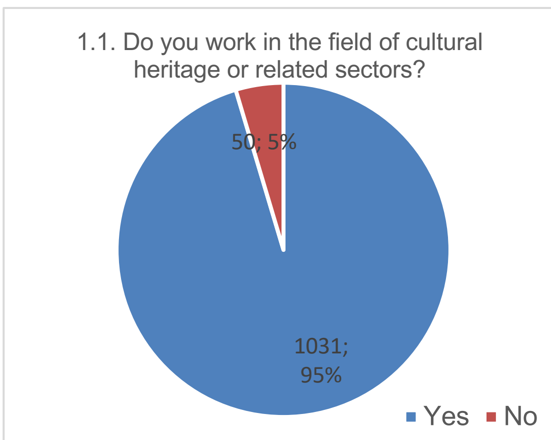
- One third of the respondents are **researchers (33.4%)** and **43%** work at a **University** or a **Research Centre**.
- Almost one third of respondents (**32.1%**) work in a **cultural heritage institution**: museum, library, archive, cultural centre, etc.
- The majority of the respondents work in an organization that has **more than 100 employees (51.4%).**
- **More than 90%** of the respondents work in an **urban area**: half of them in a capital city and the other half in a city other than a capital city.
- Most of the respondents work with **movable tangible heritage (72.8%).**
- **Digital Cultural Heritage** appears to be a relevant type of cultural heritage to take into consideration.
- More than half of the respondents **have never participated** in the mentioned **European initiatives and digital infrastructures in the field (56.6%)**.
- Around one third of the respondents have participated in **Europeana (29.1%).**

1.1. People working in relation to cultural heritage

The vast majority of the **1081 received responses** come from people who **work in the cultural heritage or related sectors (95.4%)**. The other 4.6% (50 answers), correspond to people who do not directly identify themselves as "working in the cultural heritage or related sectors", but keep answering the questionnaire as part of their work is to some extend related to it.

Therefore, all the 1081 answers are considered as valid for this report.

Figure 1. People working in relation to cultural heritage



Source: European Commission, ECCCH Survey results

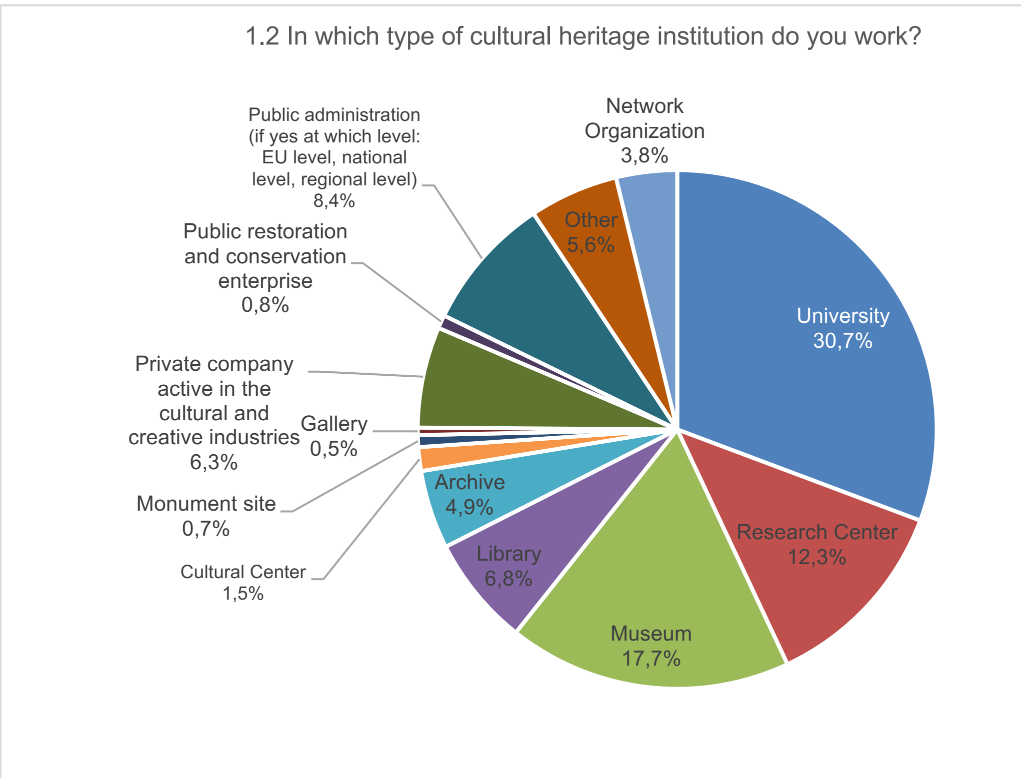
1.2. Types of cultural heritage organizations

Almost one third of the respondents work in a **University (30.7%),** followed by those working in a **museum (17.7%)** and a **research centre (12.3%)**. Respondents working in a **public administration** account for **8.4%** of the total, slightly more than those working in a **library (6.9%)** or in a **private company active in the cultural and creative industries (6.3%).**

Fewer answers came from people working at a cultural centre (1.5%), a public restoration and conservation enterprise (0.8%), a monument site (0.7%) or a gallery (0.5%).

Finally, **5.6%** of the respondents indicated that they work in a type of institution **other** than the suggested ones. They mention a regulatory body (chamber of restorers), associations, a cultural institution providing artistic events, educational activities and established in a heritage site, NGOs, philanthropic and private foundations, a voluntary cultural body, publishing and bookselling organizations, media, a music production company, a webzine, a semi-private union museum at allotment garden, a museum and naturalistic park and schools. Among the open answers, there are also a 3D studio specialised in digitalisation of cultural heritage by scanning and creating virtual reality/augmented reality visualisations, a technology provider, an engineering company and online aggregators. Finally other categories include freelancers and independent consultants.

Figure 2. Types of cultural heritage organizations



Source: European Commission, ECCCH Survey results

For the analysis, the types of organizations have been clustered in 5 groups as shown in the table below. In this way, people working at a **University or a Research Centre** represent **43%** of the answers, followed by people working in a **Cultural Heritage Institution**, who represent **32.1%** of the answers. Those working in a **public administration** count for **8.4%** of the responses, those in **private companies** correspond to **7.1%** and finally those ones working in a **network organization** represent **3.8%** of the total number of answers.

Table 3. Clustering organizations

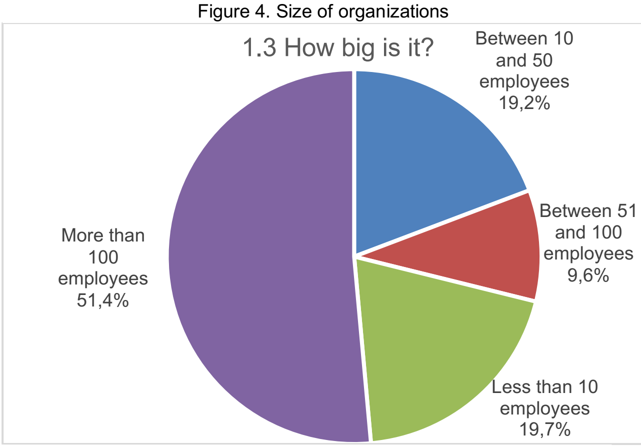
Type of organization		Number of answers	Percentage
University or research center	University	465	43%
	Research Center		
Cultural Heritage institution	Museum	347	32.1%
	Library		
	Archive		
	Cultural Center		
	Monument site		
	Gallery		
Public administration		91	8.4%
Private company	Private company active in the cultural and creative industries	77	7.1%
	Public restoration and conservation enterprise		
Network organization		41	3.8%
Other		60	5.6%

Source: European Commission, ECCCH Survey results

1.3. Size of the organisations

More than half of the respondents work in an organization that has **more than 100 employees (51.4%).** Almost one fifth of the respondents work in a small organization with **less than 10 employees (19.7%)** and as many do it in one that has **between 10 and 50 employees (19.2%).** Less than 10% of respondents work in an organization that has **between 51 and 100 employees (9.6%).**

Figure 4. Size of organizations



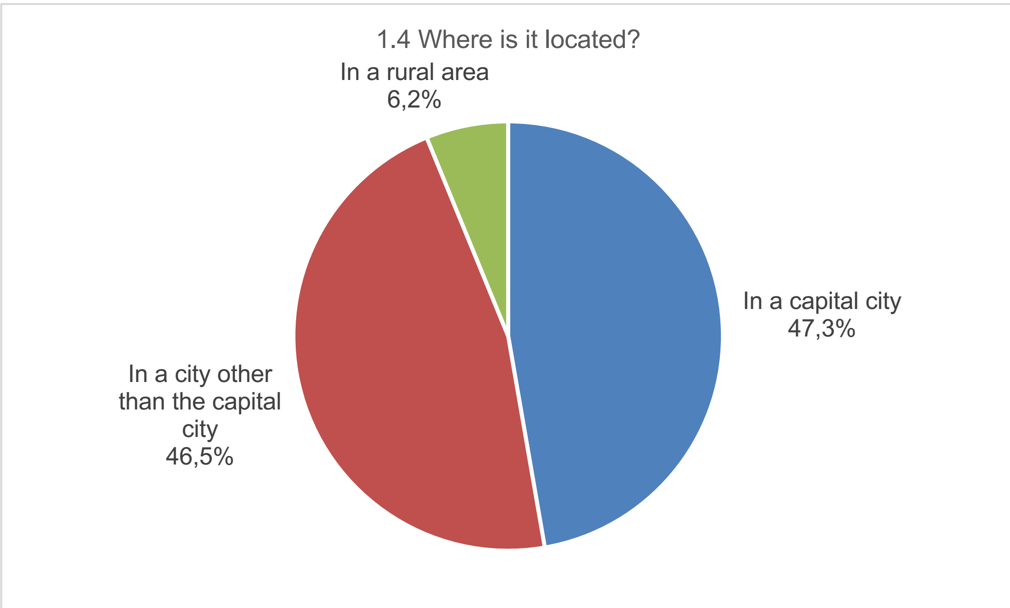
Source: European Commission, ECCCH Survey results

1.4. Urban and rural context

In line with global trends and with the reality of the cultural heritage and research institutions, most of the respondents work in an organization located in an urban area. Those located in a **capital city** represent **47.3%** of the total answers, a similar percentage to those located in **a city other than the capital city (46.5%).**

Only **6.2%** of respondents work in an organization located in a **rural area**. Out of those 67 total number of respondents that work in a rural area, 60% work in a small organization (having less than 10 employees). Still, more than 80% of the respondents who work in the smallest organizations (less than 10 employees) are located in an urban context, whether in a capital city (46%), or in a city other than the capital city (35%).

Figure 5. Urban and rural context



Source: European Commission, ECCCH Survey results

1.5. Geographical distribution

The greatest majority of the responses come from people working in an organisation within an EU **Member State (87.9%).** Italy (14.2%) and France (12.5%) are the countries where the biggest share of responses, followed by Germany (6.6%), Spain (5.5%), Greece (5.3%) and Croatia (4.8%). All 27 EU Member States are represented in the answers.

Among non-EU countries with the greatest number of responses, there are Türkiye (4.9%), Norway (2%) and the United Kingdom (1.9%).

1.6. Type of cultural heritage that they work with

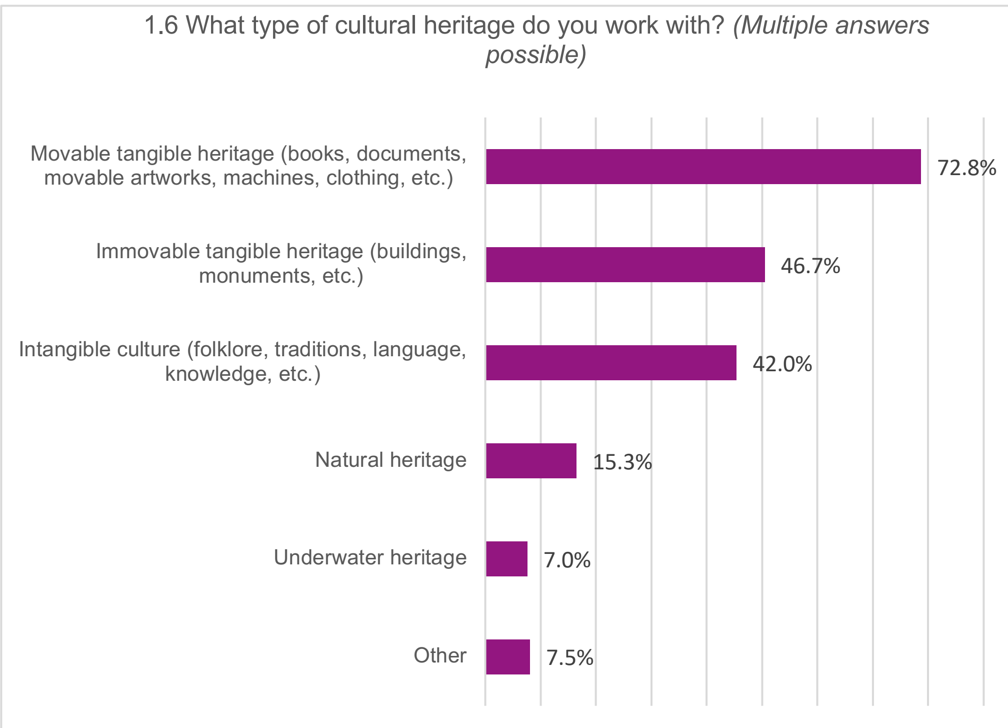
Multiple answers were possible for this part of the questionnaire, which means that respondents may work with multiple types of cultural heritage.

With a **72.8%** response rate, **movable tangible heritage** (books, documents, movable artworks, machines, clothing, etc.) is the type of cultural heritage that the respondents work the most with. Almost half of the respondents **(46.7%)** work with **immovable tangible heritage** (buildings, monuments, etc.) as well as **(42%)** with **intangible culture** (folklore, traditions, language, knowledge, etc.).

Around 15% of respondents work with **natural heritage (15.3%)** and a **7%** work with **underwater heritage.**

Most of the respondents that have also marked the option **"other" (7.5%)** are working with **digital cultural heritage**. Some respondents also mention audio-visual heritage, music, testimonies, food, archaeological heritage and human remains.

Figure 6. Type of cultural heritage



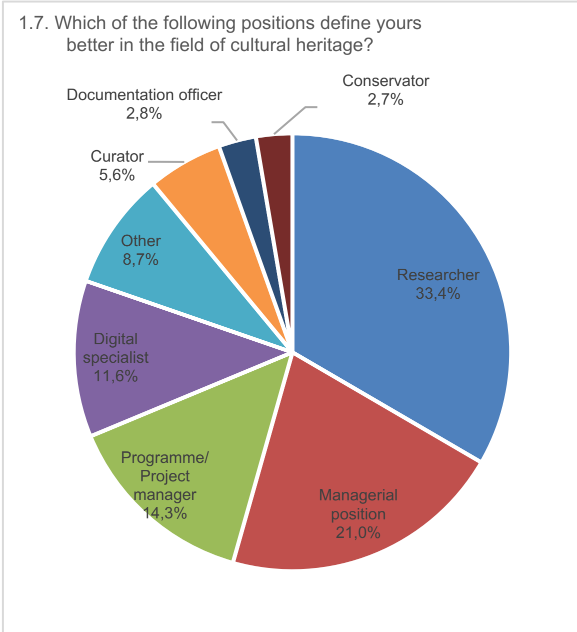
Source: European Commission, ECCCH Survey results

1.7. Position that they work in

The most popular position among the respondents is this of a **researcher (33.4%)**. People who hold a **managerial position** represent **21%** of the answers, while **programme or project managers** account for **14.3%** of them. **11.6%** of the respondents identify themselves as a **digital specialist**, **5.6%** as **curator, 2.8%,** as **documentation officer** and 2.7% as a **conservator**.

Among the people who specify **other** positions **(8.7%)**, it is mentioned communication, marketing and press officers, positions related to fundraising and administration, advisers and consultants, positions related to education (lecturers, professors, teachers, instructors), librarians, architects and designers, a music producer and a lawyer.

Figure 7. Positions



Source: European Commission, ECCCH Survey results

For the analysis, the different positions have been clustered as presented in the table below.

Table 8. Positions

Position		Number of answers	Percentage
Researcher		361	33.4%
Management	Managerial position Programme/project manager	382	35.3%
Cultural Heritage specialist	Digital specialist Curator Documentation officer Conservator	244	22.6%

Source: European Commission, ECCCH Survey results

1.8. Participation in other European initiatives or research infrastructures

More than half of the respondents have **never participated before in any related European initiatives or research infrastructures (56.6%).**

Almost one third of the respondents have participated in Europeana (29.1%). Some respondents stated to have participate in DARIAH (11.4%), TimeMachine (5.1%), CLARIN (4.3%), EOSC (3.8%), E-RIHS (3.3%) and GAIA-X (0.7%).

Among the people who have participated in other European initiatives or research infrastructures (14.1%), there are specified projects funded by the EU on digital cultural heritage, under Erasmus+ or under Horizon 2020.These include for example: IMPACT Center of Competence, Open Preservation Foundation, DataCite, Europa Nostra, MuSA Museum Sector Alliance, European School Education Platform, inDICEs, 4CH, PREFORMA, MIMO Musical Instrument Museum Online, IMI system, SKS Scientific Knowledge Services, LIBER, Baltic Sea History Project, JPI Cultural Heritage and various other European digital film restoration projects.

2. Needs and challenges

Highlights

- **Lack of funds (59%)** and the **lack of digital skills among staff (48.7%)** are the most broadly shared challenges among the respondents
- **46%** of the respondents consider that there is a **lack of a suitable platform with tools adapted to the specific needs of cultural heritage professionals**. This challenge is more broadly shared among people working in bigger organizations (50%) than those working in the smaller ones (34.3%).
- **The lack of a digital strategy among management** is the second most popular concern among the respondents working in **organizations with less than 10 employees (47%) and for those working in a rural area (40.3%).** It is also the third most shared challenge among those working in a **cultural heritage institution (46.7%)** and in a **private company (42.9%)**.
- Most of the respondents indicate as the greatest challenges the need for **clear information in plain language that explains the benefits of the Cloud for museums and Cultural Heritage Institutions and how to become a user (61.5%),** and **training on how to use the Cloud (55.1%)**.
- An **active user community** is the third most needed support for respondents working at a **University or a research centre (44.3%)** as well as for those working in a **private company (36.4%).** However, those working in a **cultural heritage institution** prioritise the need for **IT support (44.1%)** as well as the need for **language accessibility via a multilingual platform (40.1%).**
- All of the 10 suggested set of tools appear to be relevant: each of them have been selected among the top three by the different specialists, ranging from **43.3%** for the most popular option (tools for **creating, sharing and re-using interactive digital content on the Cloud**), to **15.1%** for the least popular (tools for **creating annotated bibliographies**).
- Tools for **AI-assisted metadata enrichment** are relatively more popular among **management (40.8%)** and **cultural heritage specialists (40.2%)** while **researchers** prioritize in the second place tools for **advanced interaction with the digital content of the Cloud (37.2%).**
- The most popular option among the respondents working in **cultural heritage institutions** is tools for **analysing, designing and testing interactions with visitors (41.8%).**
- In the **open feedback question**, many respondents point out as a challenge the lack of staff or of capacities to focus on the digital transition, despite the existence of tools. They express their concern on **data harmonization and standardization** that guarantees the **interoperability** of systems. They are also concerned about possible **overlaps with other initiatives** (such as Europeana, the Common European Data Space for Cultural Heritage, ESFRI Landmark Research Infrastructure, EOSC, FIN-CLARIAH) and stress the need to pay attention to **legal aspects**.

2.1. Main challenges in fully taking advantage of the digital transition

As multiple answers were possible in this part of the questionnaire, every respondent marked **almost 4 challenges on average (3.7)**. Only 4.4% of respondents declared not to face any challenges in fully taking advantage of the potential benefits of the digital transition.

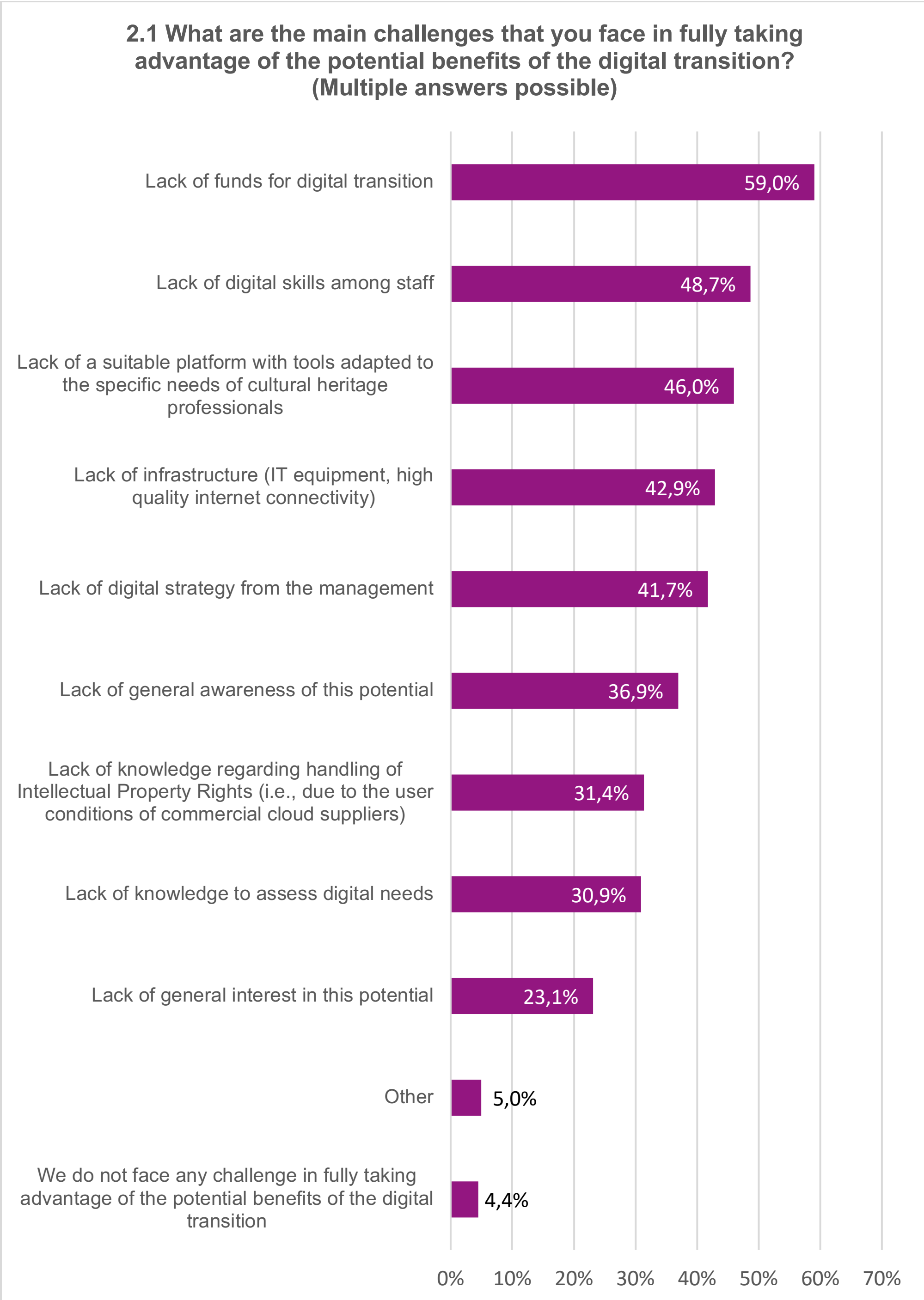
For the majority of respondents, the **lack of funds for the digital transition (59%)** is a challenge and around half of the people who answer the question consider a challenge the **lack of digital skills among staff (48.7%)**.

46% of the respondents consider a challenge **the lack of a suitable platform with tools adapted to the specific needs of cultural heritage professionals**. This one is followed by the **lack of infrastructure (42.9%)** and the **lack of digital strategy from management (41.7%)**, which is considered a challenge by more than **40%** of the respondents.

Respondents signalled also as challenges the **lack of general awareness on the potential** benefits of the digital transition **(36.9%),** the **lack of knowledge regarding handling of Intellectual Property Rights (31.4%)** and the **lack of knowledge to assess digital needs (30.9%).** Finally, over one fifth of the respondents **(23.1%)** consider as a challenge the **lack of general interest in this potential.**

Among the open answers linked to the option “**other**”, there are those who point out to the lack of sovereign solutions for storing data, the lack of staff in general and in particular to take care of digital tools, the lack of national strategies for Cultural Heritage data aggregation and the lack of State support. In addition, mentioning the experience with Europeana, it is signalled as a challenge the inefficiencies in existing technical infrastructure, the lack of sufficient high-quality content and metadata as well as, the limited skills and capacity on topics such as digitisation, metadata enrichment, semantic interoperability, content creation, licensing, reuse, business models and innovation. It is also mentioned as a challenge the lack of a general, shared culture about digitization due to the different perceptions between colleagues depending on their seniority and technical digital competence. Lack of interconnection among existing systems to perform multipurpose institutional processes is also specified as a challenge, as well as missing data, high quality data, big data and data standards and the lack of a political commitment and vision. Finally, the considerable ecological impact of digitization and its environmentally harmful infrastructures are taken into consideration together with the lack of awareness that historical biases, exclusions, and discriminations are being reproduced in digital collections.

Figure 9. Main challenges



Source: European Commission, ECCCH Survey results

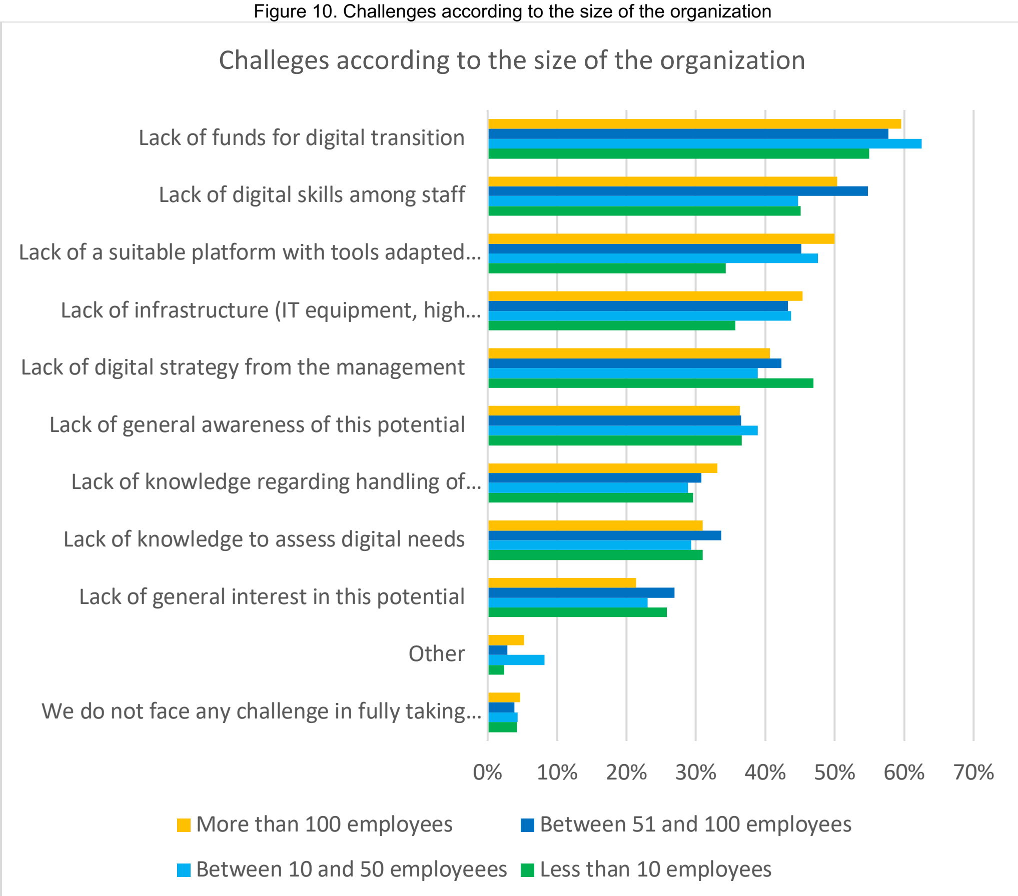
2.1.1. Challenges according to the size of the organization

As far as the size of the organization where respondents work, there are some significant differences between groups. For example, the **lack of a suitable platform with tools adapted to the specific needs of cultural heritage professionals** is perceived as a challenge by **50%** of those working in an **organization with more than 100 employees**, while only **34.3%** of those working in an **organization with less than 10 employees** perceive it as such.

However, the **lack of a digital strategy among management** seems to be a more popular concern among respondents working in **smaller organizations (47%),** while their concern about **lack of funds** is more than **4 points below** the statistics for the whole sector. Nevertheless, for respondents working in an organization that has **between 10 and 50 employees** (medium), the **lack of funds** stands out as a major concern (**62.5%**).

Lack of digital skills is in a greater proportion considered as a challenge among respondents working in an organization that has between 51 and 100 employees (54.8%). Also, **lack of infrastructure (IT equipment, high quality internet connectivity)**, is less perceived as a challenge among **small organizations (35.7%)** than among the **biggest (45.3%)** ones.

Figure 10. Challenges according to the size of the organization



Source: European Commission, ECCCH Survey results

2.1.2. Challenges according to rural and urban contexts

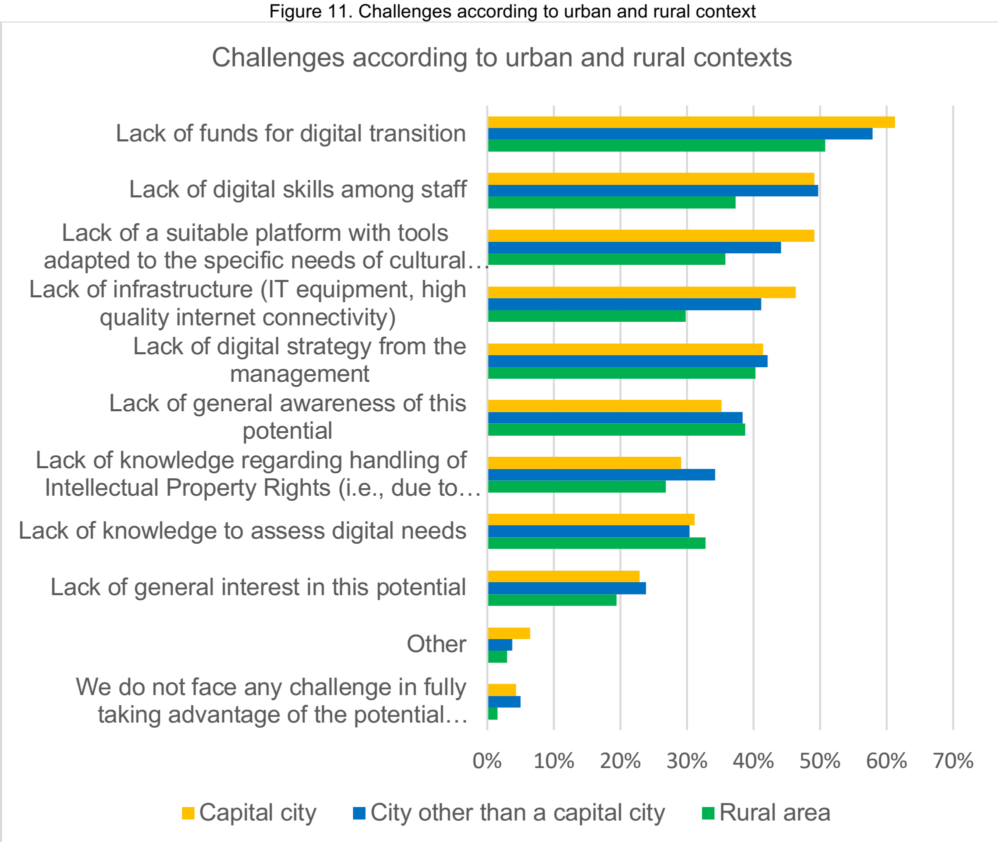
Respondents working in a **rural area report an average of 3.1** challenges compared to 3.7 for respondents working in an urban area. In line with this, among people working in a rural area, a lower proportion perceives as a challenge the lack of funds (50.8%) in comparison to those working in a capital city (61.3%). Nevertheless, for the three categories the lack of funds it their main challenge.

The second most popular challenge among people working in a rural area is the **lack of a digital strategy from the management** (40.3%), followed by the lack of general awareness in this potential (38.8%). These challenges, contrary to the average results, are prioritized over the lack of digital skills (37.3%), the lack of a suitable platform (35.8%) and the lack of infrastructure (29.9%) than people working in an urban context do.

Respondents working in a city other than the capital city highlight as a challenge the **lack of knowledge regarding handling of Intellectual Property Rights** (34.2%) in comparison with the general perception of those working in a capital city (29.2%) or in a rural area (26.9%).

People working in a rural area consider **the lack of knowledge to assess digital needs** as a challenge in a greater proportion than respondents working in an urban area.

Figure 11. Challenges according to urban and rural context



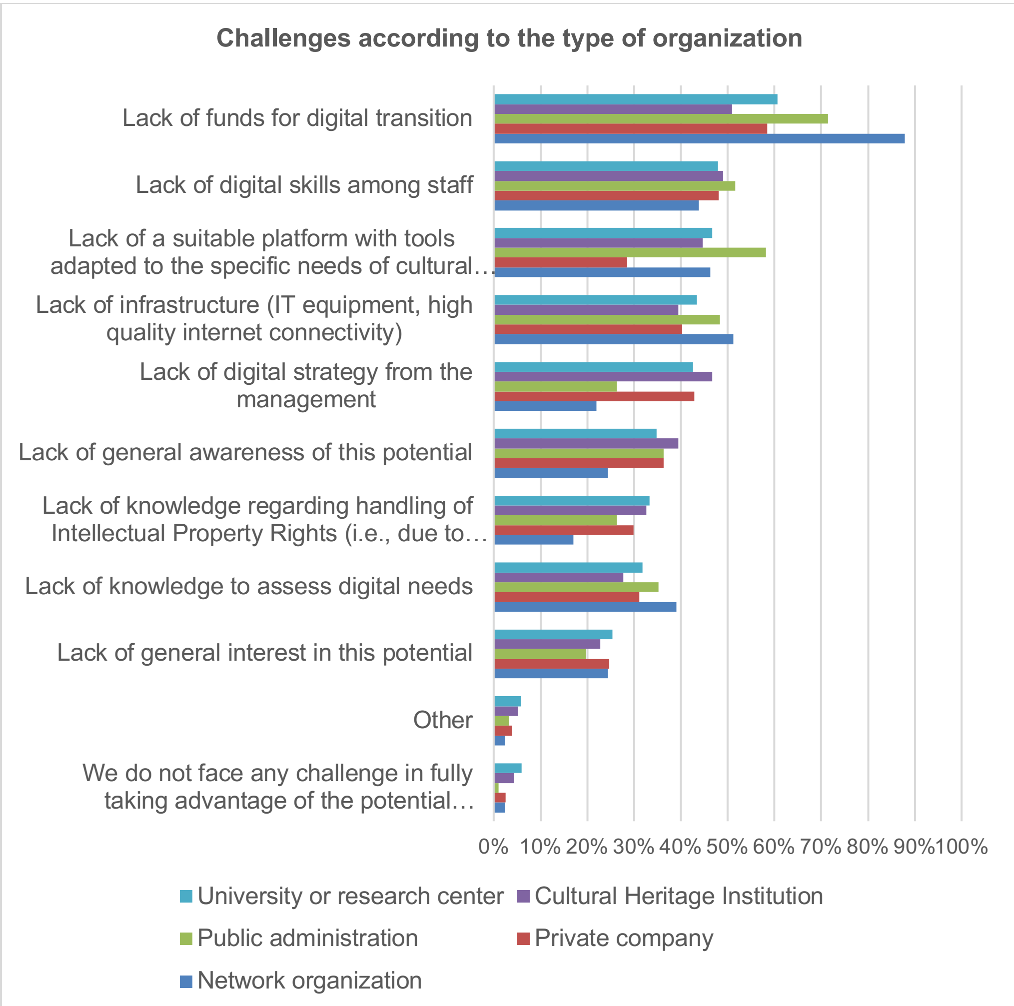
Source: European Commission, ECCCH Survey results

2.1.3. Challenges according to the type of organization

Considering the different types of organizations, respondents working in universities and research centres mark challenges in a similar proportion to the overall bulk of respondents. Even if for all type of organizations **the main challenge is the lack of funds for the digital transition**, the extent varies among them, ranging from 51% in case of respondents working in cultural heritage institutions to 87.8% in case of those working in a network organization.

For respondents working in **cultural heritage institutions**, the **lack of digital strategy from management** is the third most shared challenge **(46.7%),** as well as for those working in a **private company (42.9%)**. The **lack of suitable platform with adapted tools** stands out as a challenge for respondents working in a **public administration (58.2%)** while the **lack of infrastructure** is the second most popular challenge for those of the respondents working in a **network organization (51.2%).**

Figure 12. Challenges according to the type of organization



Source: European Commission, ECCCH Survey results

2.2. Needed support to use the Cloud

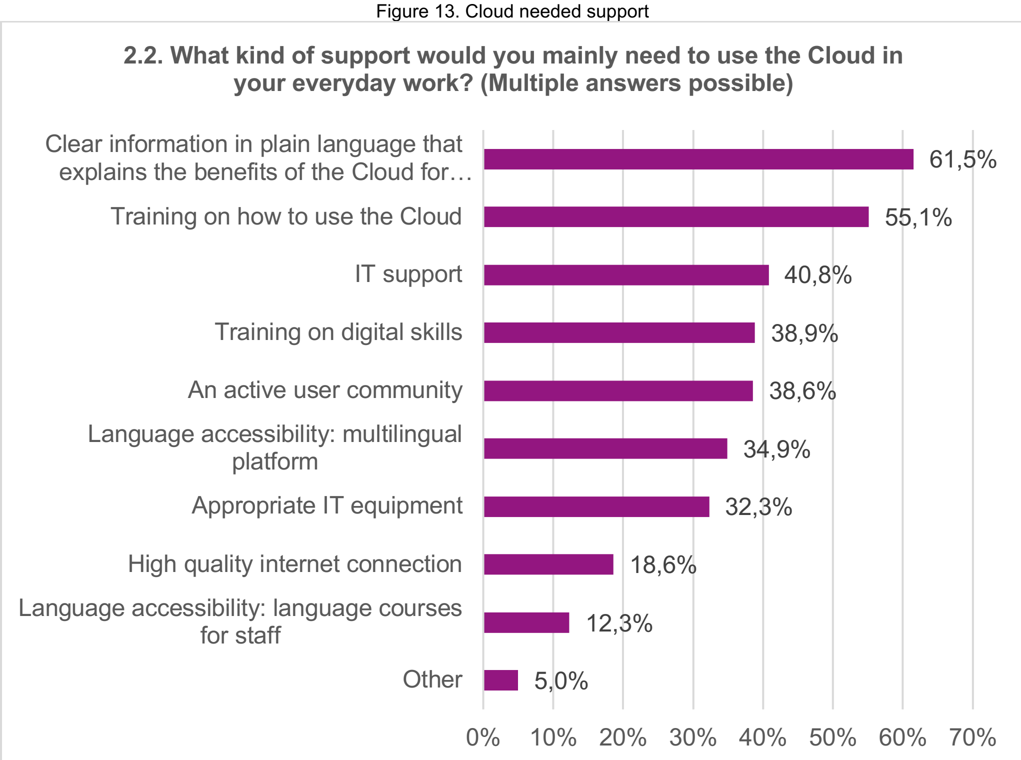
When being asked about the kind of support that they would mainly need to use the Cloud, respondents had the chance of marking multiple answers. Every respondent marked **on average 3.4 answers**.

Most of the respondents point out to the need for **clear information in plain language that explains the benefits of the Cloud for museums and Cultural Heritage Institutions and how to become a user (61.5%)**, followed by **training on how to use the Cloud (55.1%)**.

Around 40% of the respondents considered that they would need **IT support (40.8%), training on digital skills (38.9%)** and an **active user community (38.6%)**. Around one third of the respondents signaled that they would need as support a **multilingual platform (34.9%)** and **appropriate IT equipment (32.3%)**. Less respondents marked the need for **high quality internet connection (18.6%)** and **language courses for staff (12.3%)**.

Among the open answers given under the option "other" there were several who mentioned the needed support in terms of **free storage**, funding for **dedicated human resources** and **legal support** regarding **intellectual property rights**. It is also mentioned the need for **information on how the Cloud relates to other initiatives**, for example, the Common European Data Space for Cultural Heritage, and how they will be interoperable. In line with this, it appears to be a need among respondents for a **clear strategy and plan** on how the Cloud will relate to existing infrastructures as well as to other existing initiatives at the local, regional, national, and international level.

Figure 13. Cloud needed support

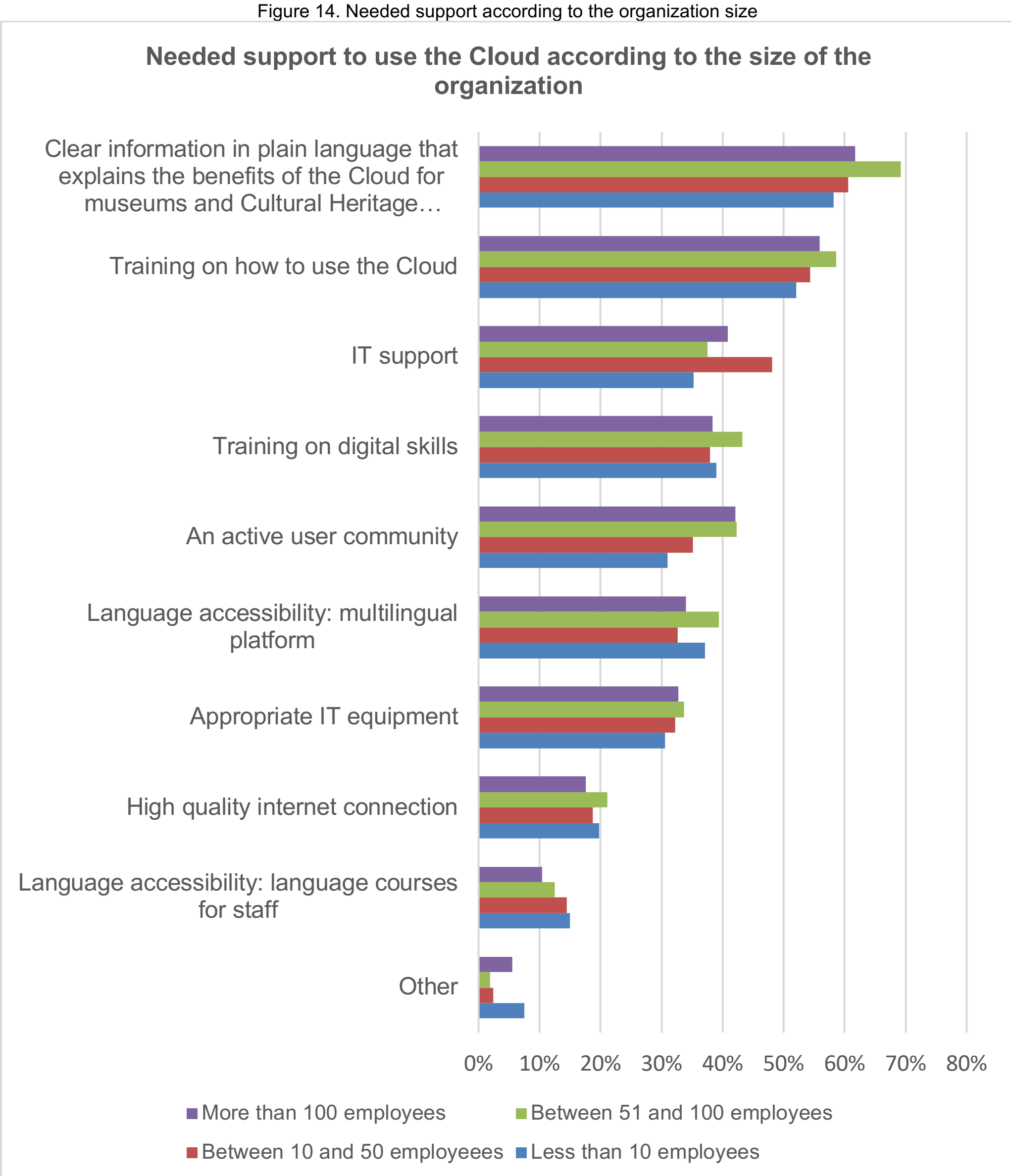


Source: European Commission, ECCCH Survey results

2.2.1. Needed support to use the Cloud according to the size of the organization

The first two options are common to all sizes of organizations and they correspond to **dedicated support to use the Cloud** either in the form of **clear information** or of **specific training**. The **need for clear information** stands in particular out among **organizations that have between 51 and 100 employees (69.2%)**. For those, the third most needed support would be **training on digital skills (43.3%)**, as well as for respondents working in **organizations of less than 10 employees (39%).** However, for respondents working in an **organization that has between 10 and 50 employees**, the third most needed support would be **IT support (48.1%)** while for **organizations of more than 100 employees** would be the existence of an **active user community (42.1%)**.

Figure 14. Needed support according to the organization size



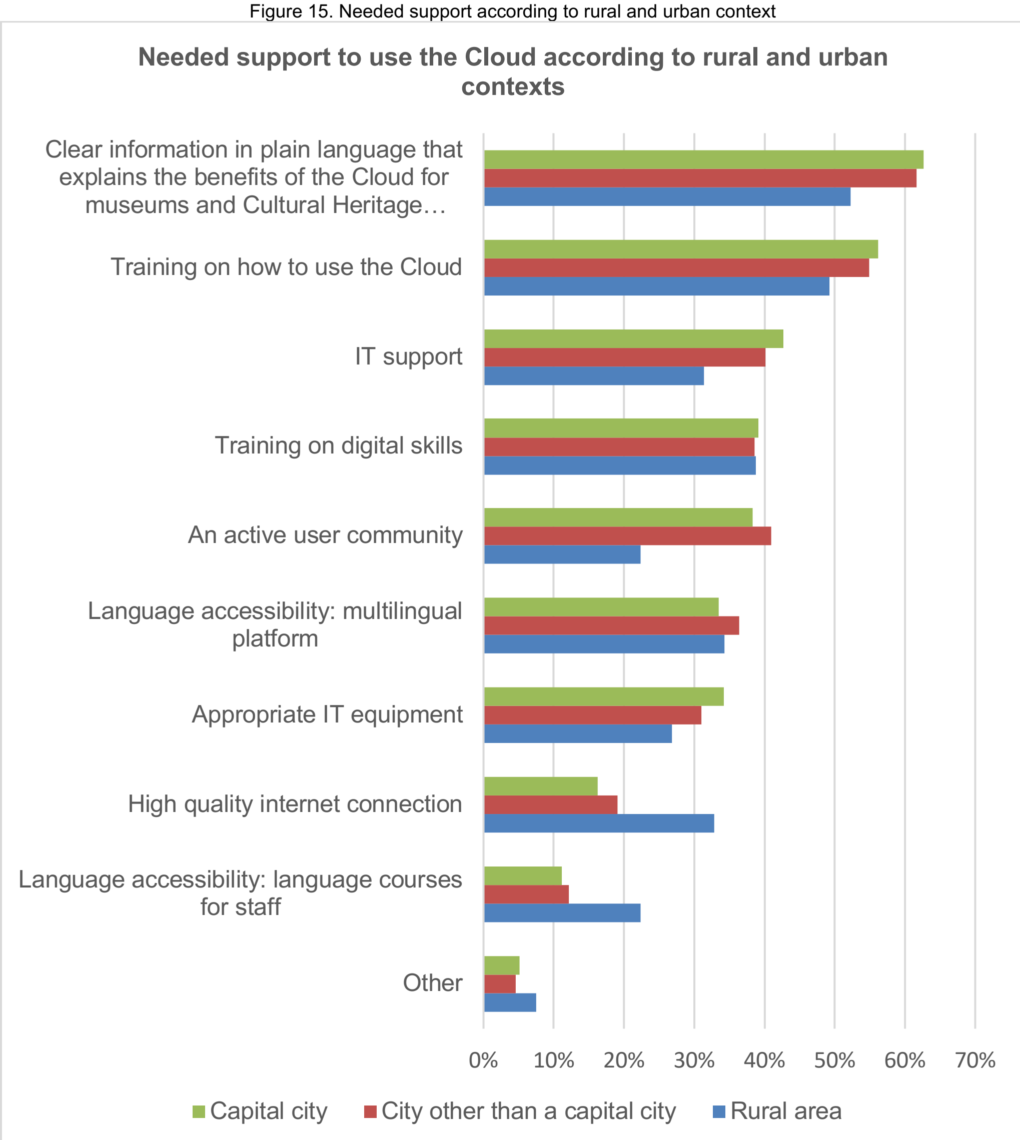
Source: European Commission, ECCCH Survey results

2.2.2. Needed support to use the Cloud according to rural and urban contexts

While the respondents working in an organization located in a city, be it the capital or not, seem to be more aligned in the type of support for the Cloud that they would need, answers vary in the case of respondents working in a rural area. Still, they are coherent in what they consider are the most needed support: **clear information** and **specific training** on how to use the Cloud.

However, for respondents in a rural area, **IT support** and an **active user community** are **relatively less relevant** than for those working in an urban area, while **high quality internet connection** (32.8%) and **language accessibility** (via a multilingual platform or language courses for staff) appear to be a more needed sort of support.

Figure 15. Needed support according to rural and urban context



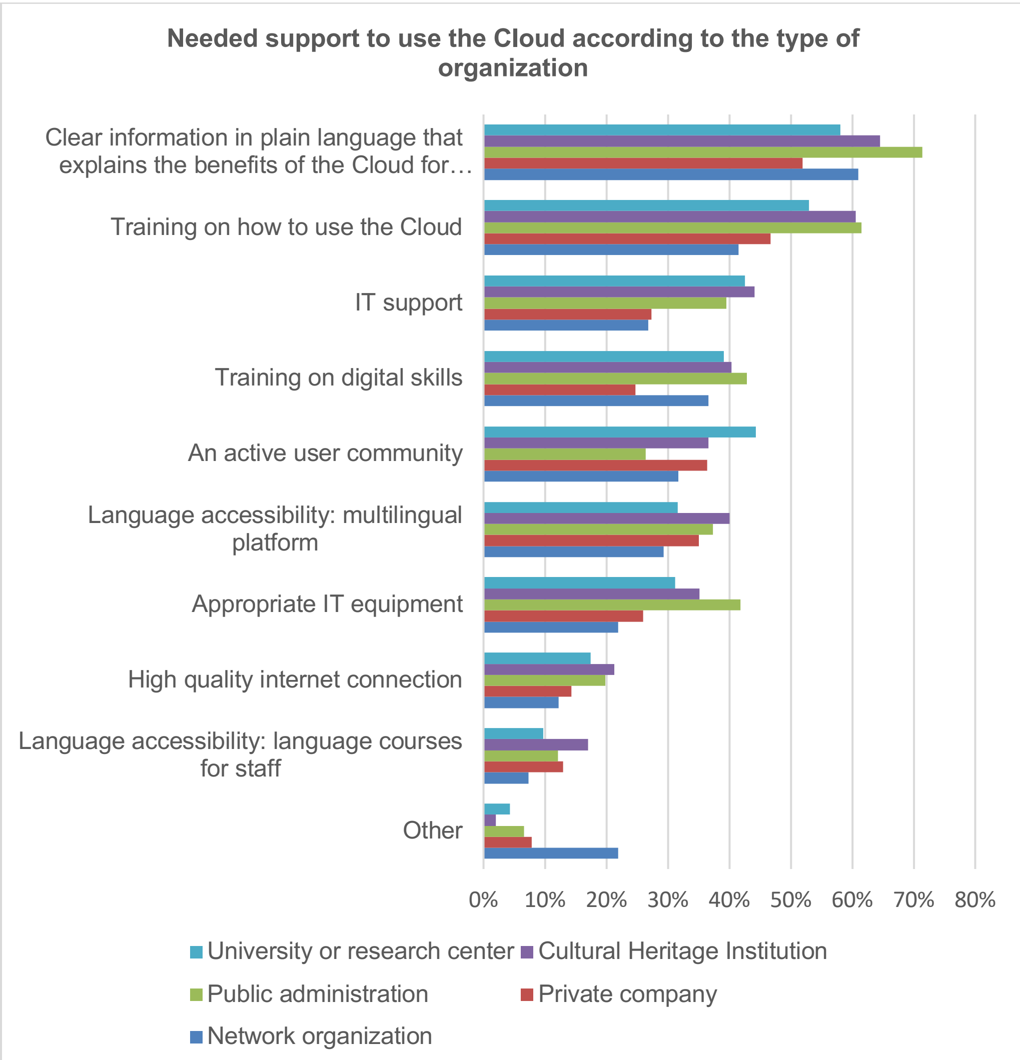
Source: European Commission, ECCCH Survey results

2.2.3. Needed support to use the Cloud according to the type of organization

Dedicated support to use the Cloud (be it **clear information** or **specific trainings**) are consistently among the most needed support by all types of organizations. However, what they prioritize on third place varies according to the type of organization.

Respondents working at a university or a research centre appreciate first **an active user community (44.3%),** like those working in a **private company (36.4%),** while those working in a cultural heritage institution prefer **IT support (44.1%)** and **language accessibility via a multilingual platform (40.1%).** The third most popular option for respondents working in a public administration is **training on digital skills (42.9%)**, followed by **appropriate IT equipment (41.8%).** Finally, for those working in a network organization, the third preferred support to use the Cloud would be **training on digital skills (36.6%).**

Figure 16. Needed support according to the type of organization



Source: European Commission, ECCCH Survey results

2.3. Prioritizing the most useful tools for the Cloud

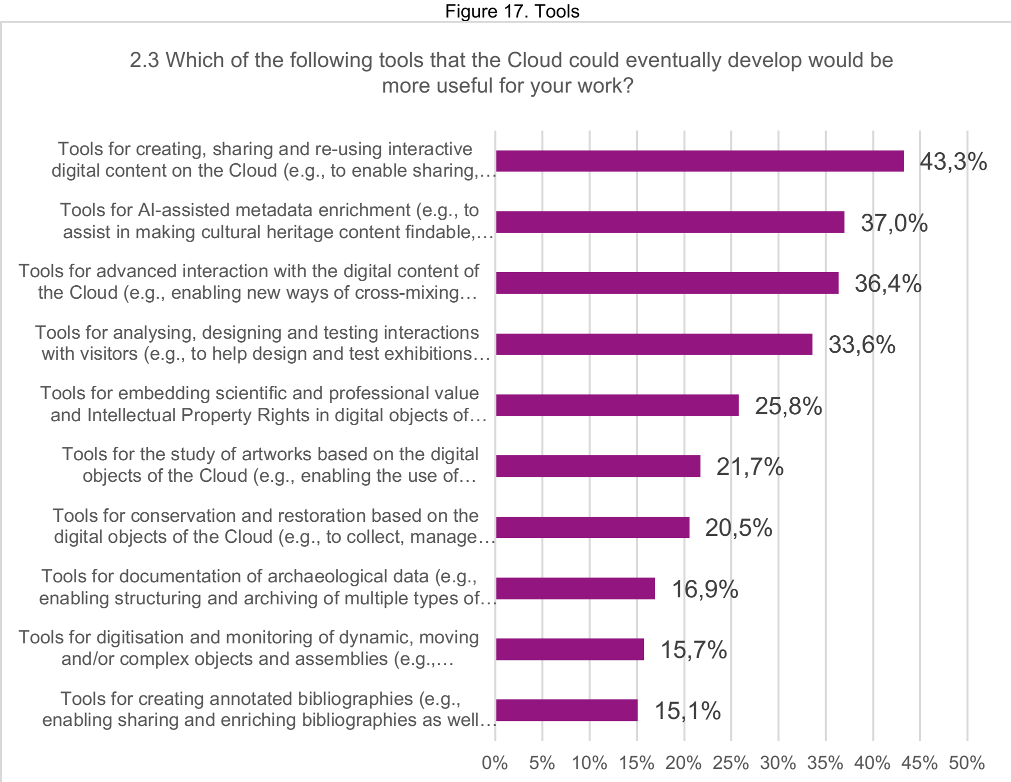
In this part of the questionnaire, respondents had the chance of marking a maximum of three answers. They marked **on average 2.7 answers**; namely, most of the respondents marked three answers.

All the 10 suggested set of tools are marked by respondents, in a proportion ranging from **43.3%** for the most popular option (**tools for creating, sharing and re-using interactive digital content on the Cloud**), to **15.1%** for the least one (**tools for creating annotated bibliographies**). All set of tools have been included in the top three priorities of at least 15% of respondents.

Following the most selected option, more than one third of the respondents considered most useful for their work tools for **AI-assisted metadata enrichment (37%)**, tools for **advanced interaction with the digital content of the Cloud (36.4%)** and tools for **analysing, designing and testing interactions with visitors (33.6%)**.

Around one fourth of the respondents included in their top three, tools for **embedding scientific and professional value and Intellectual Property Rights in digital objects of the Cloud (25.8%)**, followed by tools for the **study of artworks based on the digital objects of the Cloud (21.7%)** and tools for **conservation and restoration based on the digital objects of the Cloud (20.5%).** Those are followed by tools for **documentation of archaeological data (16.9%)** and tools for **digitisation and monitoring of dynamic, moving and/or complex objects and assemblies (15.7%)**.

Figure 17. Tools



Source: European Commission, ECCCH Survey results

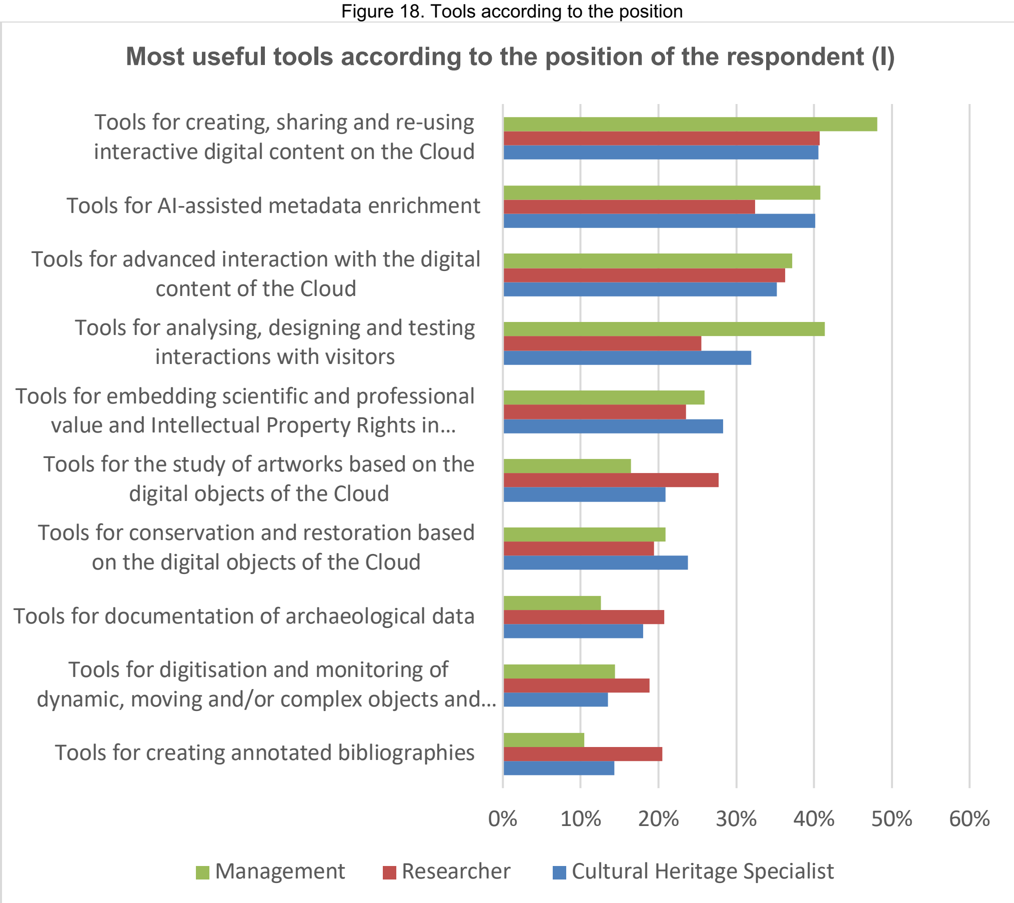
2.3.1. Most useful tools according to the position of the respondent

When looking at the preferences of respondents depending on the position where they work in, some differences can be observed in their ranking of priorities and the extent to which they prioritize them. For example, people working in the management strongly prioritize tools for **creating, sharing and re-using interactive digital content on the Cloud (48.2%)** and tools for **analysing, designing and testing interactions with visitors (41.4%).**

Tools for **AI-assisted metadata enrichment** are relatively more popular among **management (40.8%)** and **cultural heritage specialists (40.2%)** while **researchers** prioritize in second place tools for **advanced interaction with the digital content of the Cloud (37.2%),** and relatively more prominently than the other groups, tools for the **study of artworks based on the digital objects of the Cloud (27.7%)** and **tools for creating annotated bibliographies (20.5%).**

Cultural Heritage Specialists are the first group when it comes to prioritize tools for **embedding scientific and professional value and Intellectual Property Rights in digital objects of the Cloud (28.3%) and** tools for **conservation and restoration based on the digital objects of the Cloud (23.8%).**

Figure 18. Tools according to the position



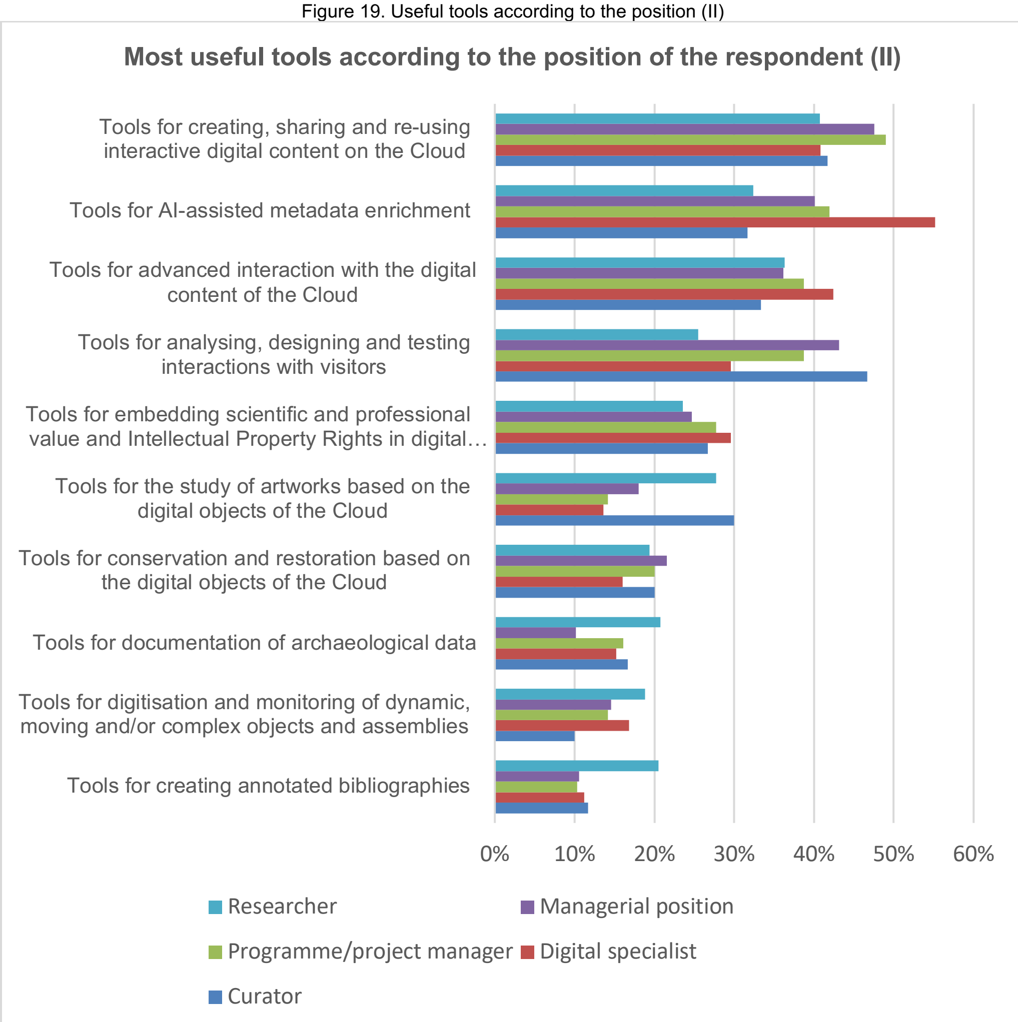
Source: European Commission, ECCCH Survey results

As an alternative way to visualize further details within this subheading beyond the proposed clusters, the most represented positions among respondents to this survey are included in the table below: researcher, managerial position, project/programme manager, digital specialist and curator. According to this new table, the first four most marked set of tools are common among the different groups of respondents, but the order in which they prioritize them differs.

Tools for creating, sharing and re-using interactive digital content on the Cloud are the most selected ones among respondents who work as researchers (40.7%), in managerial position (47.6%) and project and programme managers (49%).

However, **tools for AI-assisted metadata enrichment** (e.g., to assist in making cultural heritage content findable, accessible, interoperable and reusable) are the ones considered most useful among respondents working as **digital specialist (55.2%)**. The tools selected the most among **curators** are **tools for analysing, designing and testing interactions with visitors (46.7%).**

Figure 19. Useful tools according to the position (II)



Source: European Commission, ECCCH Survey results

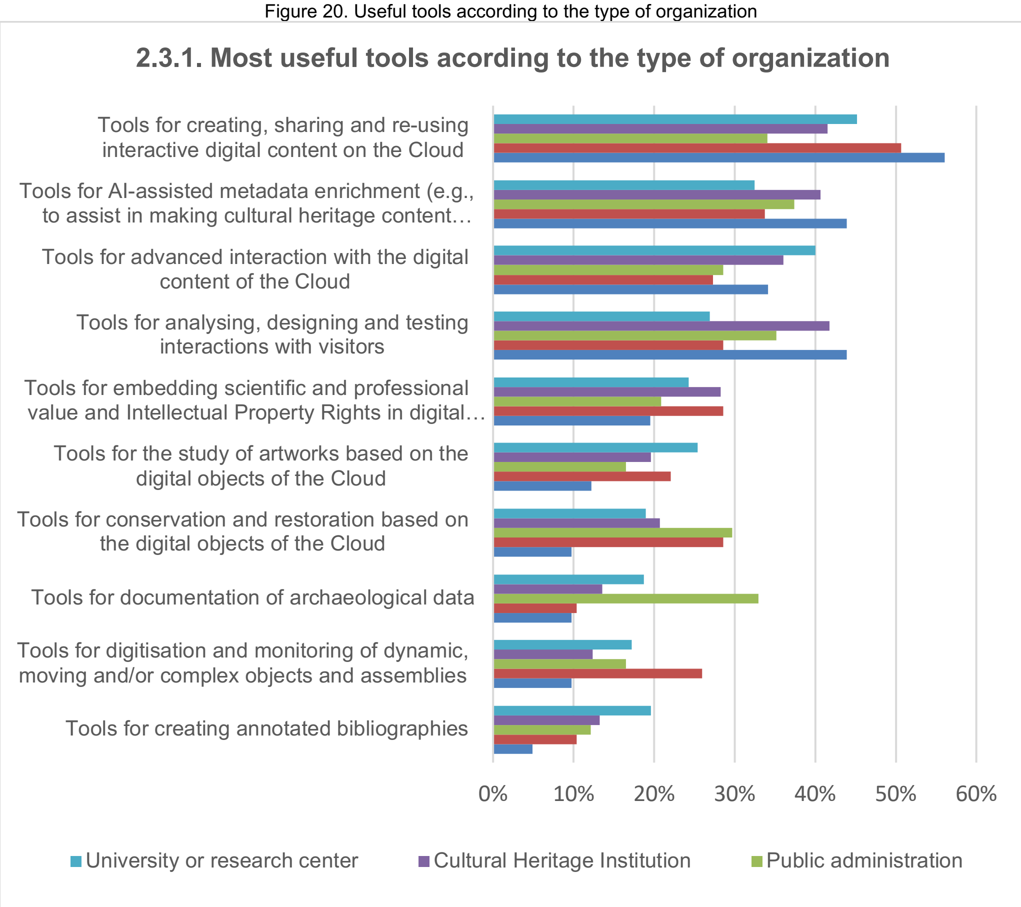
2.3.2. Most useful tools according to the type of organization

When taking into account the different types of institutions where the respondents work, **significant differences** appear in their way to prioritize tools for the Cloud.

For example, among respondents working in a **University or a Research Centre**, the most useful tools are those **for creating, sharing and re-using interactive digital content on the Cloud (45.7%)** and those for **advance interaction with the digital content of the Cloud (40%)**. However, the most popular option among respondents working in **cultural heritage institutions** is tools for **analysing, designing and testing interactions with visitors (41.8%).** They prioritize this option slightly over the first three options compared to the overall bulk of respondents.

Respondents working in a **public administration** prioritize tools for **AI-assisted metadata enrichment (37.4%)** and tools for **documentation of archaeological data (33%).** The majority of respondents working in a private company have among their top three tools those for **creating, sharing and re-using interactive digital content on the Cloud (50.7%)**, similarly to those working in a **network organization (56.1%).** Tools for **digitization and monitoring of dynamic moving and/or complex objects and assemblies** are relatively more prioritized among respondents working in a **private company (26%).**

Figure 20. Useful tools according to the type of organization



Source: European Commission, ECCCH Survey results

2.4. Open feedback from respondents

In this part of the questionnaire, respondents had the possibility to add any other need, difficulty, remark or experience that they would like to share with the European Commission regarding the European Collaborative Cloud for Cultural Heritage. A total of 253 respondents filled in this question, what represents a 23%.

For the analysis and visualization of results, answers are clustered and summarized according to their nature: needs, challenges and difficulties, remarks and experiences.

2.4.1. Needs

Most of the mentioned needs are specific **tools** that would be used for cooperation and interaction within the Cultural Heritage sector, and also with the public. They are also mentioning the need for **data harmonization** and standardisation on the level of protocols, data models and content, in order to guarantee the **interoperability** of systems. Some respondents stress the need to develop a glossary with harmonized and scientifically correct taxonomy and terminology in English, including the translation from national languages and from different disciplines. It is also mentioned the need for designing a **3D visualization system** for intangible aspects of information and knowledge and the possibility to **see previous treatments** performed at an object in order to know how to proceed with a treatment.

Other needs are included among the replies, such as more **funds** or **easy access** to **cloud storage**. They are also highlighting the need for **strategies for long-term preservation** of digital cultural heritage. Finally, it is highlighted the need to guarantee **accessibility for people with disabilities**, suggesting that any AI enabling technology would help.

2.4.2. Challenges and difficulties

Respondents point out to several challenges and difficulties, for example, the **lack of knowledge**, **information** or understanding of the Cloud initiative. Also the **lack of available time, personnel and funds**, is highlighted especially among volunteer led organizations. Respondents are also concerned about the potential obsolescence of current virtual reality/augmented reality experiences or services and on the long-term sustainability of the projects after the end of funding.

In a more specific comment, "difficulties with **preservation of archaeological sites** - from ownership of the land to lack of resources to maintain and present" are mentioned.

Finally, there are comments pointing out to the challenges in **communication** and **awareness raising** among the sector, and in **training** for professionals and senior volunteers. Finally, there is feedback on **ethical concerns** regarding **rights and intellectual property**, on the **different EU Member State legislation** on cultural heritage "for a real sharing of digital data and objects and on how to cope with **different layers of infrastructures** from a **legal**, **ontological** and **technical format** point of view.

2.4.3. Remarks

Some respondents shared their remarks on the potential of the Cloud initiative, stating that this platform could offer visibility in very **sensitive objects and open discussions** between experts and also that it could be fundamental for documenting cultural heritage in the face of **disasters**.

Other remarks emphasize on the importance of **avoiding overlaps** with existing initiatives, and on focusing on **interoperability** between platforms. Also the **long-term sustainability** of the Cloud infrastructure and its potential expansion is mentioned.

Some respondents highlight the diversity of people engaged in the sector, which includes **volunteers and freelancers** and not only professionals. Also the importance of this initiative goes **beyond the EU**, and it is suggested to expand its outreach capacity to low-income countries.

To conclude, it is again mentioned in the form of remarks the issue of **authorship** and **intellectual property** and the **legal work** that needs to be done.

2.4.4. Experiences

Finally, some respondents have shared their experiences in relation to the digital transition. For some of them, it is important that any **technology** is always **human-centred** and that it augments but not replaces the work of a person. Some mentioned the importance of **personalising the tools** depending on the position.

As an experience in the field of **archaeological data** collection, digitisation and organisation, it is explained that it depends on the **peculiarities of each project**, so it is not standardised. Another experience based on public and private 3D web repositories emphasize on the importance of **agility and adaptability** of the platform for its long term sustainability.

Finally, some respondents share their experiences in using ITs in the cultural heritage sector, where they face the challenges of **lacking time** for the digital transition or of **lacking high performance PCs in schools** and in other educational institutions.

3. Networks of stakeholders: towards building a community of practice

In the last part of the questionnaire, respondents were invited to fill in their email address, name, organization where they work and position if they want to be taken into account by the European Commission for future consultations and communications regarding the Cloud.

This third part is in line with one of the main goals of this survey, to **create a network** of stakeholders for the Cloud, which could lay the foundations for a future community of practice.

A total of **815 people** (75.39% of respondents) shared their email address as well as their explicit consent to be contacted by the European Commission via email for **future consultations regarding Cultural Heritage**. **660 respondents** (61.05%) gave their explicit consent for being contacted for future **communications** in this area.

4. CONCLUSIONS

This survey has been a very successful consultation exercise on the **digital transition: more than 1000 detailed replies** from people working in relation to **Cultural Heritage**. 75.4% of the respondents gave their consent to be directly contacted by the Commission for future consultations, which is a very **positive sign of interest and engagement** in the initiative.

Almost half of the respondents (46%) highlighted as a challenge the lack of **a digital platform with tools adapted** to the specific needs of cultural heritage professionals. The **Horizon Europe Work Programme 2023 and 2024** will cover this need in the calls related to the Cloud within the Cultural Heritage destination, in line with what was proposed in the expert report on a European collaborative cloud for cultural heritage.

The **4 highest prioritised tools** among the respondents have in common the aspect of digital interaction: tools for creating, sharing and re-using interactive content on the Cloud (43.3%), tools for AI-assisted metadata enrichment i.e. to make cultural heritage content interoperable (37%), tools for advanced interaction with the digital content of the Cloud (36.4%), and tools for analysing, designing and testing interaction with visitors (33.6%). **Digital interaction will be the core of the Cloud activities.**

This survey also underlines the need to **better explain what it is intended to be achieved with the Cloud**: 61.5% of the respondents call for clear information about the benefits of the Cloud, 36.9% see as a challenge the lack of awareness on the potential benefits of the digital transition and 23.1% the lack of general interest. In addition, it will be fundamental to provide specific **training on how to use the Cloud** as it was pointed out by 55.1% of the respondents.

It has been manifested the great importance of **accessibility and ease to use**: the new tools must be perceived as a service. It is key to ensure the **development of the tools together with the target users** to test and verify them at a large scale before the end of the projects, supporting users in their testing of the Cloud.

In addition, the open feedback to the survey shows that guaranteeing **data and systems interoperability** is fundamental for synergies of the Cloud with other digital initiatives both from a **legal** and a **technical** point of view.

Finally, the Cloud alone will not give an answer to all the challenges and needs of the sector in its digital transition. It needs to be complemented by other activities funded through other community funding opportunities like Digital Europe, Creative Europe, the European Institute of Technology and the European Social Fund Plus. This goes in particular for various forms of **training activities** such as acquiring digital skills, assessing digital needs and developing digital strategies. Finally, the findings of this survey together with our calls for the Cloud could help mobilising the Structural Funds for funding **appropriate IT infrastructures** like broad band access and up to date digital equipment for the Cultural Heritage sector.

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This publication concerns a survey that was conducted between September 30, 2022 and November 4, 2022 aiming to gather the views of the cultural heritage stakeholders on the Commission’s initiative to establish a European Collaborative Cloud for Cultural Heritage. Having received more than a thousand detailed responses, the findings of the survey -as analysed in this report- will enable the Commission to provide targeted support to the cultural heritage sector to cope with the specific challenges and needs it faces in its digital transition. The survey also revealed a high interest of the sector in a digital collaboration platform for cultural heritage. Finally, this survey is the one of the first steps towards raising awareness for the Cloud among potential users and initiating a network of stakeholders for the Cloud.

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