



DELIVERABLE

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D2.2.2 Report on community building, stakeholder consultation and sustainability strategy

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1 EXECUTIVE SUMMARY

This document describes the DCH-RP stakeholder community, taking into account the different needs and approaches required for each group. The main objective of the strategy adopted is the establishment of a community of users and providers, belonging to e-Infrastructures and cultural heritage organizations, with the aim of validating the project results. This has ensured that the proposed Roadmap is grounded in feedback coming from the community that will also be responsible for its implementation. We describe at some length the ways in which we have solicited the views of the various stakeholder communities, both by online surveys and by in-depth, face-to-face meetings.

The document presents a particular focus on ongoing international projects active in long-term preservation, research infrastructure in CH and in content aggregation and infrastructure development within Europeana. The DCH-RP stakeholder community is powered by these European projects and the project itself has carried out a deliberate policy of outreach and partnership with these other initiatives.

The DCH-RP results provide concrete instruments for the statement of national plans within the framework of the European strategy set out in the Digital Agenda. Thank to the sustainability of the Roadmap it will be shared across the different strategy models in each partner country to develop an integrated data and service platform in the DCH field. The aim is not to create a new infrastructure, but rather to support initiatives for the development of e-Infrastructure in the cultural heritage sector and to achieve interoperability between the various national systems for the management, access, and preservation of DCH.

2 INTRODUCTION

The deliverable D2.2.2 Report on Community Building, Stakeholder Consultation and Sustainability Strategy describes the community developed by the DCH-RP project in relation to dissemination activities (see D2.3.2) and consultation processes. We have identified seven principal categories of stakeholders, who have a vested interest in the project or will be affected by its outcomes. The stakeholders identified were contacted, consulted and assessed in terms of their interest in the project and the results obtained demonstrate the importance of the success of DCH-RP and indicate routes for encouraging its sustainability.

The amount of information that needs to be stored and preserved within the CH sector is rapidly growing. CH institutions are not all well prepared for this accumulation of data and the DCH-RP Roadmap is therefore of considerable importance for archives, museums and libraries across Europe – defining what institutions should include in the preservation work, deciding what measures that should be taken for successful long-term preservation, and highlighting how to develop effective cooperation with e-Infrastructure providers. Furthermore, common and shared resources are needed, both for cost-efficiency reasons and to bring higher quality into the digital preservation process.

Most of the consultation activities were carried out during the second year of the project. Months 6-12 of the project were focused on preparation of the "planning" stage, because the aims and objectives needed to be clarified with the different work packages in meetings and plenary sessions along with identification of the usefulness of the process and the stakeholder consultation process started at month 12 when the Intermediate version of the Roadmap became available. This document is based on the deliverable D2.2.1 'Terms of Reference for Community Building and Stakeholder Consultation'.

The dissemination of project information is, in a sense, a one-way process; there may or may not be any feedback from the audiences addressed. The strategy for disseminating information to various target audiences is described in the Deliverable D2.3.2 Report on dissemination activities.

Stakeholder consultation involves the development of constructive, productive relationships with different user groups identified in this document. In contrast to the process of dissemination, consultation is an explicitly two-way process, based on seeking feedback and understanding the views of those who might support DCH-RP over the long term. The main objective of DCH-RP community stakeholder consultation was to demonstrate to policy makers and managers of digital archives in cultural heritage institutions that e-Infrastructure provision is necessary for DCH. If a clear demand from within the CH community could be identified, then the relevant national bodies (ministries, agencies, other funding bodies) would be more likely to launch national or pan-European plans for the implementation of such infrastructure. For these reasons community building, stakeholder consultation and sustainability are closely interlinked.

Stakeholder consultation was integrated in the strategy for disseminating project results to target audiences, and was focused on obtaining input from stakeholders on requirements for the methodology adopted by DCH-RP, and on getting stakeholder comment and feedback on the project's results.

The process of community building is closely connected to the dissemination strategy, so this deliverable is linked to the Deliverable D2.3.2 Report on dissemination activities.

The mission of DCH-RP is to design a sound Roadmap for the implementation of an e-Infrastructure for the preservation of DCH content. The main objective of WP2 is the establishment of a community of users and providers, drawn from both e-Infrastructures and cultural heritage organizations, with the aim of validating the project results. This was intended to ensure that the proposed Roadmap would be based

on the feedback coming from the same community that is also engaged in bringing about the implementation.

The aims of the community building strategy were to raise awareness about the DCH-RP project amongst a range of groups and constituencies, as follows:

- Commercial publishers
- Organizations or initiatives already engaged in digital preservation activities
- Cultural heritage institutions, organizations, and agencies
- Researchers and students in Cultural Heritage disciplines and the wider scientific community
- International networks and research infrastructures in DCH
- e-Infrastructure providers and experts, as well as those involved in R&D activities connected with digital preservation
- Policy makers and policy bodies, and funding agencies including the European Commission.

The objectives were connected to the dissemination strategy, and they were to:

- Define the community of stakeholders, identify its interests and the main channels appropriate for communication and networking activities;
- Build and extend the stakeholder community by collaborating with other projects, participating in events and exploiting the partners' networks of contacts;
- Inform the stakeholder community about news, events and activities by developing a project newsletter, exploiting social networking channels as well as traditional media;
- Enlarge the network of common interest;
- Present the project at relevant national and international events.

Community building and stakeholder consultation offered important insights into each phase of the project – planning, implementation and evaluation. Of particular importance in developing policies was considering the changing modes of interaction among new stakeholders (user, potential user, non-user) and institutional actors (at both national and international level). Stakeholder engagement has been driven by the needs for assessing the perceived impact of the project on the DCH and research communities, on the e-Infrastructure sector and on policy and decision makers.

The methodology developed for engaging stakeholders has taken into account the different membership sectors and their different needs and perspectives, in order to open up new opportunities for collaboration in DCH and thus realize significant gains at institutional, national and international levels and increase the practical and sustainable use of e-Infrastructures.

Surveys and face to face meetings were the primary methods of consultation adopted by DCH-RP.

2.1 STRUCTURE OF THE DOCUMENT

The deliverable is a part of the work of WP2 and its Task 2.2 *Sustainability, community building and stakeholder consultation*. The deliverable report the results of Task 2.2 with particular regard to the analysis of the different stakeholder community groups involved in the consultation process and the sustainability plan.

In Chapter 3 the different stakeholder groups are presented, with a subsection for each category. In Chapter 4 the consultation process is described. In Chapter 5 the sustainability plan is introduced together with conclusions reached.

The annexes are:

Annex1 describes the questions posed in a survey on the Intermediate Version of the DCH-RP Roadmap and offers the statistics of the answers

Annex 2 presents a national consultation conducted in Sweden on digital preservation at cultural heritage institutions and gives the analysis of the current situation and of future needs and requirements

Annex 3 Lists the DCH-RP Community members and reports those organizations that participated in the survey on the intermediate version of the Roadmap

Annex 4 presents the questions used in a separate survey on Sustainability

2.2 OBJECTIVES OF THE DELIVERABLE

As related in the previous section, Deliverable D2.2.2 *Report on community building, stakeholders consultation and sustainability strategy* summarize the results of the consultation of a wide audience of stakeholders and it proposes a plan of sustainability of the outcome of the project after the it is ended.. The deliverable seeks to document the four main objective of Task 2.2 that are:

- To communicate the objective and the outputs of DCH-RP to the defined stakeholder communities
- To well tuned the final version of the Roadmap to the needs and the requirement of the digital culture heritage domain
- To pursue a global view and approach to the digital preservation issue and support the adoption of the Roadmap as a strategic document to implement a shared common e-Infrastructure layers for digital preservation
- To ensure the sustainability of the Roadmap and the Registry of service and tools as main results of DCH-RP

3 COMMUNITY BUILDING

3.1 DEFINING THE STAKEHOLDER COMMUNITY

Different approaches are appropriate to reach the different user groups of interest to DCH-RP. By developing an understanding of the needs and interests of each group, the project aims to make its dissemination activities more relevant to the people and organizations interested in using e-Infrastructures and DCH-RP outputs such as the Roadmap for Preservation and the Registry of Services. In particular the aim was to establish a common understanding and awareness across the digital cultural heritage and e-Infrastructures communities and so to lay the foundation for future collaboration and research across national, sectoral and organizational boundaries.

In defining the stakeholder community particular attention was paid to the D6.1 “Joint Activities Plan” of the DC-NET project that represents the culmination and integration of work from the seven DC-NET work-packages. These span the project lifecycle from the initial establishment of a community of common interest to the production of a joint activities plan endorsed by the relevant government ministries of each member state.

Contacting stakeholder groups made us aware of the needs of the community and various communication methods were used to reach as many stakeholders as possible. These methods include mailing lists and social networks to disseminate news and drive traffic to the project website, conferences and other means (see also the Deliverable D2.3.2 Report on dissemination activities for more detail).

The DCH-RP stakeholder community included representatives of several constituencies:

- Commercial publishers
- Organizations or initiatives engaged in digital preservation activities (such as national libraries)
- Cultural heritage institutions, organizations and agencies
- International networks and research infrastructures in DCH
- e-Infrastructure providers and experts and those involved in R&D around digital preservation
- Policy makers and policy bodies, and funding agencies including the European Commission.

3.1.1 COMMERCIAL PUBLISHERS

The community of commercial publishers is a potential partner in the digitization, preservation and public/commercial exploitation of cultural heritage objects and other projects.

WP2 worked to build a network of interested publishers. We were in contact with a range of publishers, including: Bloomsbury, Cambridge University Press, Elsevier, Nature Publishing Group, Palgrave Macmillan, Routledge, Springer, Wiley and others. The partner EDItEUR has an important role within the project acting as a bridge between DCH-RP and the world of commercial publishers. EDItEUR managed direct approaches to known or referred-on contacts, with follow-up briefings, phone conferences etc to identify specific interests. EDItEUR also participated in the process of reaching out to organizations directly representing publishers at either a national or international level, like AIE (Italy), ALPSP (international), FEP (European), FGEE (Spain), the International Publishers Association, STM (international) and the UK Publishers Association.

The project explored “terms of engagement” or factors that may influence whether or not publishers are interested in collaborating. These included some of the following:

- The DCH-RP Roadmap itself or the Registry of Services

- General opportunities for collaboration
- Participation in questionnaires, focus groups or case studies
- Involvement in consultation or coordination activities
- Licensing terms or embargo arrangements under which content or services might be co-exploited.

We also sought to profit from discussions with various agencies active in the preservation of electronic scholarly journals. A large-scale switch from printed to “e-journals” began in the early 1990s and the user community (primarily represented by libraries) recognized the need for coherent preservation arrangements for these valuable resources. This gave rise to preservation work by national libraries or memory institutions (e.g. the British Library and the Koninklijke Bibliotheek in the Netherlands), dedicated preservation services such as Portico, and collaborative, community-led initiatives like LOCKSS and CLOCKSS. Our general hypothesis here was that there could be useful lessons to be learned from these organizations that are closely involved in another kind of digital preservation.

3.1.2 ORGANIZATIONS OR INITIATIVES ENGAGED IN DIGITAL PRESERVATION

The community of stakeholders already engaged in digital preservation is made up of institutions or initiatives that are managing programs for the long-term preservation of digital cultural content.

Amongst those institutions active in digital preservation, the emphasis was on establishing a network of common interest that would support the development of the project. The message underlined the advantages for institutions and researchers of participating in the DCH-RP project and validating the Roadmap for Preservation.

Managers and researchers within these institutions or projects were interested in various aspects of the project:

- The DCH-RP Roadmap and the Registry of Services (advocacy paper)
- The development of e-Infrastructures and services for DCH
- Opportunities for collaboration
- Participation in questionnaires, focus groups, case studies
- Involvement in consultation
- Conferences and events
- Developing joint activities
- Establishment of agreements

3.1.3 CULTURAL HERITAGE INSTITUTIONS, ORGANIZATIONS, AGENCIES

When communicating with cultural heritage institutions, organizations and agencies at both national and international level, the emphasis was on disseminating the potential for advancement in preservation strategies thanks to the DCH-RP Roadmap and the Service Registry, and the effectiveness of work and improvements in working practice that were potentially achievable. The message underlined the advantages for individual institutions in collaborating with DCH-RP activities.

Managers and technical staff within these institutions were interested in:

- The Handbook on the Roadmap
- The DCH-RP Roadmap, Proofs of Concept (PoCs) and Registry of Services (advocacy paper)
- Opportunities for collaboration

- Involvement in questionnaires, focus groups, case studies
- New tools and services
- Conferences and events.

The primary means of communication with this group were via dedicated web pages and leaflets, as well as selected local or thematic events. “Cultural institutions” were here taken to include also research centers in Cultural Heritage like universities, specialist institutes and research projects.

3.1.4 INTERNATIONAL NETWORKS AND RESEARCH INFRASTRUCTURES IN DCH

These are international networks and research infrastructures active in DCH disciplines related to the work of DCH-RP. This group is not a direct stakeholder of DCH-RP but has a general interest in e-Infrastructure developments and there may be opportunities for networking, collaboration and sharing, and exchanging news about activities and solutions being developed. This group was likely to be interested in:

- The development of e-Infrastructures, tools and services
- Opportunities for collaboration and networking, such as international events
- Business planning and strategy development
- Cooperation agreements.

The primary means of communication with this group were the project leaflet, briefing papers and collaborative events.

3.1.5 e-INFRASTRUCTURE PROVIDERS AND EXPERTS AND RESEARCHERS IN DIGITAL PRESERVATION R&D

e-Infrastructure providers and experts and those involved in R&D connected with digital preservation constituted one of the main target audiences for the DCH-RP project. It is important to raise awareness of the project’s activities amongst experts and researchers both within the partner organizations and among external bodies; these experts also represented a significant route for disseminating news about DCH-RP through their own contacts and networks.

Staff within e-Infrastructure providers and workers in digital preservation R&D were interested in news about:

- The development of the DCH-RP Roadmap and Registry of Services
- Identifying gaps and pushing towards future development of new tools and methodologies for preservation
- Participation in international events organized by e-Infrastructure networks
- Conferences and EGI Forum events dedicated to digital cultural heritage
- Best practice guides and proofs of concept
- Dissemination activities aimed at analyzing and understanding better the needs of the DCH sector
- Conferences and other events.

The aim of this dissemination activity was to make colleagues within the e-Infrastructure provider organizations aware of DCH-RP and its activities, to support and promote the development of the research infrastructure and to spread the news by “capillary action” within individual networks. The same was true for e-Infrastructure providers, usually National Research and Education Networks (NRENs) and

grid & cloud platform providers, who are responsible for the storage, computing and networking facilities at the core of e-Infrastructures. Researchers who are already involved in DCH-RP as internal stakeholders can be reached during internal meetings, through presentations of project activities, by the distribution of dissemination materials and by sharing news.

3.1.6 POLICY MAKERS, POLICY BODIES AND FUNDING AGENCIES

This group includes policy makers, for example from national organizations with responsibilities for e-infrastructure services, research institutions, funding agencies such as bodies with responsibility for the national Digital Agenda, funding research at national level and the European Commission. The target groups are policy-making bodies responsible for mapping out the future of e-Infrastructures on behalf of the Commission, of national government and of others.

The main message to this group was around the benefits and positive impact of the research infrastructure for a broad range of stakeholders and end-users.

This group was likely to be interested in:

- The Advocacy paper on the Roadmap
- Business planning and strategy development.

The primary means of communication with this group was via policy briefings, which were to be clear and concise for easy access. To reach this objective a Handbook on the Roadmap has been developed that summarizes future perspectives in the field and presents the final version of the Roadmap in a simple and effective way, easily understood by all the stakeholders of the project.

3.2 COLLABORATION WITH OTHER PROJECTS AND COMMUNITIES

The DCH-RP project identified a number of international projects, networks and research infrastructures which are active within related areas. These projects represent external networks with resources in place to disseminate news and information with their stakeholders. The strategy for DCH-RP has been to approach these projects offering to exchange news about project activities and to seek opportunities for collaboration.

The initiatives which been identified include the following:

- APARSEN (stakeholder community: data infrastructure for e-Science)
- ARIADNE (stakeholder community: research infrastructure for archaeology)
- CHAIN REDS (stakeholder community: e-Infrastructure provider)
- DARIAH (stakeholder community: research infrastructure for arts and humanities)
- DASISH (stakeholder community: data infrastructure for social science and humanities)
- EUDAT (stakeholder community: data infrastructure for preservation)
- OpenAIRE
- PRELIDA
- SCAPE (stakeholder community: data infrastructure for preservation)
- SCIPIDES (stakeholder community: data infrastructure for e-Science)
- SUCCESS (stakeholder community: data infrastructure for preservation)

More details on the outcomes of the cooperation with other projects and initiatives in Europe and beyond are available on the Deliverable D4.4 Report on International Cooperation.

3.2.1 APARSEN

APARSEN, Alliance Permanent Access to the Records of Science in Europe Network of Excellence (2011 – 2014), is a Network of Excellence that brings together an extremely diverse set of practitioner organizations and researchers in order to bring coherence, cohesion and continuity to research into barriers to the long-term accessibility and usability of digital information and data, exploiting our diversity by building a long-lived Virtual Centre of Digital Preservation Excellence. Within this broad aim, the challenges to making data information accessible in the long term require a multidisciplinary approach across a wide range of stakeholder groups and the APARSEN Project brings the various communities closer in a Network of Excellence. Similarly the term 'Record of Science' in the name of the project APARSEN means in the very broadest sense that it includes arts, humanities and the social information sector. The socioeconomic impact of the knowledge generated by researchers has been recognized due to its importance in stimulating innovation, which leads to wealth creation, growth in employment and more sustainable social development.



The main objectives of the cooperation are:

- To set up a proof of concept in DCH-RP, based on the work and prototypes developed in APARSEN. targeted at demonstrating how e-Infrastructures can be of benefit for the DCH community, in particular for the preservation of digital cultural content.
- To develop a common registry of services and tools focused on digital preservation, which integrates the results and the achievements of the two projects and which will be badged as a joint collaboration between DCH-RP and APARSEN.

3.2.2 ARIADNE

The ARIADNE project is funded by the European Commission's 7th Framework Programme to bring together and integrate the existing archaeological research data infrastructures so that researchers can use the various distributed datasets and new and powerful technologies as an integral component of archaeological research methodology. It started in February 2013 and will run for 48 months. The project enables trans-national access of researchers to data centers, tools and guidance, and the creation of new Web-based services based on common interfaces to data repositories, availability of reference datasets and usage of innovative technologies. The project contributes to the creation of a new community of researchers ready to exploit the contribution of Information Technology and to incorporate it in the body of established archaeological research methodology.



The main objectives of the cooperation are to:

- Promote and support scientific collaboration between the

archaeological research infrastructures and DCH-RP partners in order to share knowledge in the area of digital preservation of DCH and cooperate on the dissemination of the projects' results and on the consultation on the intermediate version of the Roadmap.

- Set up of a proof of concept in DCH-RP, to demonstrate how e-infrastructure can be used to support the preservation of digital cultural heritage.

3.2.3 CHAIN-REDS

CHAIN-REDS is an FP7 project co-funded by the European Commission (DG CONNECT) aiming at promoting and supporting technological and scientific collaboration across different e-Infrastructures established and operated in various continents, in order to define a path towards a global e-Infrastructure ecosystem that will allow Virtual Research Communities (VRCs), research groups and even single researchers to access and efficiently use worldwide distributed resources (i.e., computing, storage, data, services, tools, applications).



After the successful workshops and networking sessions jointly organised by DCH-RP and CHAIN-REDS (in Manchester at the EGI Community Forum, in Rome during the EUDAT Conference and at ICT 2013 in Vilnius), the two projects decided to formalise their cooperation by signing a Memorandum of Understanding.

The main objectives of the cooperation are to:

- Promote and support technological and scientific collaboration across different e-Infrastructures established and operated in various continents, in order to
- Define a path towards a global e-Infrastructure ecosystem that will allow Virtual Research Communities (VRCs), research groups and even single researchers to access and efficiently use worldwide distributed resources
- Highlight the usefulness of e-Infrastructures and federated identity services to store, access and preserve digital cultural content.

3.2.4 EUDAT

EUDAT is a pan-European data initiative bringing together a unique consortium of 25 partners, including research communities, national data and HPC centers, technology providers, and funding agencies from 13 countries. The project started in October 2011 and will run for 4 years. EUDAT aims to build a sustainable cross-disciplinary and cross-national data infrastructure providing a set of shared services to access and preserve research data. Europe's science and research communities from a wide range of scientific



fields are faced with increasingly large amounts of valuable data that stem from new sources such as powerful new sensors and scientific instruments used in analyses, experiments and observations as well as growing volumes of data from simulations and from the digitization of library resources.

Thanks to the workshops and networking sessions jointly organised by DCH-RP and EUDAT (in Manchester at the EGI Community Forum, in Rome during the EUDAT Conference and at ICT 2013 in Vilnius), the two projects decided to formalise their cooperation by signing a Memorandum of Understanding.

The main objective of the cooperation is to set up a common plan for the establishment of a Virtual Research Community for Digital Preservation dedicated to the Digital Cultural Heritage (DCH) and Social Sciences and Humanities (SSH) sectors, that could be acknowledged at the European level by the world of e-infrastructure providers.

As a first step in this direction, the two projects decided to join their efforts and put together the results achieved so far to set up a proof of concept targeted at demonstrating how e-Infrastructures can be of benefit for the DCH community, in particular for the preservation of digital cultural content. In this pilot the prototypes and services developed in EUDAT, in particular the B2Share and B2Safe services, have been tested by the memory institutions participating in the DCH-RP Proofs of Concept work package, who tried to use them to safely store, access and preserve their digital cultural data.

The need for novel e-Infrastructure services is increasing in the Cultural Heritage, Social Science and Humanities domains (including the private sector), since they allow for cost reduction by avoiding parallel activities in investing for higher volume/throughput and substituting expensive human workforces by cheap machine processes. In this context, Virtual Research Environments (VRE) and Virtual Research Communities (VRC) are key new paradigms and practical opportunities for doing research and for handling and preserving huge amount of digital data.

3.1.5 LINKED HERITAGE

The Linked Heritage (Linked Heritage - Coordination of Standards and Technologies for the enrichment of Europeana) project is an initiative supported by the European Commission under the FP7 e-Infrastructure Capacities Programme; it started on 1st April 2011 and ended on 30th September 2013. The project facilitated and delivered large-scale, long-term enhancement of Europeana and its services. This has been achieved by:

- Contributing 2.7 million additional metadata records, linking to 7.5 million new digital items.
- Providing key enabling technologies for diverse content providers to contribute to Europeana.



- Delivering pragmatic technological solutions to the problem of non-standard descriptive terminologies; this enhances Europeana in terms of metadata richness, re-use potential, and uniqueness.
- Demonstrating the use of persistent identifiers in digital cultural heritage and their use in linked data.
- Simplifying the provision of private-sector metadata to Europeana, and demonstrating the benefits of private sector interoperability to Europeana.

The main objectives of the cooperation were on dissemination activities about the DCH-RP Project and consultation on the Intermediate version of the Roadmap, among the best practice network of 38 beneficiaries, 10 affiliated partners and 12 additional external content providers, that bring together ministries and government agencies, content providers and aggregators, leading research centres, publishers and SMEs, from throughout Europe.

3.2.6 OpenAIRE

OpenAIRE (Open Access Infrastructure for Research in Europe) is an initiative supported by the European Commission under the FP7 e-Infrastructure Capacities Programme with the following main objectives:

- Build support structures for researchers in depositing FP7 research publications through the establishment of the European Helpdesk and the outreach to all European member states through the operation and collaboration of 27 National Open Access Liaison Offices.
- Establish and operate an electronic infrastructure for handling peer-reviewed articles as well as other important forms of publications (pre-prints or conference publications).
- Work with several subject communities to explore the requirements, practices, incentives, workflows, data models, and technologies to deposit, access, and otherwise manipulate research datasets of various forms in combination with research publications. The main objective of the cooperation was to evaluate the possibility to reuse data made available by OpenAIRE in the Proofs of Concept organised by DCH-RP targeted at demonstrating how e-Infrastructures can be of benefit for the DCH community, in particular for the preservation of digital cultural content. Data can be harvested from the OpenAIRE portal, a gateway to all user-level services offered by the e-Infrastructure established, including access (search and browse) to scientific publications and other value-added functionality (post authoring tools and monitoring tools through analysis of document and usage statistics).



3.2.7 PRELIDA

Preserving Linked Data (PRELIDA) is a Coordination Action of the VII Framework Programme, which started on January 1 2013 and will last until December 2014. The main objective of PRELIDA is to produce a state of the art on preserving linked data, and a Roadmap for addressing the new challenges that preserving linked data poses. The Roadmap will drive the scientific and technological development of this field, as well as future research programmes that the Commission may wish to fund.



The main objectives of the cooperation are to:

- Organize joint events, such as the DCH-RP Final conference and the PRELIDA Consolidation and Dissemination workshop, that will be held in Riva del Garda, Italy on the 17th and 18th of October 2014.
- Integrate the Roadmaps of the projects concerned.

3.2.8 SCAPE

The SCAPE project is developing scalable services for planning and execution of institutional preservation strategies on an open source platform that orchestrates semi-automated workflows for large-scale, heterogeneous collections of complex digital objects. SCAPE will enhance the state of the art of digital preservation in three ways: by developing infrastructure and tools for scalable preservation actions; by providing a framework for automated, quality-assured preservation workflows and by integrating these components with a policy-based preservation planning and watch system. These concrete project results will be validated within three large-scale Testbeds from diverse application areas. The project is co-funded by the European Union under FP7 ICT-2009.4.1.



After the successful workshops and networking sessions jointly organised by DCH-RP and SCAPE (last year in Rome during the EUDAT Conference and at ICT 2013 in Vilnius), the two projects decided to formalise their cooperation by signing a Memorandum of Understanding.

The aim of this agreement is to set up a common plan for the establishment of a Virtual Research Community for Digital Preservation dedicated to the Digital Cultural Heritage (DCH) and Social Sciences and Humanities (SSH) sectors, that could be acknowledged at the European level by the world of e-infrastructure providers.

The main objectives of the cooperation are to:

- Evaluate the possibility of setting up of a proof of concept in DCH-RP based on the work and prototypes developed in SCAPE targeted at demonstrating how e-Infrastructures can be of benefit for the DCH

community, in particular for the preservation of digital cultural content.

- Organize joint events, such as the DCH-RP workshop on e-infrastructures and services for data preservation and curation (in conjunction with the EGI Community Forum in Helsinki) and the SCAPE/APARSEN workshop on Sustainability of Digital Preservation on EU Policy Level (in conjunction with the JCDL/TPDL Conference in London).

3.2.9 SCIDIP-ES

The SCIDIP-ES project aims to deliver generic infrastructure services for science data preservation and to build on the experience of the ESA Earth Observation Long Term Data Preservation (LTDP) programme to promote the set-up of a European Framework for the long term preservation of Earth Science (ES) data through the definition of common preservation policies, the harmonization of metadata and semantics and the deployment of the generic infrastructure services in the ES domain.



The main objectives of the cooperation are to:

- Set up a proof of concept in DCH-RP based on the work and prototypes developed by SCIDIP-ES, targeted at demonstrating how the DCH Community can benefit from preservation services realized by e-Infrastructures.
- Organise joint events such as workshop, networking sessions, training courses.
- Implement 'clustering' activities, generate internal workshops and meetings and disseminate the results of the projects involved via appropriate websites, events and publications.

3.2.10 Succeed

The Support Action Centre of Competence in Digitisation (Succeed) promotes the take up and validation of research results in mass digitisation, with a focus on textual content. These results often remain as working prototypes since their implementation in a production environment is hindered by the limited awareness of results and the lack of resources for their adaptation and development.



Succeed will improve the availability of tools and resources, foster the transfer of knowledge and creation of research consortia and explore the role of emerging business models, funding opportunities and public-private partnerships to improve large-scale text digitisation techniques. As a result, the project is defining a Roadmap towards a common infrastructure of Centres of Competence in the digital libraries research area.

The main objectives of the cooperation are to:

- Organize joint events, such as the DCH-RP workshop on e-infrastructures and services for data preservation and digital curation
- Integrate the Roadmaps of the projects concerned.

3.3 INFORMING THE STAKEHOLDER COMMUNITY

The objective is to inform the stakeholder community about news, events, project activities, the development of the Roadmap for Preservation and the Service Registry. This is done through the different channels (project newsletter, mailing lists, social networks, press notices, articles) documented below as well as via project events, workshops and other activities. Our strategy is to make initial approaches to the target audience by using social media, professional/personal/local contacts from project partners' networks, etc. Contacts have been made through the use of appropriate messages to transmit information, which varied according to the target audience. For example, when reaching out to the research community we pointed out specific publications on the project website, and news about forthcoming conferences or innovations in preservation services available via e-Infrastructures.

WP2 prepared a '**Dissemination Audit**' to collect from all the partners information on contacts, media channels and projects or initiatives relevant for DCH-RP, with the purpose of disseminating information on DCH-RP through a large number of media channels in each partner's country and to guarantee a wider enlargement of the stakeholder community.

The instruments and strategies for informing the stakeholder community are described in the D2.3.2 Report on dissemination activities.

4 STAKEHOLDER CONSULTATION

The DCH-RP project is committed to creating and maintaining two-way communications with all stakeholders. This two-way communication keeps stakeholders informed about the project and keeps the project aware of community issues and concerns. It also helps to establish a working relationship and trust between the parties – e-infrastructures and cultural institutes – which is necessary to validate the Roadmap for Preservation and to guarantee the updating of the Service Registry.

Stakeholder consultation has a critical role to play given the widespread advocacy activities necessary for the development strategy of long term DCH preservation based on the use of e-Infrastructures. As a result of consultation between cultural heritage institutions it could be that there will be significant additional demand for the services that e-Infrastructures can offer, and also of the value that the e-Infrastructures could provide to the wider research community.

The consultation process for the first 6-12 months was based mainly on international workshops organized within events like the EGI Forum in Manchester and Madrid and the 17th Conference on Theory and Practice of Digital Libraries (TPDL) held in Malta. During the second year the stakeholder consultation plan involved a wider range of stakeholder communities and cluster projects in progressing the dialogue between cultural institutions and e-Infrastructure providers and in understanding outputs from the DCH-RP project.

All of the project partners identified key stakeholders in their own countries relevant for the DCH-RP project as it is important to disseminate to managers and decision makers, and to researchers, and to raise awareness of the project's activities and the opportunities for using the Roadmap for Preservation and Service Registry, taking into account also members of the partner organization. This has also been an important means of disseminating news about DCH-RP to the partners' contacts and networks.

4.1 THE NETWORK OF COMMON INTEREST

DCH-RP brings together e-Infrastructures and cultural heritage actors in an international network of common interest. The network has expanded continuously throughout the project lifetime, in order to maximise its value and impact. The project has established legal bases and agreements which are used to formally enroll new members and experts into the network of common interest. The key instruments for growth have included the following:

- **The membership agreement**, which enables ministries and agencies to become formal partners of the project;
- **The cooperation agreement**, which provides the legal basis for cultural heritage institutions, research institutions, academies and experts, to participate in the DCH-RP working groups.

The network of common interest adds a great deal of value for the DCH-RP project, because it assembles groups and teams who work together, across national and organizational boundaries, to share the Roadmap for Preservation. The network of common interest, which is made up of all stakeholders, currently includes:

- 13 core partners
- 4 contributors
- 18 cultural and research institutes from the partners' network of DC-NET, as well as a number of representatives of developing regions in the world, which have been invited to participate.

Consortium Agreements and Memoranda of Understanding have already been signed with:

- Italy – Consortium GARR
- Italy – Marciana Library of Venice
- Italy – National Library of Florence
- Greece – Hellenic Ministry of Education and Religious Affairs, Culture and Sports, General Secretariat for Culture
- Indicate, Aparsen, Ariadne, Chain-Reds, Dariah, Eudat, Openaire, Prelida, Scape, Scipides, Succeed

As a further development of the DCH-RP Network of Common Interest, all the partners carried out additional networking activities such as the consultation on the Intermediate version of the Roadmap and dissemination activities.

4.2 STAKEHOLDER SURVEY QUESTIONNAIRES

DCH-RP has planned and carried out five different surveys for different user communities.

The questionnaires are published online on the DCH-RP website and on the Digital Meets Culture site.

All the partners have been involved in disseminating the invitation to participate in the surveys.

The five surveys conducted during the project, were on the following topics:

- Authentication and Authorisation in the Cultural Heritage Community (see D4.1)
- The Intermediate Version of the Roadmap
- Factors Likely to Influence Publishers toward Cooperation in Future Initiatives of the Type Foreseen in DCH-RP (see D4.2)
- Ranking the Services Included in the DCH-RP Registry (see D3.3)
- Digital Preservation at Cultural Heritage Institutions in Sweden: Analysis of the Current Situation and of Future Needs and Requirements, as an example of good practice at the national level (conducted by WP5).

4.2.1 SURVEY ON AUTHENTICATION AND AUTHORISATION IN THE CULTURAL HERITAGE COMMUNITY

Federated access is a key element of the DCH-RP roadmap and can bring many benefits for the users as well as for the resource providers. However, deploying federated access requires considerable technical expertise and manpower to set up the technical infrastructure, which is not always available in the arts and humanities sector. This support should ideally come from existing federation operators, but their funding model and the availability of resources on their side does not always allow for that.

In 2013, TERENA and INFN (with the support of GARR) carried out a survey among the DCH-RP partners. The questionnaire, which is anonymous, has been developed as part of the activities planned in Task 4.1 (Trust Building). It is addressed to a wide audience of users and was used to gather information on the requirements for authentication and authorisation in the cultural heritage community and to define a set of recommendations for the user authentication and access control system(s) that would be most useful for the DCH. The questionnaire is available both from the DCH-RP showcase in Digital Meets Culture and from the Project website.

The response to the survey was lower than expected with a total of 31 answers. Although the statistical significance may not be so high, due to the low number of responses, they did highlight the following points:

1. A clear requirement for cross-institutional access: examples provided were access to digital cultural material for research purposes, access to catalogues, access to content for internal projects and so on;
2. More than half of the people who answered the survey are aware of federated access and that R&E federations are operational in many countries;
3. Lack of federated credentials among the respondents, also among those who were aware of federated access;
4. User authentication is required to upload and download the data;
5. The requirements for authorisation were less clear. Services that responded said that in most cases, users just need to be authenticated to access the services. Some services maintain access control list mechanisms, but some others say that access should be open;
6. There is a willingness on the part of institutions to be part of federations (for those that are aware of federated access) but there is also a lack of know-how and manpower and in some cases a lack of trust in the infrastructure.

The main requirements for authentication and authorization infrastructure (AAI) are summarized in D4.1.

4.2.2 SURVEY ON THE INTERMEDIATE VERSION OF THE ROADMAP

This on-line survey, conducted by WP 2 from June to August 2014, used the availability of the intermediate version of the Roadmap to encourage the involvement of the digital cultural heritage community in the testing and validation of requirements and Roadmap development. The questions posed in the survey and the answers are shown in Annex 1, whilst the participating institutions are listed in Annex 2.

The target group for the survey includes commercial publishers, organizations or initiatives already engaged in digital preservation activities (such as national libraries), cultural heritage institutions, organizations, agencies, researchers and students in cultural heritage disciplines and the wider scientific community, international networks and research infrastructures in DCH, and experts involved in digital preservation of digital cultural heritage. The questionnaire is available both from the DCP-RP showcase in Digital Meets Culture and from the Project website. The survey posed a number of simple questions based on the results of the concertation meeting held in Tallinn on the 23rd and 24th of April 2014. The survey addresses 10 general questions, grouped into three main themes, which we considered crucial for the development of the Roadmap:

- Preservation Requirements for the DCH Domain
- Managing Long-Term Shared Arrangements
- Making it Work

To make stakeholder participation as straightforward as possible, we decided to offer multiple-choice responses to each question.

A variety of channels were used to reach representatives of the target communities. Links to the online survey and invitations to participate were emailed to targeted lists maintained by ICCU and the other WP 2 members. Cultural organizations and clustering projects were contacted both directly and via a number of professional organizations across Europe and beyond. We received a total of 77 responses, from a

very varied audience, considering the nationality of the participants (19 different nations, plus three multi-national institutions) and the institution they belong to (both in terms of nature and size).

PARTICIPANTS

From the point of view of nationality, almost all of the answers came from European Union-based institutions (74 out of 77), the only three non-EU institutions being the Arab States Research and Education Network (ASREN, based in Amman, Jordan), the University Library "Svetozar Marković" (Belgrade, Serbia), and Koordinationsstelle für die dauerhafte Archivierung elektronischer Unterlagen (KOST, in Berne, Switzerland). Italy provided the lion's share (38 answers, 49.35%) of the answers, which almost compares to the total of all those from other nations together..

Considering the size of institutions responding, slightly less than the half of the responders are "small" institutions (i.e. having less than 50 staff members), and overall almost four-fifths of the participants have no more than 500 staff members.

Preservation Requirements for the DCH Domain

SECTION 1 "Digitized" vs. "Born Digital"

Digital cultural heritage materials fall into two main classes: "digitized" objects, which are obtained by digitizing representations of non-digital artifacts, and "born-digital" objects, which exist in digital form from the point of their creation. Two questions briefly explored how important it is that the Roadmap take into account recommendations for preservation that distinguish between "digitized" and "born-digital" objects. As can be seen in the graphical displays in Annex 1, there was overwhelming agreement on considering digitised objects differently from the "born-digital", mostly because of the links that exist between a digitised object and its "original" physical form (i.e. a digital object may be just considered a copy, only in digital version, of a certain physical object).

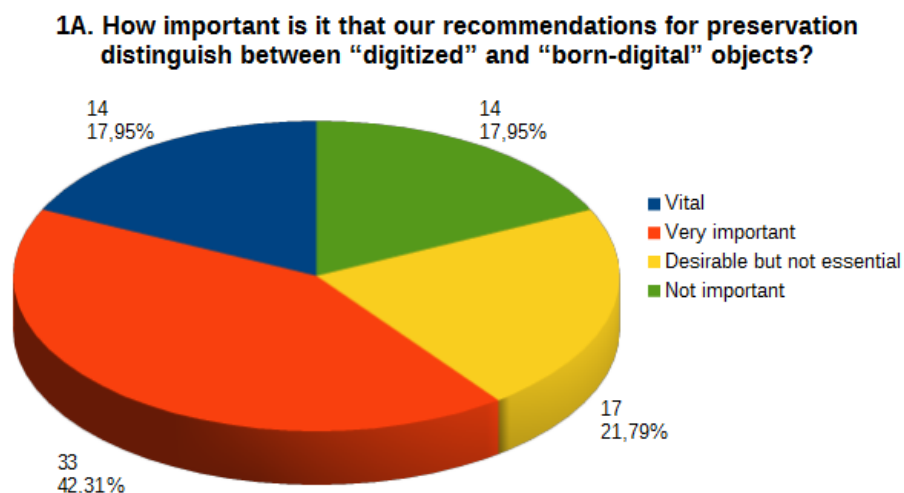


Figure 1: Importance for distinguish between 'digitized and 'born-digital objects'

Almost 60% of respondents expressed the need for such a distinction, that sometimes reflects organisational needs, or even into legislative aspects, such as the case of Czech Republic ("According to Czech law, there is no recognition of born-digital objects as collection items").

SECTION 2 Handling Domain-Specific Requirements

The cultural heritage domain naturally has a number of domain-specific requirements or current practices that may influence its decisions on digital preservation. Three questions examined in more detail whether responders felt that the requirements of preservation would be better addressed by 'hybrid' solutions or more domain-specific solutions. The results in this section show the "mixed feelings" of the interviewees on this issue.

More particularly, DCH operators are somewhat worried about the recognition of their "specific" needs in their work (around 74% say that is important that any solution should be adapted to the institution), and consider the achievement of this recognition "realistic" (68% overall).

2A. How important is it that any proposed preservation solution be tailored to these domain-specific requirements?

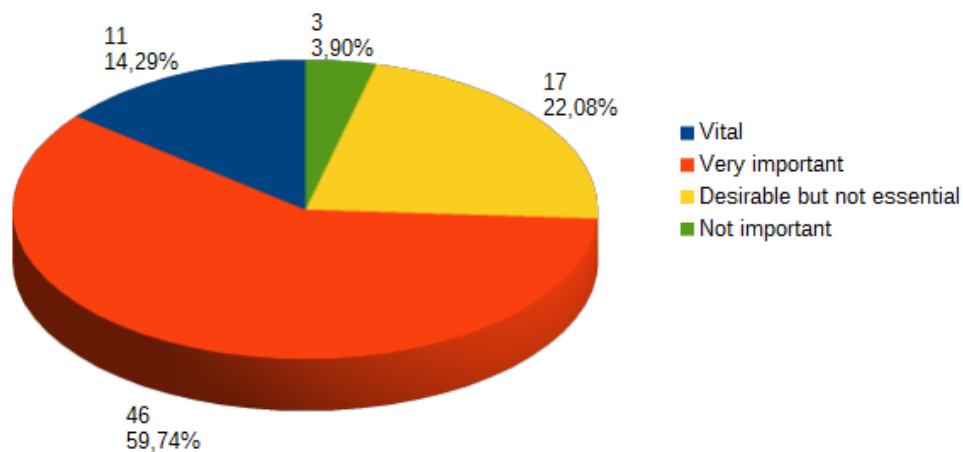


Figure 2: Importance of the domain-specific requirements

Nonetheless, they acknowledge the need for an approach that should be as broad as possible to allow the possibility of cooperation between institutions (an overwhelming 79% of answers ask explicitly for a "hybrid" solution). Basically, DCH operators call for a flexible approach that could balance both general and particular needs.

SECTION 3 Selectivity in What is to be Preserved

Given the scales of existing CH collections and the continuous day-by-day additions of new, potentially valuable born-digital materials, CH practitioners are confronted by immense volumes of digital material and significant issues of choice over what is to be preserved. Four questions explore how important it is to address criteria on what to preserve and selectivity in digital preservation is considered a very important issue (88.3% of the interviewees consider it to be so), mostly due to the huge volume of objects that can theoretically be stored. Anyway, DCH practitioners characterise this problem mostly as a budgetary problem (i.e. they require more resources to preserve objects), instead of a practical problem (i.e. defining what should be preserved) – even if they show some interest in being advised also on the latter issue.

**3B. Is “volume overload” a real problem?
(Yes, it is a problem regarding...)**

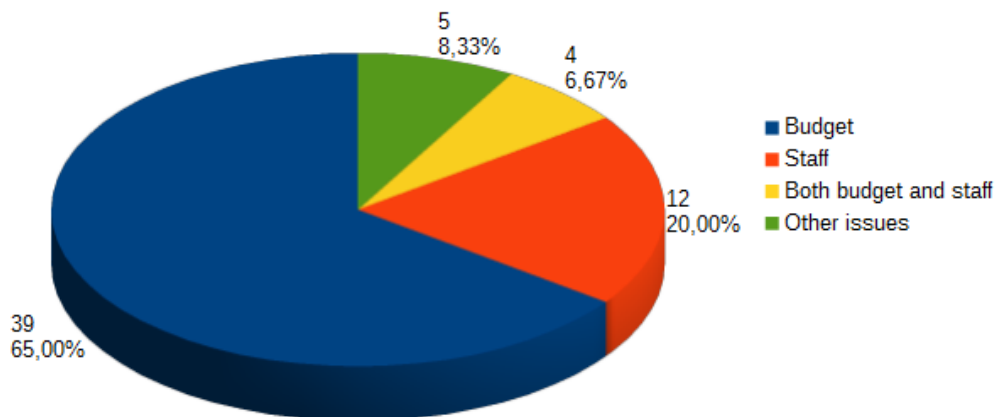


Figure 3 : Factors influencing the problem of managing ‘volume overload’ of digital contents

Managing Long-Term Shared Arrangements

SECTION 4 Collaboration, Leadership & Governance

The approach advocated by DCH-RP is collaborative and involves using one or more shared infrastructures. To ensure the ongoing relevance and sustainability of the services provided will require leadership and governance from both the CH community itself and the service providers. Cooperation between institutions is definitely considered of value by the interviewees: more than 83% respondents to the four questions consider it "important" to address also "collaboration, leadership and governance issues", probably due to the fact that around three-quarters of the institutions state that they are already involved in cooperation with other institutions.

4A. How important is it that DCH-RP addresses questions of collaboration, leadership and governance, alongside more technical aspects?

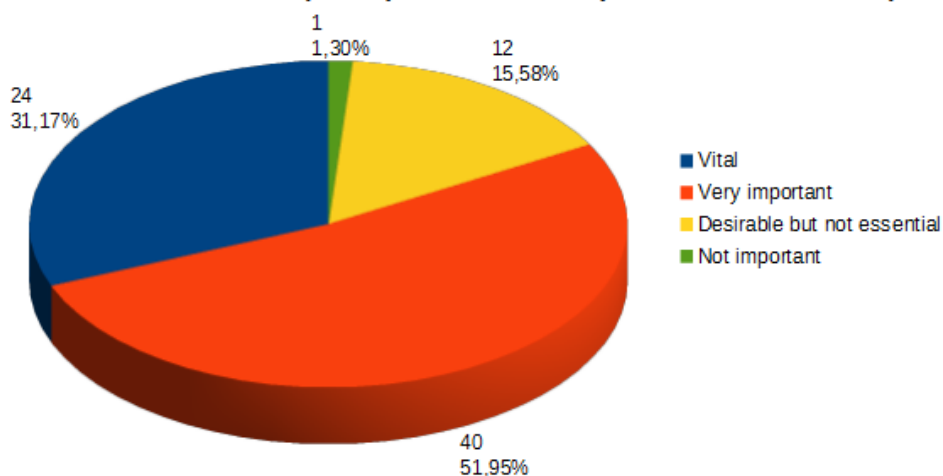


Figure 4: Importance to address issues on governance

There is also an evident readiness on the part of the institutions to be active partners in defining and steering such collaborations – which is completely coherent with the approach shown in the previous questions, since they show the need of their needs being considered in formulating the services.

SECTION 5 Approaches to Outsourcing Responsibilities

A significant measure of “outsourcing” is implicit in the plans proposed by DCH-RP, but the concept of outsourcing responsibilities or services may be unfamiliar to many CH institutions. Three questions explored the existing or planned experience of outsourcing any DP operations to external service providers. The answers to this section are, once again, fairly diverse. DCH practitioners believe that it is very important to address the issue of outsourcing responsibilities in the field, basically because around 68% of the interviewees declare they have had experiences or are still experiencing outsourcing.

5B. Does your organization have experience of outsourcing any of its operations to external service providers?



Figure 5: Experiences of outsourcing in cultural institutions

Nonetheless, when it comes to expressing the *theoretical* need of allocating some tasks to an external company, interviewees seem to be less inclined to do so: only 37.66% would consider it for sure, while around 23.38% exclude such an approach (because of internal regulations or national legislations). Around 39% don't give a clear answer to the issue, deciding to keep an open mind about it.

5C. Would your organization consider outsourcing any of its preservation-related responsibilities to a shared service as envisaged by DCH-RP?

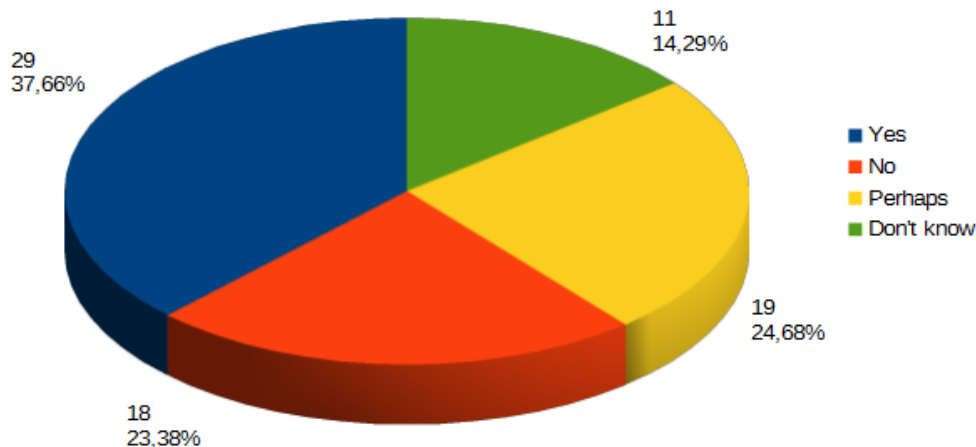


Figure 6: Attitude of cultural institutions regarding preservation-related responsibilities with shared outsourcing service

SECTION 6 Representative Scenarios and Use Cases

DCH-RP aims to offer high-level advice to the whole spectrum of CH institutions considering digital preservation, but requirements are likely to differ from one institution to the next. The project has made initial efforts to describe a variety of representative scenarios and use cases in order to make the proposals more concrete. Three questions explored possible cooperation between cultural institutions for implementing a shared transnational service for digital preservation. Once again, DCH practitioners call for some sort of practical help. The answers to the first two questions on the importance that DCH-RP offers representative scenarios and use cases for CH practitioners to evaluate are extremely clear: all interviewees would like to be presented with some representative case-studies or scenarios, in order to evaluate the situation (note that *none* of the interviewees have answered "not important" to the first question!).

SECTION 7 Transnational Collaboration: How Plausible is this for DCH?

Given the variations in national legislations and preservation requirements, country by country, there may be challenges to the kind of transnational collaboration and service sharing that could otherwise bring attractive economies of scale to DCH preservation activities. Two questions examined national variation and factors, like regulations, in the perspective of a transnational service for DP. The responses show that DCH practitioners do consider it "important" to take into consideration local and national factors and issues in the wider framework of collaboration – but when asked to state if national legislation allows them to store digital assets on which they do not hold copyright, more than a half of the interviewees said "I don't know".

7B. Do national or other regulations permit your organization to store digital assets in countries other than your own?

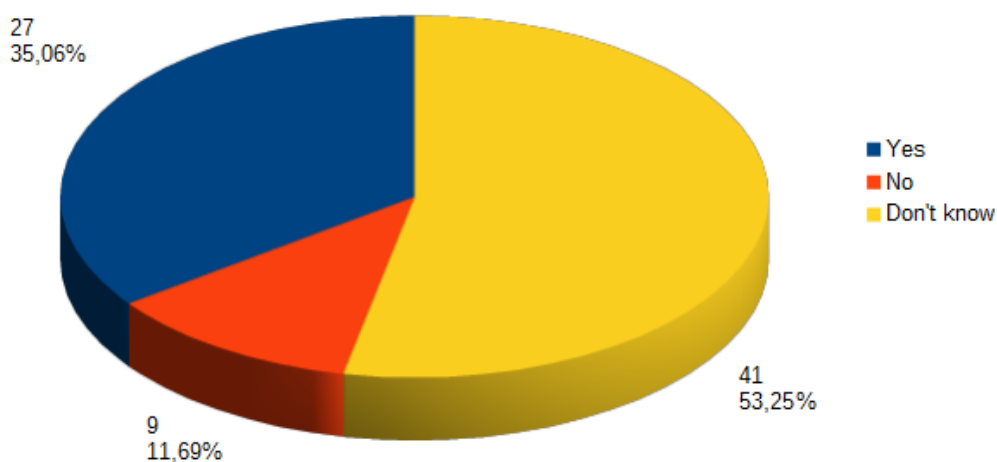


Figure 7: uncertainty of the legal framework

This brings us to consider that in most cases legislative frameworks have probably not been adapted to the new challenges faced in preserving Cultural Heritage, which is in accordance with the findings of the third question of this section where among the issues to be considered there is also the necessity of working in a well-defined policy framework. This third question allows the participants to give a free text response for describing considerations that might influence their organization when considering possible transnational collaboration on digital preservation: 32 answers were given to this question. The outcome is once more heterogeneous, and displays the differences between the various institutions. It is possible nonetheless to state that budgetary and technical stability are the two most pressing issues expressed, while working in a defined and uniform policy framework (possibly at the European level) is also considered a sensible issue to address.

Making it Work

SECTION 8 Governmental and Private Sector Solutions and Funding

DCH-RP proposes significant reliance on infrastructures that are largely government funded, primarily the NRNs (National Research Networks) and NRENs (National Research and Education Networks) in EC-member countries. Alternative, private sector solutions or partnerships may also be available in some cases or might develop in response to a perceived market need.

8B. Do you already have links with one or more NRNs or NRENS in your country?

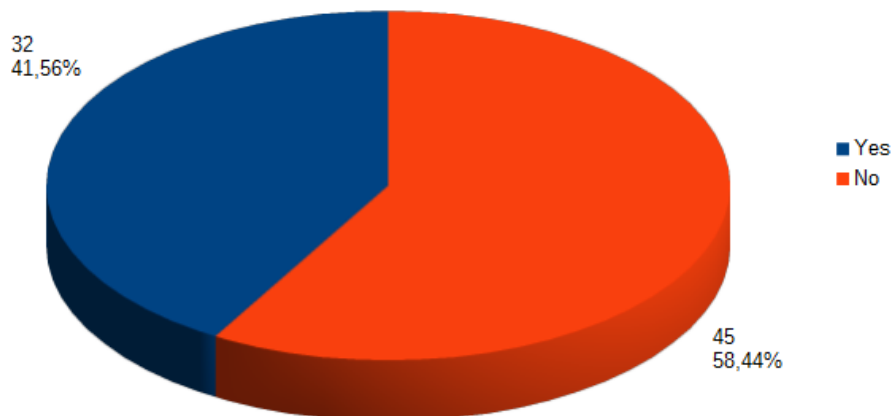


Figure 8: *lack of dialogue between cultural institutions and NRNs or NRENS*

The answers in this section bring back the considerations about financing the DCH projects: the interviewees show that they consider the idea of relying on an external – both public or private – structure as "important".

The other answers, show us that more than a half of those who answered have no links with National Research Networks or National Research and Education Networks.

Moreover, when asked if they are "prepared to consider" private solutions, only 46.75% answered yes, while another 44.16% were dubious (only a very small minority excludes any possibility of turning to private sector solutions).

The question about the potential partnerships was the most complicated one to analyse, even if judgements were somewhat cautious and conservative. DCH practitioners who responded to the questionnaire hold in high consideration the hypothesis of cooperating with the publishing sector (only 7.79% does not see any scope in such a cooperation), while tourism as well as mass-media (radio and TV) are other spheres of interest (14-16% of "no scope at all" answers). Less importance is given to cinema and educational fields (around 25% of interviewees does not see any scope for cooperation here).

Lastly, on cooperation with commercial providers, it seems that DCH practitioners have a less strong opinion about this field than the others: while around a quarter of those who answered do not see any motivation to cooperate in this field, more than half see "some scope" in it – which is, by far, the most cautious answer among all the options.

SECTION 9 Rights

Central to the treatment and eventual usage of DCH resources are questions of rights: who are the legal rights holders for each of the resources and how clearly specified are the associated rights to use and exploit those resources.

This is another section that emphasises a very important issue for DCH practitioners: in fact, 95% of the respondents who answered stated that being the rights holder of a cultural object is crucial in this field (and, like question 6A, nobody answered "not important"). Possibly the reason lies in the fact that only

20.78% of organisations, among those considered in this survey, hold all the rights on their whole collections.

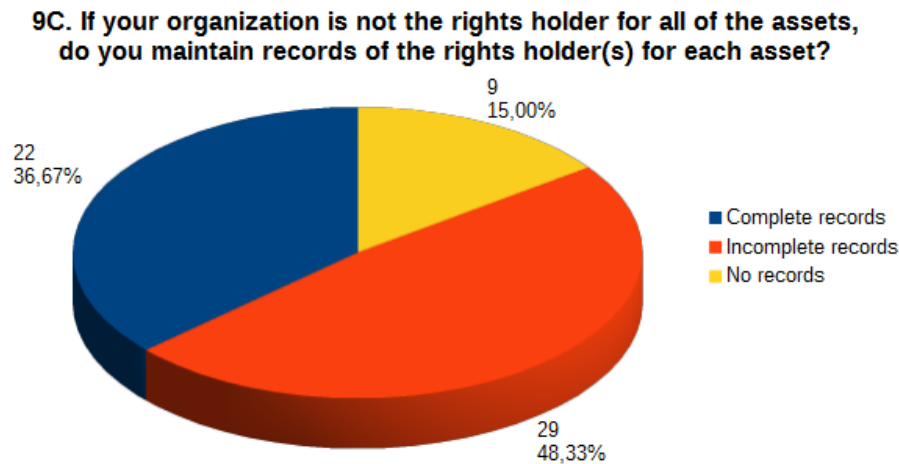


Figure 9: the problem of managing the rights of the digital assets

On the contrary, it is interesting to note that almost 60% hold rights only for part of their collections, and the remaining 20% said that they do not hold any rights at all. Those institutions have further been asked if they have any records about the original rights holder (or holders): 63.33% have incomplete or no records at all – which indicates that a considerable part of the digitised content of those institutions is affected by this problem, considering also that half of the organisations stated that they do not have any registry of rights associated with digital assets.

SECTION 10 Education and Training

Although major national CH or memory institutions will be familiar with many of the issues involved, we anticipate that there will be a significant need for assistance in the education and training of CH staff confronted with new technologies and approaches.

The last section confirms the necessity for DCH operators to be guided somewhat in their initiatives and underlines again the importance of cooperation between institutions. All of the interviewees expressed a certain degree of interest for advice and training in DCH practices, mostly because in the majority of cases (62.34%), there is no established institution that can produce or deliver professional training in the field.

Rather interesting data come from the very last question: the relative majority (57.14%) of institutions consider themselves "fit" to act as a "centre of excellence" for best practices, and another 11.7% may take up the challenge. Only 27% of institutions do not consider themselves ready for such a challenge.

10D. Could your organization act as a “centre of excellence” to spread best practice on DCH preservation questions to other institutions in your country?

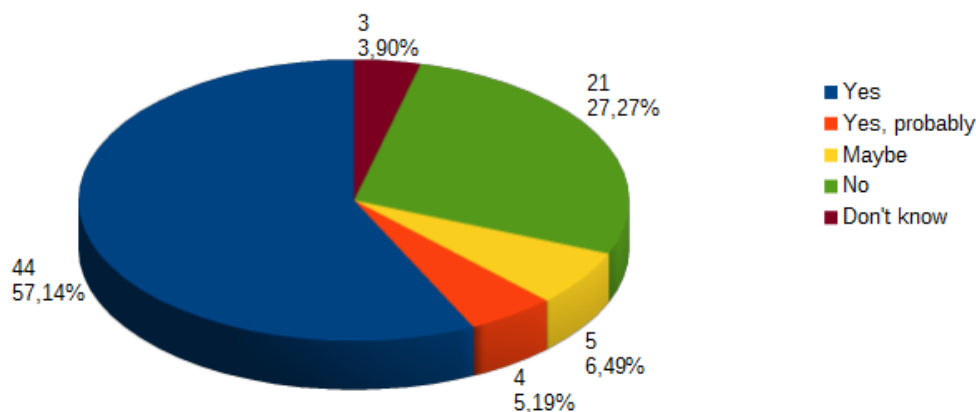


Figure 10: Availability of the cultural institutions to act as ‘centre of excellence’ for DP

4.2.3 SURVEY ON PUBLISHERS

An online survey was carried out by EdItEUR on behalf of DCH-RP in April and May of 2014, to test the hypotheses on factors likely to influence publishers and related organizations toward cooperation in future initiatives of the type foreseen in DCH-RP. The analysis of the 41 responses and detailed questions posed in the survey are reported in full in deliverable D4.2 Engagement with Commercial Publishers.

4.2.4 SURVEY TO RANK THE SERVICES IN THE DCH-RP REGISTRY

The DCH-RP Registry of Tools and Services, available on-line at the project’s web site (<http://www.dch-rp.eu/index.php?en/138/version-2>) and developed as part of work package WP3, has collected information and knowledge related to tools, technologies and systems that can be used for the purposes of digital cultural heritage preservation. It also reviews existing and emerging services developed and offered by R&D projects and e-Infrastructures, including commercial solution vendors.

Tools and services are categorized by purpose, technologies required, resource formats supported and domain-specific application, among others. Alongside this functional description, the Registry provides assessments of relevance and popularity for a subset of the total. To select the 30-40 most relevant and used tools out of the total of approximately 140 tools items that are contained in the Registry, WP3 invited cultural heritage institutions to participate in a survey. 80 responses were received. The information collected is reflected in the current version of the Registry and further detail on the Registry and the survey can be found in deliverable D3.3.

4.2.5 SURVEY ON DIGITAL PRESERVATION AT CULTURAL HERITAGE INSTITUTIONS IN SWEDEN: ANALYSIS OF THE CURRENT SITUATION AND OF FUTURE NEEDS AND REQUIREMENTS

This survey was conducted between April 2013 and March 2014 in the framework of the activities of DCH-RP WP5 by Digisam, that is a secretariat for National coordination of digitisation, digital preservation and digital access to cultural heritage, established by Swedish Government to coordinate the continued development work on digitisation issues and organised as a department of the Riksarkivet (National

Archives in Sweden, <http://digisam.se/index.php/en>). One of the main tasks of Digisam is connected to a proposal on how coordinated and cost-effective preservation of digital cultural heritage information at Swedish state cultural heritage institutions that collect, preserve, and provide access to cultural heritage material, should be designed. Digisam has carried out a pilot study on long-term digital preservation and the survey registered the current state of storage and preservation at cultural heritage authorities. The results, presented in Annex 2 are based on in-depth interviews with seven cultural heritage government agencies, concerning their current processes and solutions for digital preservation and future needs concerning digital preservation. This study can be considered as an example of good practice at a national level.

4.3 FACE TO FACE CONSULTATION: WHEN AND WHERE

DCH-RP organized and participated in several consultation meetings to enrich and validate the final version of the Roadmap with input coming from a variety of stakeholders. The consultations were conducted in parallel with other research, study and analysis, whose outcomes influenced specific elements of the Roadmap. Overall, this consultation component was intended to identify:

- The level of consensus and support for the Roadmap itself
- Issues and priorities that should be taken into consideration in the final version of the Roadmap.

For the complete list of events see the Deliverable ‘Dissemination Plan and Promotional Material’, which points out the most significant events for the development of the Network of Common Interest. We now highlight the more significant events in a little more detail.

4.3.1 EGI TECHNICAL FORUM, Manchester, April 2013

This event, held in Manchester between 8 and 12 April 2013 in conjunction with the 3rd EMI Technical Conference, was very successful and provided a great opportunity to reflect upon the growing diversification in usage of the European Grid Infrastructure from across research disciplines as well as the widening international collaboration that is taking place.

The DCH-RP project was invited to attend the meeting, organizing a workshop on “Digital Cultural Heritage: State of the Art and Future Developments”. The workshop brought together projects and initiatives working world-wide in the domain of digital cultural heritage, digital arts, digital performances and digital humanities in order to find synergies and to discuss opportunities for cooperation, in particular around the theme of the use of e-infrastructures for DCH, thus avoiding duplication of efforts to reach the same goals.

This occasion was a first step where projects that are working on the creation of a research infrastructure dedicated to the cultural heritage and the humanities could get together and agree on the need to set up a common plan in the light of establishing a Virtual Research Community to be acknowledged at European level by the world of e-infrastructure, to approach the next opportunities offered by Horizon2020.

4.3.2 EGI TECHNICAL FORUM, Madrid, September 2013

The EGI Technical Forum 2013 took place from 16 to 20 September in Madrid at the Meliá-Castilla Hotel & Convention Centre. The event was hosted by EGI.eu and IBERGRID, a partnership between the Spanish and Portuguese National Grid Initiatives that represents the Iberian Peninsula in EGI.

EGI has established an open computing and data infrastructure built by federating national computing and storage resources across Europe and around the world.

In view of the growing impact and recognition of the EGI Forums, DCH-RP project aims were communicated to members of the grid user community. During the “VRC Project Cases Workshop”, Rosette Vandenbroucke and Antonella Fresa gave a presentation on “An e-infrastructure for the Digital Cultural Heritage sector and the humanities research”.

4.3.3 TPDL-17, Valletta, September 2013

The 17th session of The International Conference on Theory and Practice of Digital Libraries (TPDL) was organized by the University of Malta and held in Valletta, Malta on September 22-26, 2013.

Within TPDL DCH-RP organized a panel discussion “**e-Infrastructures: What Future?**” chaired by Wim Jansen (DG Connect, EC). The discussion focused on crucial issues concerning the present and future of digital libraries, the development of digital societies and the approaches to sharing meaningful information, which are the main topics of the TPDL conference.

The Conference hosted the 3rd Plenary Meeting of DCH-RP. DCH-RP partners joined the TPDL Conference during the morning of 24 September.

4.3.4 EUDAT CONFERENCE, Rome, October 2013

“Digital Preservation of Cultural Data” is the title of the next workshop organised by DCH-RP in cooperation with SCIDIP-ES, APARSEN, EUDAT, CHAIN-REDS and SCAPE in the framework of the 2nd EUDAT International Conference in Rome. The workshop took place on October 30th from 14:30 to 17:30.

E-Infrastructures and DCH communities have entered into a dialogue in recent years and several data-infrastructure projects exist or are investigating how to set up data infrastructures, including DCH use cases.

At the same time, new projects are about to start, such as a joint Pre-Commercial Procurement project – which is now under negotiation – whose main objective is the development of an open source software licensed reference implementation for different format standards as a tool to be used by memory institutions to check conformance with standard specifications.

The aim of the workshop is to bring together this kind of projects and initiatives working world-wide in the domain of DCH, e-infrastructures and digital preservation to share and present advances in the state of the art, find synergies and discuss opportunities for cooperation, starting from concrete use cases.

4.3.5 E-IRG WORKSHOP, Vilnius, November 2013

The [e-IRG](#) Workshop under the Lithuanian EU Presidency of the European Union was held in Vilnius, Lithuania from Monday 4 November till Tuesday 5 November.

The main topics of discussions during this workshop were “**Infrastructures in the Digital Age: the Data Challenge**” and “**e-Infrastructure commons**”.

The workshop included speeches by a number of very important and international experts, among which was a presentation by Antonella Fresa, entitled “Digital Cultural Heritage moving toward an e-Infrastructure based approach to digital preservation”.

4.3.6 VILNIUS: NETWORKING SESSION, Vilnius, November 2013

A networking session “A Virtual Research Community for the Preservation of Digital Cultural Heritage”, proposed by the group of partners who met in Manchester at the DCH-RP workshop during the EGI Community Forum, was accepted for the ICT2013 Conference in Vilnius. The session took place on November 7th.

The Session was realised with the contribution and participation of representatives from several EU projects, among which were DCH-RP, SCIDIP-ES, APARSEN, EUDAT, CHAIN-REDS, DARIAH, DASISH, CLARIN, SUCCEED and SCAPE.

Targeted communities and stakeholders were:

- Cultural heritage institutions (libraries, museums, archives, other national institutions)
- Institutions that design policies at national and international levels (ministerial policy makers, national authorities)
- Ministries and state agencies responsible for e-Infrastructures (Ministries of Science, and/or Education, ICT agencies)
- Cultural heritage international agencies and organizations (e.g., NEMO, EMF, ICOM, EBLIDA, CENL)
- Policy-making bodies (e.g. Map out, ESFRI)
- Public and private academic and research institutions which own digital content and carry out research activities
- Private sector (Publishers; Books in Print agencies, Reproduction Rights Organizations)
- e-Infrastructures providers (NRENs, Grid & Clouds platform providers)
- R&D projects and e-Infrastructure initiatives in digital preservation
- Other national and international projects and initiatives related to the use of e-Infrastructures for the preservation of DCH

4.3.7 EGI COMMUNITY WORKSHOP ON MANAGING, COMPUTING AND PRESERVING BIG DATA FOR RESEARCH, Amsterdam, March 2014

The workshop, which was held in Amsterdam 4-6 March 2014, following the December 2013 workshop ‘EGI towards Horizon 2020’, It was organized by EGI.eu and APARSEN (the Alliance Permanent Access to the Records of Science in Europe Network).

The workshop brought together all scientific domains within the EGI community to discuss and develop requirements on e-infrastructures to foster and support the generation, analysis and usage of research data and it focused in particular on how publicly-funded institutions can provide sustainable infrastructures to manage, preserve, analyze and give access to large research data. The discussion also provided reflections on opportunities to develop generic services on heterogeneous and complex datasets and diverse formats cutting across a wide range of scientific communities and business models to provide sustainable preservation. APARSEN provided technical support and consultancy during the workshop.

4.3.8 E-INFRASTRUCTURE CONCERTATION WORKSHOP, Tallinn, April 2014

During its second year, the DCH-RP project organized an e-Infrastructure Concertation meeting in order to discuss in more detail the strategy and recommendations presented in the intermediate version of the Roadmap and to prepare for future cooperation. This event was held in Tallinn on 23 and 24 April 2014 at the University of Tallinn and was hosted and organized by EVKM. The 25 attendees were carefully selected in order to provide a balanced mix of experts in both the Digital Cultural Heritage and the e-

infrastructures areas. The most relevant recommendations resulting from panel discussions during the workshop were as follows:

- Make the roadmap less technical and cover political, legal, financial, organisational and socio-economic aspects;
- Concentrate on services;
- Retain the sections about trust and security;
- Cover the sustainability of the roadmap and of the final endpoint of the roadmap (the preservation infrastructure itself);
- Explain the value chain anticipated by making use of e-infrastructures for preservation;
- Add in argumentation about what to preserve and strategies for different types of digital objects;
- Consider the need for raising awareness and for training;
- Add use cases as part of the roadmap;
- Add recommendations for the different target groups identified.

The concertation workshop was very fruitful and proved to be an important part of the stakeholder consultation process. The final version of the roadmap took into account these recommendations and moved to recommending a (federated) preservation infrastructure as a service.

4.3.9 WORKSHOP @ EGI COMMUNITY FORUM, Helsinki, May 2013

The workshop was held on 20 May 2013 in the framework of the EGI Community Forum 2014, which took place from 19 to 23 May in Helsinki, Finland at Helsinki University. In view of the continuing impact and recognition that the EGI Forums have within the EGI user community, conferences organized by Research Data Alliance Europe (RDA), EUDAT, OpenAIRE, and Nordic e-Infrastructure were also co-located at this event. The DCH-RP workshop was an important event at which the project could present its main outcomes to a wide audience. Particular topics addressed were:

- The common registry of services and tools which is being developed jointly by DCH-RP & APARSEN, including discussions on how to sustain it after the end of the project. The registry will contain descriptions of common user scenarios as well as information about the tools that may be used to implement them. In addition it will support searching the tools database using several criteria and it will also provide assessments and reviews of most relevant tools. The aim of the registry is to help a broad range of DCH communities, institutions and projects to plan implementation of their digital preservation processes and understand commonly available options by offering them integrated information from both projects.
- The first results of the proofs of concept that have been conducted within DCH-RP, where e-infrastructure providers and cultural institutions have worked together to test services and e-infrastructures to store and manage cultural digital resources.
- The interim version of the roadmap for the long-term preservation of digital cultural content, which aims to help policy makers and programme owners to plan ahead and assist managerial teams of cultural institutions in taking decisions related to digital preservation and to support cultural heritage institutions in defining practical action plans with a realistic time frames for implementation.

The workshop also offered the opportunity to attract new projects and initiatives working in the domain of DCH, e-infrastructures and digital preservation to find synergies and discuss opportunities for cooperation, starting from concrete use cases.

4.3.10 DCH-RP/EUDAT WORKSHOPS ON THE ROADMAP AND ON TRUST, Stockholm, June 2014

On 3 and 4 June 2014, the National Archives of Sweden hosted in Stockholm two workshops organised by DCH-RP in cooperation with EUDAT on the theme of digital preservation of cultural data.

Workshop 1: Digital Cultural Heritage Roadmap for Preservation

This workshop focused on possibilities and challenges connected to long-term digital preservation of both heritage institutions' holdings and collections and on the other hand research data. The aim was to present the intermediate results of work conducted in the EU projects DCH-RP and EUDAT, both looking into distributed infrastructure solutions. The results will be taken into account for the final version of the Roadmap for the long-term preservation of Digital Cultural Heritage content, to be completed by the end of September 2014 and which represents the main outcome of the DCH-RP project.

Workshop 2: The Concept of Trust – Research data and Cultural Heritage Data

The second workshop focused on issues of collaboration between the DCH-RP and EUDAT projects on the concept of trust. The aim was to discuss the need for trust models suitable for digital cultural heritage data and e-science and their use in distributed preservation architectures. The discussions were based on three case studies mirroring different situations involving cultural heritage information and research data.

4.3.11 JCDL/TPDL CONFERENCE DIGITAL WORKSHOP ON PRESERVATION SUSTAINABILITY ON THE EU POLICY LEVEL, London, September 2014

The workshop was co-organised by the FP7 projects SCAPE and APARSEN on 8 September 2014 at City University in London in conjunction with the DL 2014 Conference. It brought together various EU projects/initiatives, among them DCH-RP, to present their solutions and approaches, and to find synergies between them.

The aim of the workshop was to provide an overview of solutions to challenges within digital preservation sustainability developed by current and past digital preservation research projects.

Decision makers, managers, researchers, practitioners, librarians, publishers, developers and data managers attended the workshop to learn about the latest outcomes and future opportunities offered by the European Union.

The workshop consisted of two parts, a panel discussion and a clinic.

In the opening panel session three experts from SCAPE, APARSEN and OPF discussed the current status of digital preservation sustainability on the EU policy level. The aim of the panel discussion was to present, discuss, and evaluate main results of the projects and initiatives and how these will be sustained after the end of the projects. The attendees had the opportunity to bring in their own questions related to sustainability and digital preservation.

After the panel discussion the attendees visited stalls run by invited digital preservation projects, where information about each project was available. Each project/initiative presented their views on digital preservation sustainability in their particular field. In this "clinic" section of the workshop, the projects / initiatives acted as 'doctors', so the visiting audience discussed their preservation issues and got advice from experts.

Alongside DCH-RP, the projects represented in the clinic were APARSEN, SCAPE, The Digital Preservation Coalition, TYMBUS, ForgetIT, The Open Planets Foundation (OPF), SCIDIP-ES, ARCOMEN and EUDAT.

4.3.12 CIDOC 2014 CONFERENCE, DIGITAL WORKSHOP ON PRESERVATION SUSTAINABILITY ON THE EU POLICY LEVEL, Dresden, September 2014

The annual conference of CIDOC, the International Committee for Documentation of ICOM, took place 6 - 11 September 2014 in Dresden, Germany. Discussions and papers focused on access to museum collections and cultural heritage in the digital age. Linked data information provides scientists with new and wider perspectives. A presentation on the DCH-RP Roadmap was given in the session Session G/1, Digital Long Term Preservation, on Tuesday 9 September and the paper will be published in the conference proceedings.

The aims of the workshop were:

- To make CIDOC Conference participants aware of the contents of the Roadmap;
- To give participants an opportunity to give feedback about the Roadmap;
- To seek support for the Roadmap.

4.3.13 FINAL CONFERENCE OF DCH-RP UNDER THE ITALIAN EU PRESIDENCY, Rome, September 2014

The Final Conference of DCH-RP 'Preservation as an e-infrastructure service: a Roadmap for digital cultural heritage' was organized by the Central Institute for Union Catalogue (ICCU), in cooperation with the National Central Library of Rome on 22 September 2014. The Conference was included in the official programme of the Italian EU Presidency's events.

The main objective of the Conference was to provide an overview of the outcomes achieved by the DCH-RP project, focusing on the Roadmap for Preservation of Digital Cultural Heritage and on the potential role of e-infrastructure in the preservation of DCH. There was also a round table discussion on the sustainability of the project, giving a perspective on future activities and challenges for the implementation of an e-infrastructure-based preservation system. Participants in the opening session were Andrea de Pasquale (Director of the National Central Library of Rome); Rossana Rummo (Director General for Libraries, Cultural Institutes, and Copyright) who presented the digital strategy in the Italian presidency; William Kilbride (DPC) with a keynote speech about the strategies for preserving cultural heritage; Wim Jansen (European Commission) who described the EC's activities for digital infrastructure, state of the art and future prospects; Rosella Caffo (Co-ordinator of the DCH-RP project and Director of ICCU) who gave a summary of the project and the roadmap; Federico Ruggieri (GARR consortium) described the role of e-infrastructure for preservation of cultural heritage; and Börje Justrell (Royal Archives, Sweden) presented in detail the Digital Cultural Heritage Roadmap for Preservation.

Participants in the round table discussion were Giovanni Bergamin (National Library of Florence), Enzo Valente (GARR, Italian NREN), Marie Veronique Leroi (French Ministry of Culture), Fulvio Marelli (ESA), Franco Niccolucci (ARIADNE Project), Norbert Mayer (EUDAT, PNSC), Mariella Guercio (University La Sapienza Rome/ APARSEN Project), Tim Devenport (Editeur), Michel Drescher (EGI), Börje Justrell (RA) Wim Jansen (EC – chair of discussion), Mirella Serlorenzi (Soperintendenza per Archaeologici di Roma), and Luigi Birguglio (SCIDEP-ES):

5 SUSTAINABILITY PLAN

Within the activities carried out by the project, the Roadmap for the implementation of a federated e-Infrastructure for preserving digital culture heritage is a key outcome, closely connected with all the activities developed during the project. The sustainability plan is a cross-cutting activity that builds on all the activities carried out by DCH-RP Consortium: from the work plan to the discussions and results presented in the project Conferences and Workshops as well as in the meetings of the project and other International forums in which the DCH-RP Consortium has participated. The Roadmap has been conceived as a dynamic document that has been continuously updated; two formal versions, an intermediate and a final, have been released during the project lifecycle .

The Roadmap has to tackle different dimensions of sustainability, namely, sustainability of

- The Roadmap itself
- The Registry of Tools and Services
- Various aspects (political, financial, organisational and technological) of the preservation infrastructure to which the roadmap leads.

The main outcome of the DCH-RP project is the Roadmap for preservation. The Roadmap gives an outline in the short, medium and long term of mechanisms that could lead to the realization of a federated preservation infrastructure for digital cultural heritage, taking into account both existing solutions and services and facilities that will be offered by future e-infrastructures.

The sustainability of the Roadmap itself is discussed in the deliverable on the Final version of the Roadmap (D3.5). In this deliverable we describe a plan for DCH-RP to continue after the end of the project as a Forum to foster the launch in each partner country of national plans for the implementation of e-Infrastructures in digital cultural heritage and the maintenance and the updating of the Roadmap and of the Registry Services and Tools.

The deliverable also proposes a strategy for keeping alive the recommendations, information, services and collaborative networks established during the live phase of DCH-RP. The Plan takes into account the project results and outputs and the lessons learned in building the Network of Common Interest.

The federated approach taken by DCH-RP means that sustainability has to be addressed in accordance with agreed organizational, legal and governance models. The way DCH institutions and providers of preservation e-Infrastructures intend to proceed after the project has ended will be described among the institutions and organizations involved in the project as partners or as other interested parties. DCH-RP is designed with the understanding that progress in digital preservation is impossible without the involvement of various institutions, including those entrusted with the development of policies and monitoring their implementation.

The results of DCH-RP are concrete instruments for helping policy makers in the DCH sector to share with R&D experts and research infrastructure management a common vision to present to ministries, agencies and other funding bodies to finance the implementation of a federated system of e-Infrastructure platforms for DCH.

Consultation of all stakeholders in this process has been part of the project progress since its inception. In particular, the concertation workshop held in Tallinn between DCH-RP partners, DCH organisations and e-infrastructures where the intermediate Roadmap was thoroughly discussed, produced a lot of information about the viewpoints of the participants including those on sustainability.

The sustainability of the Roadmap and the sustainability of the preservation infrastructure to which the Roadmap leads have both been discussed. To sustain the Roadmap and thus ensure a clear direction toward a preservation infrastructure in the long run, various mechanisms could be put in place. The Roadmap needs an endpoint and should be maintained as long as this endpoint has not been reached. Of course it might be necessary to adapt the Roadmap to changing circumstances or even eventually to draft a new Roadmap.

In general to realise the sustainability of an e-infrastructure several parameters have to be taken into account: funding and governance are the main ones. The Tallinn workshop showed that for the sustainability of the preservation infrastructure opting for a pan-European solution is a must and funding is needed. The audience agreed on the fact that digital preservation cannot be realized without funding at national and European level (storage, software, etc) and that we are a long way from a digital preservation arrangement that “runs itself”. It is also noted that for a system to be sustainable there must be willingness and cooperation between DCH organizations at national and pan-European level, otherwise the Roadmap will remain an abstract document. A third parameter identified for the sustainability of a preservation infrastructure was “awareness”. Awareness of what digital preservation is and awareness of the need for digital preservation needs to be raised at all levels (government, DCH organisations management, DCH staff).

The project has also worked on the set up of a “registry of services”. In order to ensure its sustainability this registry will be merged with other existing registries that are maintained in a sustainable way..

The sustainability plan is based on a survey delivered to all partners at the end of the project, which had as its main objective a description of the opinion and strategy of each partner,

The survey (see Annex 2) has the following sections:

1. Awareness of all aspects of digital preservation
2. Cooperation
3. Funding digital preservation in each organization
4. Registry of services
5. Feasibility and risk
6. Additional considerations

The surveys completed by all the partners together show an integrated vision of what will happen after the end of the project, from the point of view of e-Infrastructure providers (EGI, NIIFI, INFN, PSNC) and of cultural institutions (RA, ICCU, EVKM, CT, EDItEUR, MCA, KIKRPA) and SME (Promoter)

5.1 AWARENESS OF ALL ASPECTS OF DIGITAL PRESERVATION

In cultural institutions there is a rapidly increasing volume of information which exists in digital form. Whether created as a result of digitising of physical collections, created as digital publications, or created as part of day-to-day activity, more and more digital information is being created, with a consequent need for storage and preservation. Preservation reveals issues that are both challenging and troublesome. On the one hand, there are considerable opportunities offered by digital technology and e-Infrastructure to provide rapid and efficient access to information in the short and medium terms. But on the other hand, there isn't a general awareness and understanding of what it takes to manage preservation in the long term effectively: both levels of awareness and the need for digital preservation vary between different cultural heritage institutions. Although some DP workflow elements, such as Ingest and Metadata, have been successfully explained, implemented and evaluated by local cultural institutes, no fully-featured

“global” DP frameworks are in daily use on the work floor; for example EUDAT looks like a promising solution but it is still in Beta at this time. Moreover IT departments’ daily work in most CH memory institutes operate exactly as they did ten years ago. As for innovation, DP offers a lot of opportunities, both for hardware solutions (stable digital carriers) and work-flow supporting software (such as file-type checking, sustainable VM’s and/or migration paths). Today, CH institutions have no support for making priorities for digital preservation. Furthermore, there is a need for developing routines and strategies for long-term digital preservation. The institutions are not well prepared for this accumulation of data. For cultural institutions digital preservation is thus still a “work in progress” and we need to stress that awareness of this dual situation in the organization is more important than ever.

In contrast, among e-Infrastructure providers there is probably a higher level of knowledge about the strategic management steps needed to secure the long-term objectives.

5.2 AWARENESS OF THE ROADMAP

All the partners will continue to raise awareness of the Roadmap after the end of the project:

1. Disseminating the results of the project, and the final version of the Roadmap in particular, using a variety of channels:
 - a. Online communication via each partner’s website. Moreover ICCU and Promoter will maintain and update the DCH-RP website and the showcase on Digitalmeetsculture.net dedicated to DCH-RP;
 - b. The network of contacts, comprising all the registered users of the DCH-RP website and Digitalmeetsculture.net, plus a target selection of email addresses belonging to experts working in the sector of digital cultural heritage or already involved in DCH-RP dissemination and consultation activities or who will be targeted by the Partners to raise awareness about the final version of Roadmap;
 - c. Participation in relevant events, organised by each partner or in conjunction with other projects where the partner is involved or invited, where DCH-RP and the Handbook of the Roadmap will be disseminated.
 - d. Publication of articles in specialized and scientific journals like Digitalila;
 - e. Dissemination of the Roadmap and the related Handbook in the DARIAH-EU Community, also through DARIAH-IT via ICCU and DARIAH-FR via MCA; and since it is a multinational collaboration with a stable legal form (ERIC), DARIAH may assist in guaranteeing the sustainability of the DCH-RP Roadmap.
2. Integrating the Roadmap into national preservation strategy plans like e.g. the Guidelines produced by Digisam (a secretariat in Sweden for national coordination of digitisation, digital preservation and digital access to cultural heritage). The secretariat is a government-established activity at the Swedish National Archives (Riksarkivet), a partner of DCH-RP. The RA will engage with a number of cultural institutions from Sweden to continue the practical experiments in digital preservation (PoCs). Those results will be an important input for coordinating the work of Digisam with preservation issues, recommendations and raised awareness of the Roadmap.
3. Creating and maintaining a dedicated webpage and a mailing list to preserve the Roadmap as a living document and the community that has been created around it. This will be a useful instrument for the DCH-RP Forum to exchange information and actions for the sustainability of the Roadmap.
4. Re-using the results of the project, first of all the Roadmap, in future projects in the field of cultural heritage, e-infrastructures and digital preservation. The network of institutions from both the digital cultural and the e-Infrastructure sectors has developed over the course of the DCH-RP project a

sound launching pad for new initiatives within the framework of the Horizon 2020 Programme, in line with the coordinating actions at national level.

5. Enlarging the Network of Interest to new cultural institutions, projects and experts by referring clients and other third parties to the Roadmap.

The Roadmap (and the final booklet produced by the project) will be disseminated after the end of the project at the following events:

- 2nd of October 2014: The Hague (The Netherlands): Succeed technical workshop on interoperability of digitisation platforms
- 6-10 October 2014: Frankfurt (Germany) – Frankfurt Book Fair 2014
- 10-12 November 2014: Rome (Italy) – e-IRG workshop
- 13-14 November 2014: Rome (Italy) – International conference on Research Infrastructures and e-Infrastructures in cultural heritage - Event of the Italian Presidency
- 17-18 November 2014: London (UK) – DPC and 4C conference ‘Investing in Opportunity: Policy Practice and Planning for a Sustainable Digital Future’
- 16-21 November 2014: New Orleans (USA) – Supercomputing Conference SC2014
- 28 November 2014: Paris (France) – SUCCEED final conference
- 10-11 December 2014: Rome (Italy) – International meeting of National Aggregators in Europe
- 10-11 December 2014: Muscat (Oman) – 4th International Platform on Integrating Arab e-Infrastructure in a Global Environment, e-AGE 2014
- 17 December 2014: Guwahati (India) – Chain-Reds Workshop at the NKN Conference.

5.3 COOPERATION

There is a high level of willingness among the DCH-RP partners to cooperate with other organizations for the maintenance and the implementation of the Roadmap. The partners will contribute to improvements or updating of the DCH-RP Roadmap, both in the sense of coverage and regarding openness to novel approaches and solutions coming from future developments of e-Infrastructure services applicable to DCH preservation. Thanks to the DCH-RP project there a clear willingness for cultural institutions to cooperate with existing and future e-Infrastructures. Through the practical experiments in the Proofs of Concept conducted in cooperation with e-Infrastructure providers, the cultural institutions have recognized the need to involve other institutions to maximize the benefits obtained and to develop mechanisms to secure an efficient allocation of resources to digital preservation. CH institutions need to cooperate in making priorities for digital preservation.

Furthermore, there is a need to develop routines and strategies for digital storage and long-term digital preservation, and to clarify roles in digital preservation (which responsibilities the administrators and managers of information, and their counterparts for systems, should have).

The endorsement of Member States will also be of fundamental importance in the implementation of the Roadmap, along with the incorporation of these actions into national programmes for culture, research, employment, and economic development. At the next level, there needs to be a joint strategic plan on a European scale and planning of joint activities within the framework of the European strategy set out in the Digital Agenda,

Cooperation among the cultural institutions, e-Infrastructure providers and the research domain can result in a win-win strategy to realize a research data e-Infrastructure, with efficient DP services devoted to

cultural heritage and the arts and humanities sector, as well as crowd-sourcing in DP to involve the wider public in the DP story.

5.3.1 FUNDING DP IN EACH ORGANISATION

For the implementation of the Roadmap, 'Who will pay?' is a major question: different national and regional funding systems need to be understood and common elements identified to support joint programming actions.

E-Infrastructure providers typically don't receive funding for DP activities but for operating e-Infrastructures on behalf of their members. Funds can often originate from EC project programmes and structural.

Generally for cultural institutions operating at a national level digital preservation is part of a national governmental strategy on digitisation with structural funds (as with the case of Digisam in Sweden). But there are also cultural institutions that have no dedicated funds for digital preservation and structural funding for DP is currently insufficient in the long run. However, while these programmes address digitization needs, they rarely cover long-term digital preservation itself. A weak point in many CH institutions is the shortage of staff: as a result the CH personnel involved have no time to contribute to other activities alongside the daily IT-support of the institute.

In addition to national programmes, regional government funding supports local digitization and preservation activities. A good example is the Silesian Digital Library in Poland, which takes care of regional historical and cultural heritage.

Several organizations are partners in European R&D projects (mainly university/academic libraries).

At the international level there are different projects in which some of the cultural heritage institutions are participating. EU structural funding contributes to covering digitization and long-term preservation costs – either directly – funding institutions' infrastructure and solutions – or indirectly – through funding invested in building and maintaining national e-Infrastructures, such as PLATON, where Archival Services were among five service areas funded for e-Science.

DCH-RP partners are also participating in different proposals in the framework of H2020, offering other possibilities for deepening the cooperation with e-Infrastructure and Research infrastructures to encourage innovation in DP activities as described in the DCH-RP Roadmap.

5.4 REGISTRY OF TOOLS AND SERVICES

The Registry, available on-line via the project's web site (<http://www.dch-rp.eu/index.php?en/138/version-2>), collects information and knowledge related to tools, technologies and systems that can be used for the purposes of digital cultural heritage preservation. It also reviews existing and emerging services developed and offered by R&D projects and e-Infrastructures, including commercial vendor solutions.

Alongside this functional description, the Registry provides an assessment of the relevance and popularity (i.e. frequency of usage) of the tools. To validate and improve the information, cultural heritage institutions were invited to participate in a survey and the information collected is reflected in the current version of the Registry.

After the formal end of the project, Promoter and ICCU will continue to maintain those sections on the DCH-RP website and on digitalmeetsculture.net that are dedicated to the Registry of Services and Tools,

and which host the different versions of the Registry developed in DCH-RP, so as to ensure the sustainability of the technical infrastructure needed to keep the DCH-RP Registry online and running.

All the DCH-RP partners are definitely interested in maintaining and updating the Registry of tools and services (including those available for DP purposes) with possibly international participation and coverage.

Furthermore, the collaboration started between the DCH-RP project and other projects and initiatives like APARSEN, Open Planets Foundation, the Succeed project and the Impact Centre of Competence will explore how to join our efforts for the creation of a common Registry of services and tools. Promoter will follow up this discussion to evaluate which are the possibilities to exploit the work done in DCH-RP to set up this sustainable Registry, which can act as a reference point for anyone interested in preserving digital information for the long term.

Moreover EGI suggests transforming the Registry into a service embedded in a DP infrastructure similar to a marketplace, and in this case EGI could offer DP services to its users.

NIIFI envisages the possibility of building a Registry for e-Infrastructure tools and services with general use and widest possible applications, by trying to involve all the available partner NRENs (as well as possible other e-Infrastructure service providers) and taking into consideration their complete service portfolios.

It should be mentioned in fact that there already exists such an intention on behalf of the NRENs (to homogenize and in a certain sense integrate their service portfolios) but this is not yet in a mature phase. The problem is rather complex, especially because of the interoperability requirements and other issues stemming from the goal of combining/integrating tools originating from different sources (developers).

5.5 FEASIBILITY AND RISKS

Digital information is a vital resource in our knowledge economy, with great value for research and education, science and the humanities, creative and cultural activities, and public policy. But digital information is inherently fragile and often at the risk of loss. Access to valuable digital materials tomorrow depends on ongoing and efficient allocation of resources to preservation. It is about mobilizing resources – human, technical, and financial – to deal with gaps in awareness, tools, innovative services and workflows. But questions remain about what digital information we should preserve, who is responsible for preserving, and who will pay.

The survey conducted internally within the consortium showed the following feasibility and risk factors:

- A lack of awareness, tools and resources;
- The Roadmap should be realistic in its expectations of when certain services and capabilities should be available – and with what amount of funding being necessary to reach that goal;
- Regarding the uptake of DP services provided by e-Infrastructures as an operational expenditure;
- High costs associated with digital preservation, due to the use of separate solutions implemented by each memory institution and the need for much expert human intervention;
- A lack of awareness on the part of the cultural heritage sector about the benefits that the e-infrastructures and the new technologies can offer for data storage and long term preservation;
- A lack of trust on the part of cultural heritage institutions that prefer to store their content in data centres / repositories;
- Cultural data is curated by many different persons: data management, administration and user access control are very important;

- Access and use of the e-infrastructure services should be simple, providing user-friendly interfaces which do not require IT specialist knowledge;
- Organisational coordination between ministries that govern DCH and e-Infrastructure providers;
- Define roles and responsibilities among stakeholders to ensure an ongoing and efficient flow of resources to preservation throughout the digital lifecycle
- A need to modify copyright laws to enable digital preservation
- A lack of skilled personnel in cultural institutions.

5.6 CONCLUSION

The amount of information that should be stored/preserved is rapidly growing within the CH sector. The institutions involved are not well prepared for this accumulation of data. In this context the Roadmap for preservation developed by the DCH-RP Project is of the utmost importance for the sector of cultural heritage: for defining what institutions should include in the preservation work, for deciding what measures that should be taken to ensure successful long-term preservation, and for guidance on how to proceed in general.

The Roadmap shares as many components as possible of the envisioned e-Infrastructure with other communities, in order to reduce the development costs per community and to increase the market segment for service providers. This will bring down the cost of the service significantly.

Successful digital preservation assumes not only full attention on offering the best service on behalf of the e-Infrastructures but also maximum preparedness to exploit the available tools on behalf of the DCH communities. Openness regarding new approaches, novel methods, new tools and services is needed on behalf of all involved parties, together with flexibility and an adaptive attitude regarding the practical applications of the available tools and services.

Compatibility and interoperability of the tools and services available for digital preservation are of key importance with respect to sustainability, both for the combined applicability of the available tools and services at a certain instant of time and for the safe accessibility and usability of the preserved information in the longer term.

The sustainability strategy outlined showed that the DCH-RP Forum will endeavor to keep alive the Roadmap and the Registry of Tools and Services as main results; and both cultural institutions and e-Infrastructure providers will internalize and promote DCH-RP in their communities, enlarging the Network of Interest in these two important achievements. Of course there are different scenarios for CH institutions and e-Infrastructure providers:

- CH institutions may implement the DCH-RP Roadmap at national level, developing national DP plans and testing the Roadmap;
- e-Infrastructure providers are focused more on achieving economies of scale and scope, taking into account the digital cultural needs and requirements for access and preservation of digital cultural heritage.

A dedicated webpage and a mailing list will be created to preserve the Roadmap as a living document and the community that has been established around it. This will represent a useful instrument for the sustainability of the Roadmap and for the DCH-RP Forum to exchange information and actions.

The Handbook on the Roadmap, elaborated by Promoter in cooperation with Riksarkivet in simple and effective language, is designed to be easily understood by all the stakeholders from the memory institutions to the e-infrastructure providers; we hope it will be another effective instrument for the

sustainability of the Roadmap. This publication represents the most important and durable result of the project and it aims to become a reference document for the years to come.

In conclusion the sustainability strategy is based on the stakeholder analysis described in chapter 3. Stakeholder communities identified aspects of strategic importance for the adoption and take-up of the e-Infrastructure and have been closely involved in a wide range of initiatives to:

- Progress the dialogue among DCH institutions, e-Infrastructures, research, and private organisations
- Validate the Roadmap for Preservation and guarantee the updating of the Service Registry
- Disseminate DCH-RP project outcomes

The DCH-RP website and the showcase on Digitalmeetsculture.net dedicated to DCH-RP will be maintained and updated in the long term. The Roadmap will be used by partners in other projects in digital preservation, e-Infrastructure and research community in cultural heritage, art and humanities.

The Roadmap and the Registry of Tools and Services will live on after the project and the DCH-RP Consortium will carry them forward, continuing to disseminate the ideas through conferences and workshops, on DP and e-Infrastructure issues. The Community of stakeholders created and developed by the DCH-RP project – see Annex 3 – will be enlarged to other Member States, cultural institutions and cluster projects. The DARIAH-EU Community, as a multinational collaboration with a stable legal form (ERIC), will help guarantee the sustainability of DCH-RP Roadmap.

ANNEX 1

QUESTIONNAIRE ON THE INTERMEDIATE VERSION OF THE ROADMAP

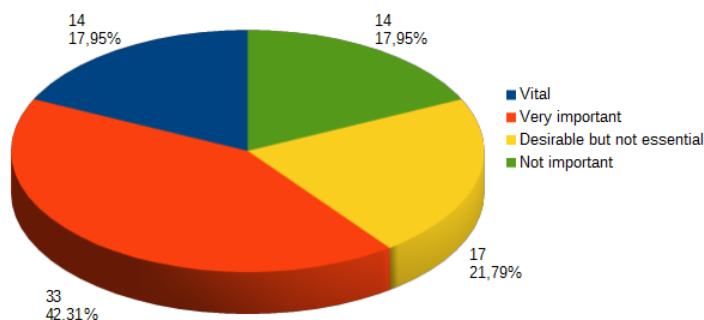
SECTION 1 Preservation Requirements for the DCH Domain

1. "Digitized" vs. "Born Digital"

Digital cultural heritage materials fall into two main classes: "digitized" objects, which are obtained by digitizing representations of non-digital artifacts, and "born-digital" objects, which exist in digital form from the point of their creation.

A. How important is it that our recommendations for preservation distinguish between "digitized" and "born-digital" objects? (Not important/Desirable but not essential/Very important/Vital)

1A. How important is it that our recommendations for preservation distinguish between "digitized" and "born-digital" objects?



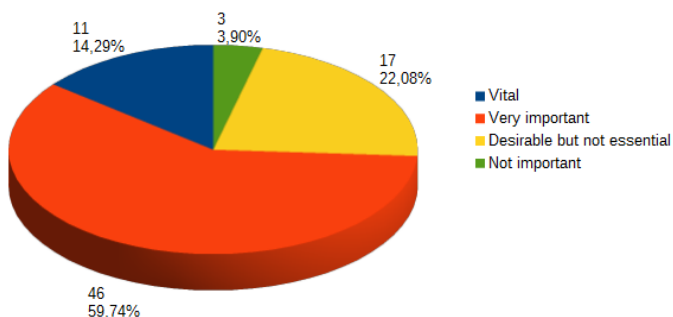
B. Unless you replied "not important" to the previous question, please explain how the approaches should differ: (free-text box)

2. Handling Domain-Specific Requirements

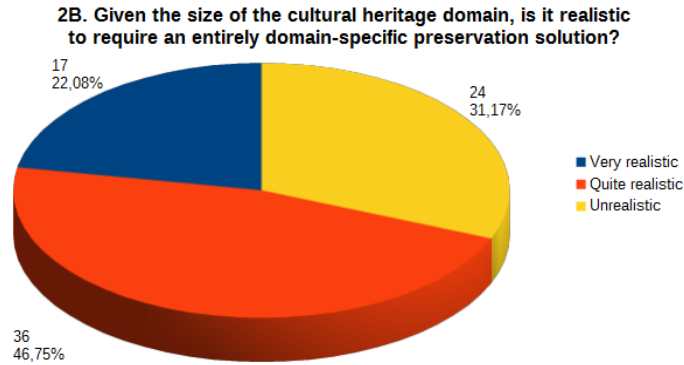
The cultural heritage domain naturally has a number of domain-specific requirements or current practices that may influence its decisions on digital preservation.

A. How important is it that any proposed preservation solution be tailored to these domain-specific requirements? (Not important/Desirable but not essential/Very important/Vital)

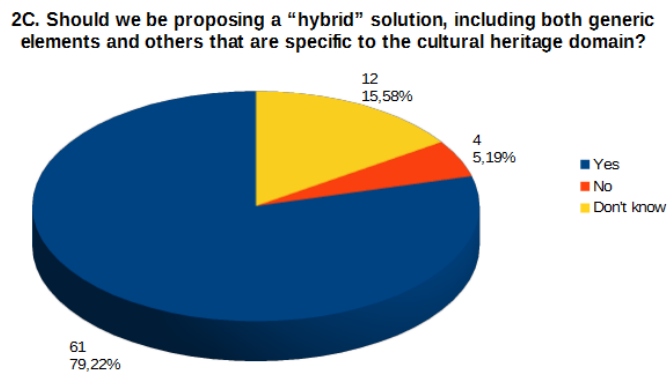
2A. How important is it that any proposed preservation solution be tailored to these domain-specific requirements?



B. Given the size of the cultural heritage domain, is it realistic to require an entirely domain-specific preservation solution? (Unrealistic/Quite realistic/Very realistic)



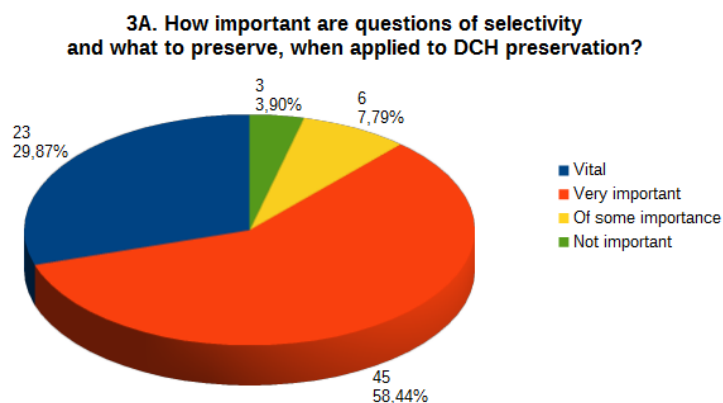
C. Should we be proposing a “hybrid” solution, including both generic elements and others that are specific to the cultural heritage domain? (Yes/No/Don’t know)



3. Selectivity in What is to be Preserved

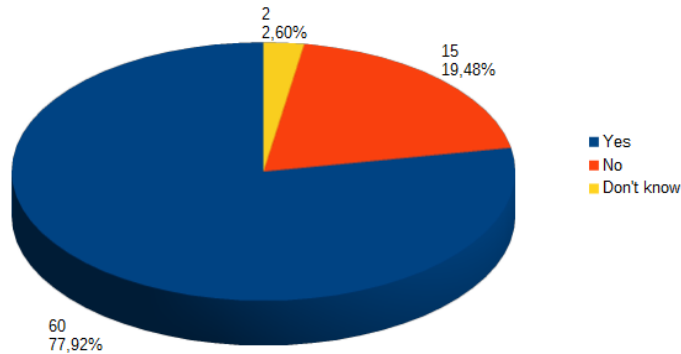
Given the scales of existing CH collections and the continuous day-by-day additions of new, potentially valuable born-digital materials, CH practitioners are confronted by immense volumes of digital material and significant issues of choice over what is to be preserved.

A. How important are questions of selectivity and what to preserve, when applied to DCH preservation? (Not important/Of some importance/Very important/Vital)

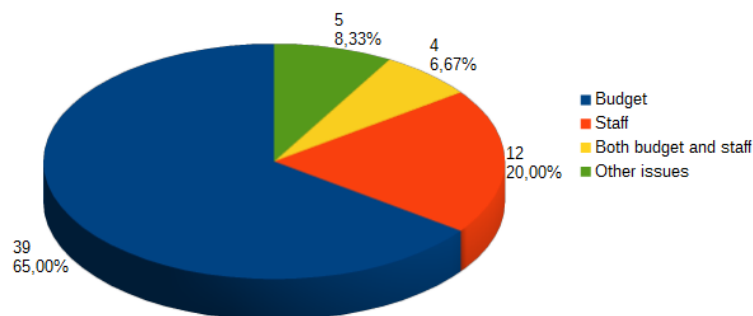


B. Is “volume overload” a real problem? (No, falling costs for storage & preservation will soon render this manageable / Yes, it is a budgetary problem/ Yes, it is a staff resourcing problem / Other response, please specify)

3B. Is “volume overload” a real problem?

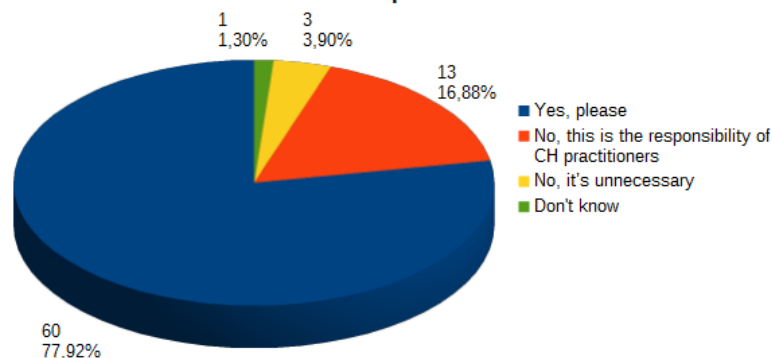


3B. Is “volume overload” a real problem? (Yes, it is a problem regarding...)



C. Should the project offer any advice on how materials are selected for preservation? (No, it's unnecessary / No, this is the responsibility of CH practitioners / Yes please / Other, please specify)

3C. Should the project offer any advice on how materials are selected for preservation?



D. Could you control costs by sharing responsibilities with other institutions, thus avoiding duplication of some of the digital objects preserved? (No, we must preserve all of our “own” DCH resources / Yes, we could consider shared responsibilities / Other, please specify)

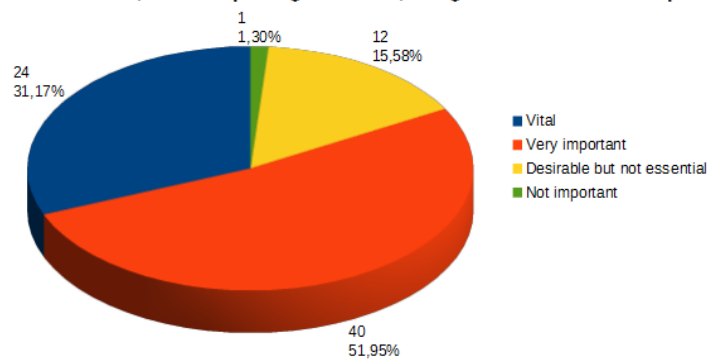
SECTION 2 Managing Long-Term Shared Arrangements

4. Collaboration, Leadership & Governance

The approach advocated by DCH-RP is collaborative and involves using one or more shared infrastructures. To ensure the ongoing relevance and sustainability of the services provided will require leadership and governance from both the CH community itself and the service providers.

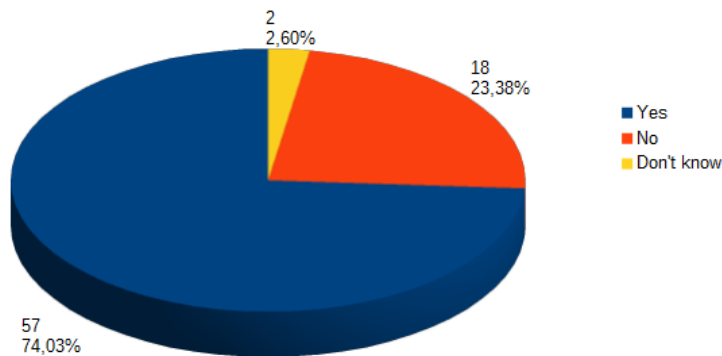
A. How important is it that DCH-RP addresses questions of collaboration, leadership and governance, alongside more technical aspects? (Not important/Desirable but not essential/Very important/Vital)

4A. How important is it that DCH-RP addresses questions of collaboration, leadership and governance, alongside more technical aspects?



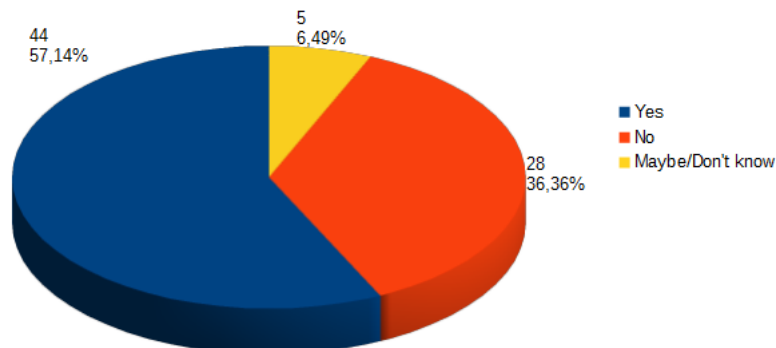
B. Does your organization routinely collaborate or share approaches with other CH institutions?

4B. Does your organization routinely collaborate or share approaches with other CH institutions?



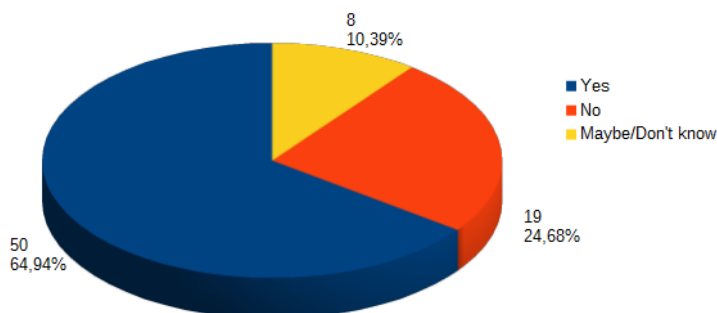
C. Is your organization in a position to offer national or subject-area leadership on questions of DCH preservation to other CH institutions?

4C. Is your organization in a position to offer national or subject-area leadership on questions of DCH preservation to other CH institutions?



D. Can you envisage your organization participating in governance arrangements to steer and direct the development of DCH preservation infrastructures?

4D. Can you envisage your organization participating in governance arrangements to steer and direct the development of DCH preservation infrastructures?

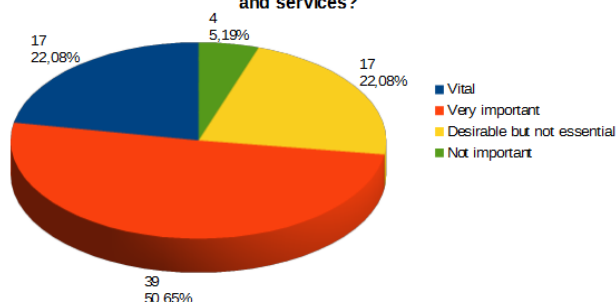


5. Approaches to Outsourcing Responsibilities

A significant measure of “outsourcing” is implicit in the plans proposed by DCH-RP, but the concept of outsourcing responsibilities or services may be unfamiliar to many CH institutions.

A. How important is it that DCH-RP addresses outsourcing issues, in the context of CH institutions using shared preservation infrastructure and services? (Not important/Of some importance/Very important/Vital)

5A. How important is it that DCH-RP addresses outsourcing issues, in the context of CH institutions using shared preservation infrastructure and services?



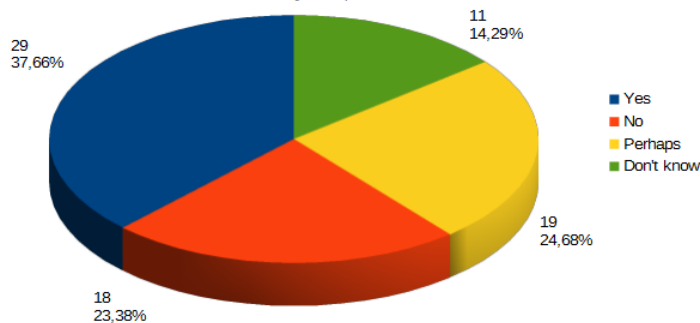
B. Does your organization have experience of outsourcing any of its operations to external service providers? (No / Yes)

5B. Does your organization have experience of outsourcing any of its operations to external service providers?

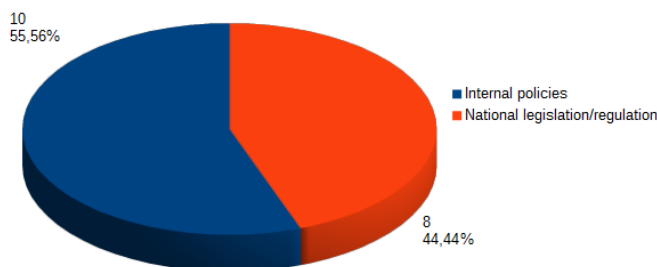


C. Would your organization consider outsourcing any of its preservation-related responsibilities to a shared service as envisaged by DCH-RP (No, we are constrained by national legislation or other regulations / No, we retain such operations in-house as a matter of policy / Perhaps / Yes, given an appropriate and reliable solution / Don't know)

5C. Would your organization consider outsourcing any of its preservation-related responsibilities to a shared service as envisaged by DCH-RP?



5C. Would your organization consider outsourcing? (No, because...)

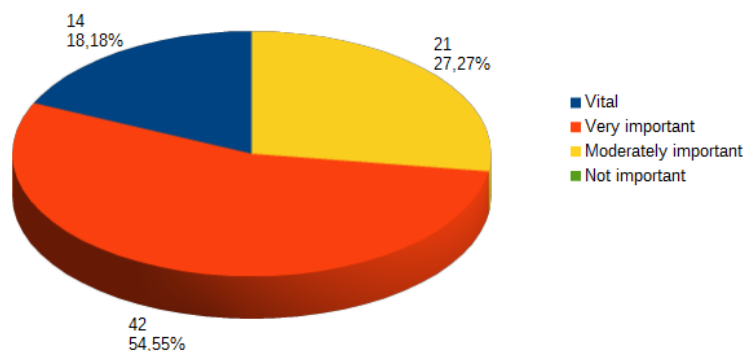


6. Representative Scenarios and Use Cases

DCH-RP aims to offer high-level advice to the whole spectrum of CH institutions considering digital preservation, but requirements are likely to differ from one institution to the next. The project has made initial efforts to describe a variety of representative scenarios and use cases in order to make the proposals more concrete.

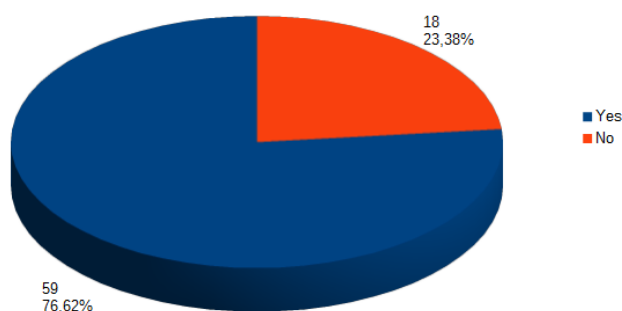
A. How important is it that DCH-RP offers representative scenarios for CH practitioners to evaluate – for example a simple categorization of likely offerings for Large National Institutions / Medium Regional or Specialist Institutions / Small Local or Niche Institutions? (Not important / Moderately important / Very important / Vital)

6A. How important is it that DCH-RP offers representative scenarios for CH practitioners to evaluate?



B. Would it be useful to specify some simple use cases, in terms of preservation tasks or sets thereof (perhaps related to OAIS stages)? (No / Yes)

6B. Would it be useful to specify some simple use cases, in terms of preservation tasks or sets thereof?



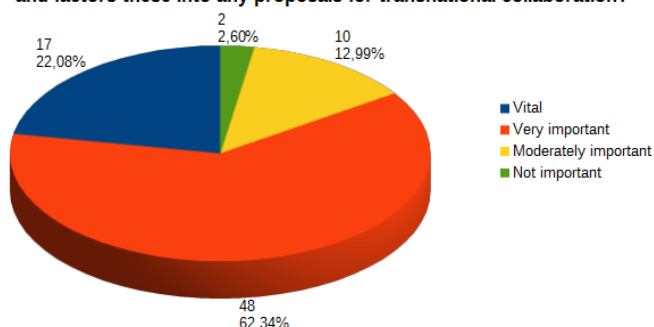
C. If you answered “yes” to the previous question, please specify key preservation tasks that you would like to see addressed: (free-text box)

7. Transnational Collaboration: How Plausible is this for DCH?

Given the variations in national legislations and preservation requirements, country by country, there may be challenges to the kind of transnational collaboration and service sharing that could otherwise bring attractive economies of scale to DCH preservation activities.

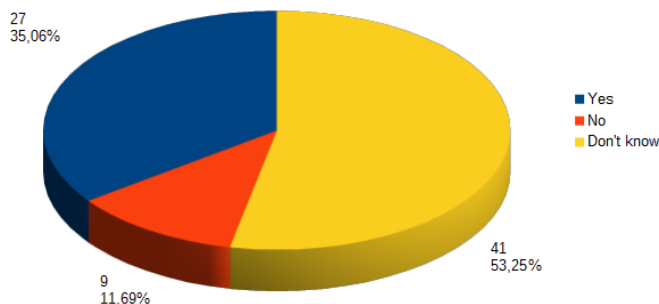
A. How important is it that the project recognizes national variations and factors these into any proposals for transnational collaboration? (Not important / Moderately important / Very important / Vital)

7A. How important is it that the project recognizes national variations and factors these into any proposals for transnational collaboration?



B. Do national or other regulations permit your organization to store digital assets in countries other than your own? (No, not permitted / Yes, permitted under stated conditions / Don't know)

7B. Do national or other regulations permit your organization to store digital assets in countries other than your own?



C. Are there other considerations that might influence your organization when considering possible transnational collaboration on digital preservation? Please specify: (free-text box)

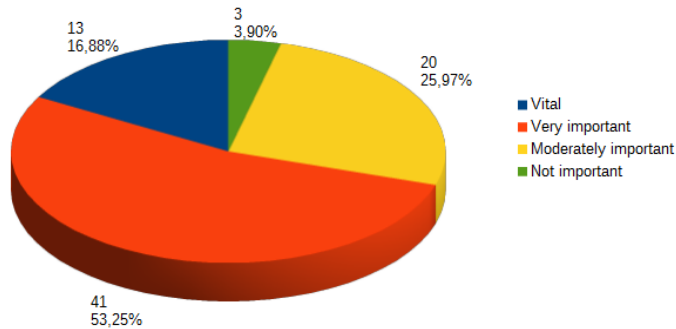
SECTION 3 Making it Work

8. Governmental and Private Sector Solutions and Funding

DCH-RP proposes significant reliance on infrastructures that are largely government funded, primarily the NRNs (National Research Networks) and NRENs (National Research and Education Networks) in EC-member countries. Alternative, private sector solutions or partnerships may also be available in some cases or might develop in response to a perceived market need.

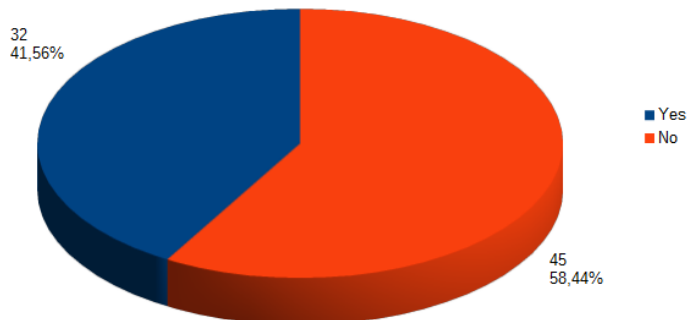
A. How important is it that the project considers both government funded and private sector solutions? (Not important / Moderately important / Very important / Vital)

8A. How important is it that the project considers both government funded and private sector solutions?



B. Do you already have links with one or more NRNs or NRENS in your country?

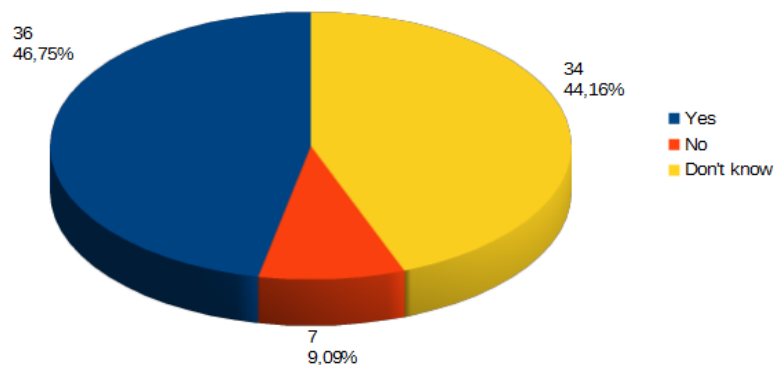
8B. Do you already have links with one or more NRNs or NRENS in your country?



C. If your answer to the previous question is “Yes”, please advise which NRNs or NRENS: (free-text box)

D. Would you be prepared to consider private sector solutions or partnerships as components of your digital preservation programmes (No / Perhaps / Yes, if there were appropriate offerings)

8D. Would you be prepared to consider private sector solutions or partnerships as components of your digital preservation programmes?

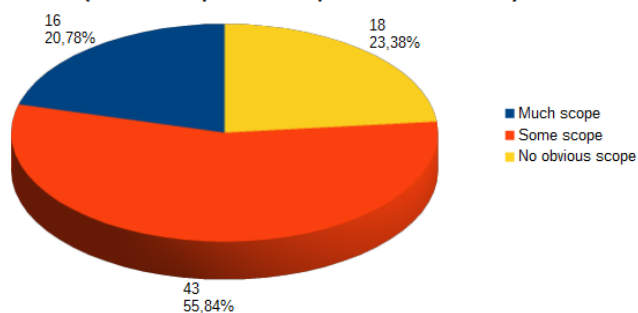


E. In which sectors do you see scope for partnerships between CH institutions and commercial organizations? Please rank each of the following: (ranking: No obvious scope / Some scope / Much scope)

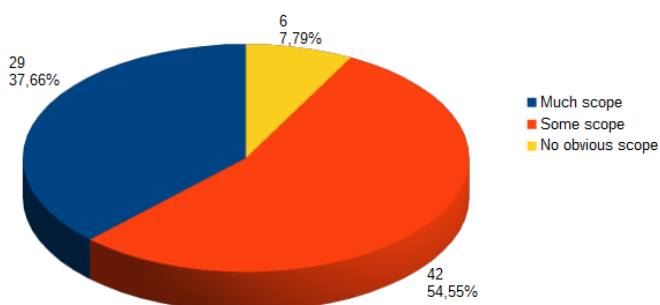
- Commercial providers of preservation services

- Publishing
- Education
- Tourism
- Broadcasting (radio or TV)
- Cinema
- Other, please specify ...

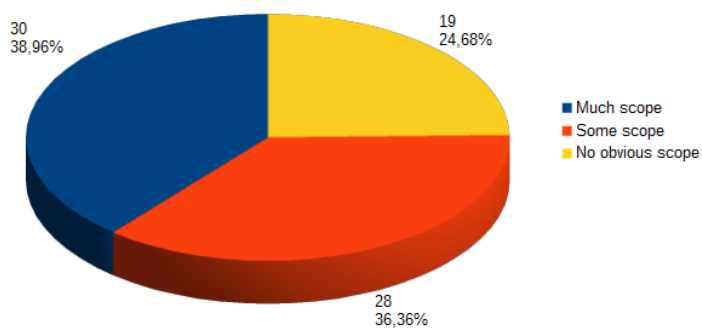
**8E. In which sectors do you see scope for partnerships?
(Commercial providers of preservation services)**



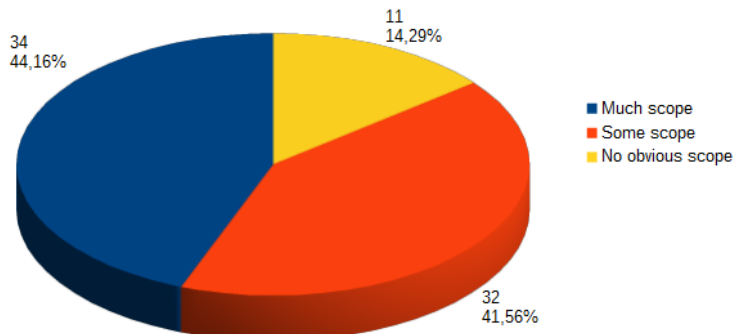
**8E. In which sectors do you see scope for partnerships?
(Publishing)**



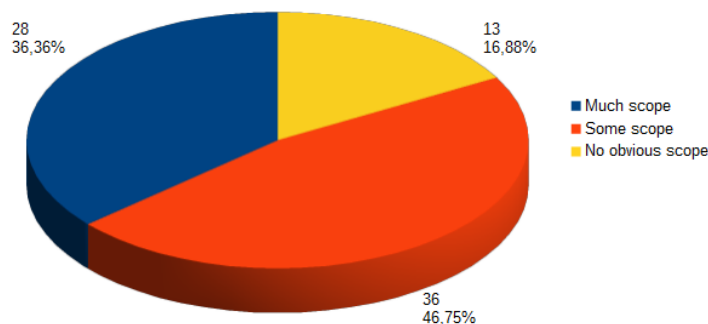
**8E. In which sectors do you see scope for partnerships?
(Education)**



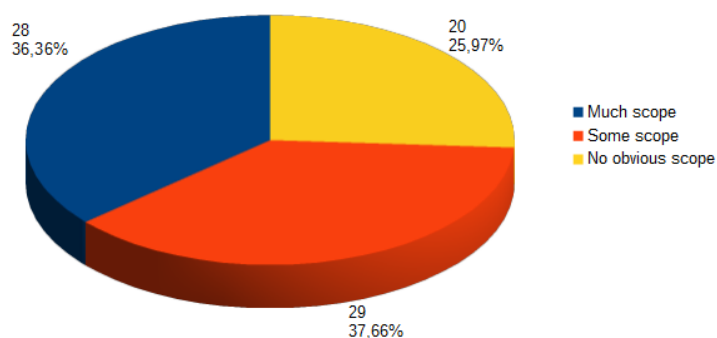
**8E. In which sectors do you see scope for partnerships?
(Tourism)**



**8E. In which sectors do you see scope for partnerships?
(Radio or TV broadcasting)**



**8E. In which sectors do you see scope for partnerships?
(Cinema)**

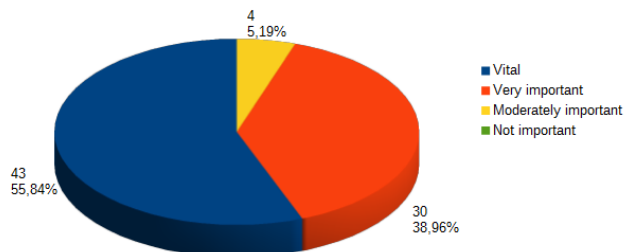


9. Rights

Central to the treatment and eventual usage of DCH resources are questions of rights: who are the legal rights holders for each of the resources and how clearly specified are the associated rights to use and exploit those resources?

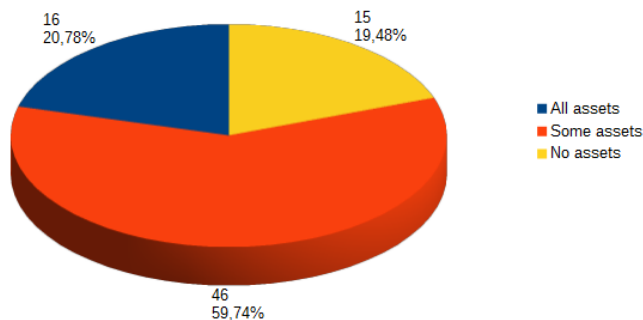
A. How important is it that the project considers rights issues when advising on future plans for digital preservation? (Not important / Moderately important / Very important / Vital)

9A. How important is it that the project considers rights issues when advising on future plans for digital preservation?



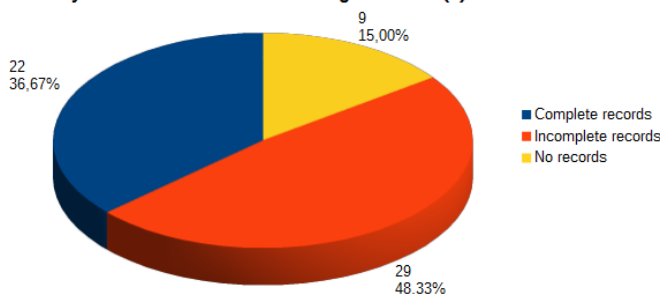
B. Is your organization the rights holder for all of the digital assets under your stewardship? (No it is not the rights holder for any of the assets / It is the rights holder for some of the assets / Yes it is the rights holder for all of the assets)

9B. Is your organization the rights holder for all of the digital assets under your stewardship?



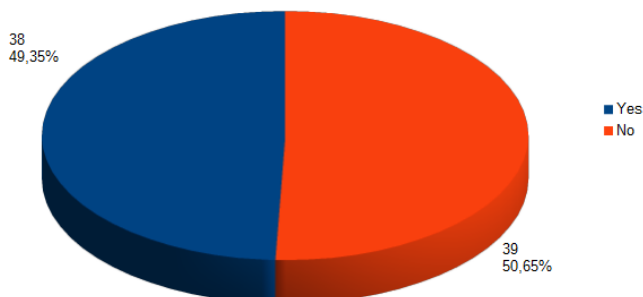
C. If your organization is not the rights holder for all of the assets (see previous question), do you maintain records of the rights holder(s) for each asset? (No explicit records held / Some but incomplete records held / Complete records held)

9C. If your organization is not the rights holder for all of the assets, do you maintain records of the rights holder(s) for each asset?



D. Does your organization maintain a registry of rights associated with each of your digital assets?

9D. Does your organization maintain a registry of rights associated with each of your digital assets?

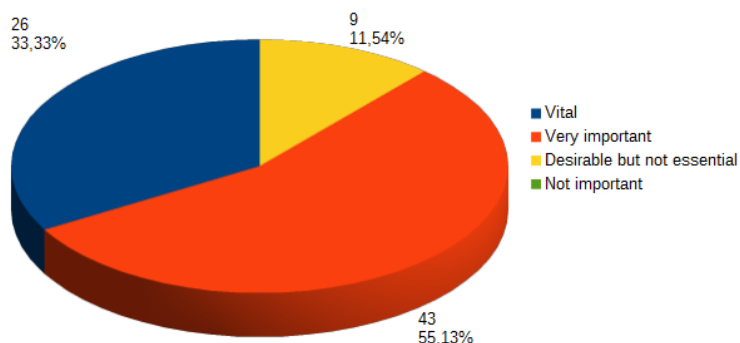


10. Education and Training

Although major national CH or memory institutions will be familiar with many of the issues involved, we anticipate that there will be a significant need for assistance in the education and training of CH staff confronted with new technologies and approaches.

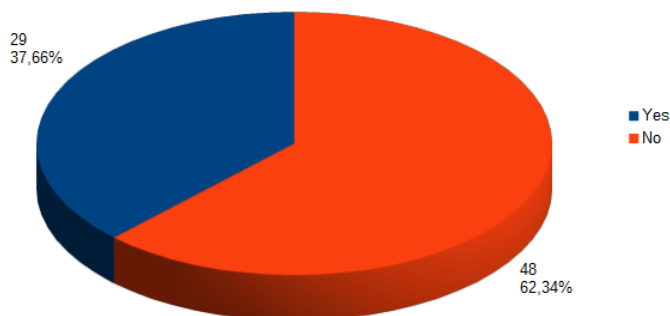
A. How important is it that DCH-RP offers advice in the areas of education and training concerning digital preservation? (Not important/Desirable but not essential/Very important/Vital)

10A. How important is it that DCH-RP offers advice in the areas of education and training concerning digital preservation?



B. Is there an established organization or focal point for professional CH training in your country? (No / Yes)

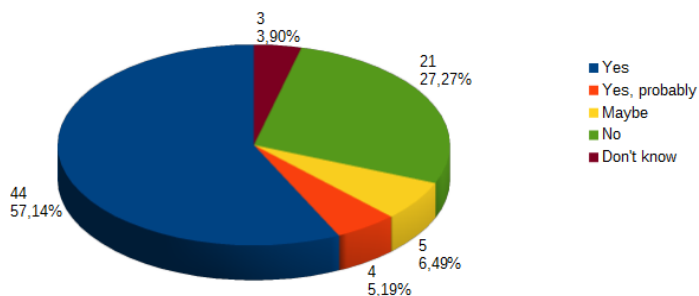
10B. Is there an established organization or focal point for professional CH training in your country?



C. If your answer to the previous question is “yes”, please advise which organization acts as the focal point: (free-text box)

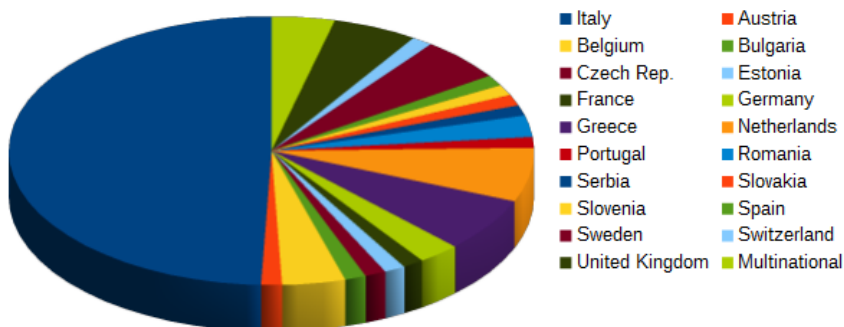
D. Could your organization act as a “centre of excellence” to spread best practice on DCH preservation questions to other institutions in your country?

10D. Could your organization act as a “centre of excellence” to spread best practice on DCH preservation questions to other institutions in your country?

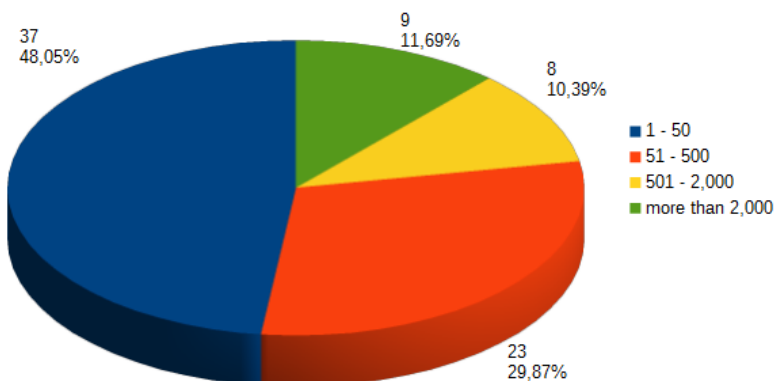


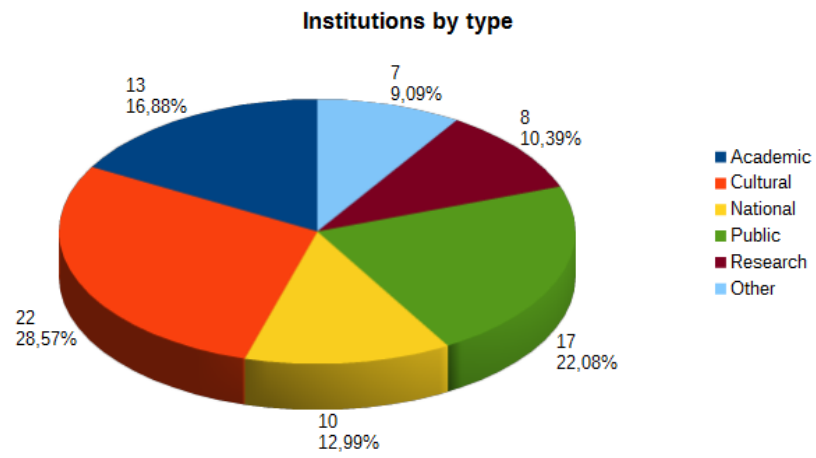
Statistics on participants

Institutions by nationality



Institutions by staff size





ANNEX 2

NATIONAL CONSULTATION IN SWEDEN ON DIGITAL PRESERVATION AT CULTURAL HERITAGE INSTITUTIONS

Analysis of the current situation and of future needs and requirements

The objectives of this Annex is to present the results of the interviews made, in the framework of the activities carried out by WP5, with some Swedish cultural heritage institutions, the conclusions that can be made from the results, and what measures that should be taken in order to facilitate digital preservation in the cultural heritage sector in Sweden. The result may possibly be applicable to other countries than Sweden.

Digisam is a secretariat for National coordination of digitisation, digital preservation and digital access to cultural heritage, established by Swedish Government to coordinate the continued development work on digitisation issues and organised as a department of Riksarkivet (National Archives in Sweden, <http://digisam.se/index.php/en>). One of the main tasks of Digisam is connected to a proposal on how coordinated and cost-effective preservation of digital cultural heritage information at Swedish state cultural heritage institutions that collect, preserve, and provide access to cultural heritage material, should be designed.

As a first part of our work on this issue, Digisam has carried out a pilot study on long-term digital preservation. In this pilot study, conducted between April 2013 and March 2014, the current state of storage and preservation at cultural heritage authorities, was examined and compared with the current “state of the art”.

This Annex presents the results of the a pilot study. The results are based on in-depth interviews with seven cultural heritage government agencies, concerning their current processes and solutions for digital preservation and future needs concerning digital preservation.

1.1 Participants in the pilot study

The interviewees were the following:

- Arkitektur- och designcentrum (The Centre for Architecture and Design, <http://www.arkdes.se/>, choose “Välj språk” for English version)
- Institutet för språk och folkminnen (Institute for Language and Folklore, <http://www.sofi.se/2072/>, short description in English)
- Tekniska museet (National Museum of Science and Technology, http://www.tekniskamuseet.se/1/start_en.html)
- Riksantikvarieämbetet (Swedish National Heritage Board, <http://www.raa.se/om-riksantikvarieambetet/in-english/>)
- Statens historiska museer (National Historical Museums, http://www.shmm.se/default_160.aspx)
- Statens maritima museer (National Maritime Museums, <http://www.maritima.se/en/>)
- Kungliga Biblioteket (National Library of Sweden, <http://www.kb.se/hjalp/english/>)

The answers from the interview with the National Library of Sweden have not been included in this context because the library sector needs to be analysed deeper, in collaboration with the National Library.

1.2 Main conclusions

The three following issues were considered most important as initial measures:

- Co-operation concerning preservation issues;
- More general/common solutions for digital preservation;
- A centralised preservation solution for government cultural heritage institutions (including archives and libraries).

2. Digital Cultural Heritage Information

The amount of digital born cultural heritage information (“born digital”) is rapidly increasing. Therefore, it is of vital importance that secure and reliable digital preservation of data and metadata plays a natural part at the cultural heritage institutions. Henceforth, the term “cultural heritage information” (from now on referred to as *CHI*) is used (if not otherwise stated) to include both information about cultural heritage data (that is, metadata) and the cultural heritage data collections themselves. In order not to confuse this with cultural heritage *institutions*, the latter are always abbreviated as “CH institutions”. “CH” always means “cultural heritage”.

2.1 Storage versus preservation

In the context of this study, *storage* is defined as purely technical storage (on bit level). *Preservation* is defined as securing the stored information so that future users can reach it, read/see/hear it, and understand it.

In order to secure the CHI, it is important that the long-term preservation issues are taken into account already when the information is created. Consequently, at the point of digitisation of information, issues as (for example) format conversion and storage media should be taken into account. Otherwise, there is a risk that information will be destroyed and/or inaccessible due to (for example) faulty format conversion or storage media failure.

Within the scope of the pilot study, different levels of preservation were defined:

- Short-term preservation – solutions that are used for a short time, 5 years maximum.
- Medium-term preservation – solutions that are used during a system's lifetime, 10 years maximum.
- Long-term preservation – solutions that are used after the originating system's lifetime, number of years unspecified.

The interviewees often had large amount of digital CHI, but no systematic long-term preservation, and seldom specific systems for long-term preservation. There was a general concern about continually increased amounts of digital CHI, which will consequently bring on higher costs for both storage and for preservation.

2.2 Metadata and raw data

The collections at the six CH institutions are described in formats deriving from the traditional (analogue) way of describing collections, and international standards for metadata are seldom fully implemented. Therefore, metadata structures differ between the institutions.

As a contrast, archival and library information (both metadata and raw data) is described and preserved according to established principles and international standards, and there are systems for long-term preservation.

There is an overall ambition that all CHI (archival information, metadata about collections, and raw data) should be preserved for the long-term future. However, in practice there are differences in how archival information and metadata about collections are treated. For the most part, it is not clear if the latter should be (legally) treated as archival information or not (and how, and *if*, it should be preserved for long-term). Metadata about collections is often modified and migrated between different systems, mostly without the long-term preservation perspective. Therefore, there is a risk that information will be lost.

2.3 Priorities, Routines, and Strategies

Today, the CH institutions have no support for making priorities for digital preservation. Furthermore, there is a need for developing routines and strategies for long-term digital preservation. The first step is establishing plans for digitisation of the collections at the institutions; existing work is supported by Digisam. However, a more general support for work concerning digital storage and preservation is desired, as well as clarification of roles in digital preservation (which responsibilities the administrators and managers of information, and their counterparts for systems, should have).

Some Swedish CH institutions will participate in the DCH-RP test of EUDAT services (<http://eudat.eu/>), in order to contribute to the validation of the roadmap, and also to examine if the roadmap can be adapted to a national version. The aim is to integrate digital preservation in all digitisation steps.

2.4 Common Requirements

A majority of the interviewees are in favour of a centralised storage/preservation solution within the CH sector. A common example was a support function for storage, where (for example) file conversion tools (especially for *mass conversion*) can be accessed and/or downloaded. Another example of support functions is handbooks. Yet other examples are help with planning long-term preservation and information about international standards.

The majority is in favour of a central (government) storage solution within the CH sector where, for example, the National Archives/Digisam is the main participant. As part of the ongoing collaboration between the National Archives and the government agency *Statens servicecenter* (National Service Centre, <http://www.statenssc.se>) around cost-effective e-archive services, it may also be possible to include storage solutions for different kind of cultural heritage data. For example, there may be a common function for bit-level storage. If a common support function for long-term preservation of digital CHI is included, the services may include support for planning long-term preservation, accepted international standards and how these can be implemented, tools for mass conversion/migration, et c.

A first step towards improvement of long-term preservation may be to harmonise metadata standards. In Sweden, a recent initiative has been taken with the **FGS's** for archives (**Förvaltningsgemensamma specifikationer**, which approximately translates to “Common Specifications for Government Agencies”, see http://riksarkivet.se/Media/pdf-filer/Projekt/eARD_informationstext_eng.pdf). FGS's have been developed for case management, personnel records, and the overall package structure for e-archives. The next FGS's to be developed are for archival descriptions, databases and registers, and file

collections. For the CH information sector, corresponding FGS's could be centrally developed and administrated.

The OA/IS model (**O**pen **A**rchival **I**nformation **S**ystem) is often used within the archival and library sectors as a conceptual model, and may be suitable also for other types of CHI.

As a consequence of the analysis of the interview results, and of discussions with many CH institutions, Digisam has suggested the following approach:

- A proposal for a centrally managed and administrated support resource for the CH sector.
- Adaptation and implementation of DCH-RP's *Roadmap for Preservation* for Sweden.
- Assessment of the suitability of centralised and/or distributed storage/preservation solutions for the CH sector.
- Forms for cooperation on storage/preservation issues among the CH institutions.

3. Results from Questionnaire

A summary of the answers to the questionnaire is presented in this section.

Query #1a: What type of cultural heritage information does your institution have?

Most of the institutions have several types of digital CHI. All interviewed institutions have information about collections, about artefacts, and about archives; all of them also have digital images and audio-visual material. Almost half of the interviewed institutions also have 3D drawings/ blueprints. Some of the institutions are currently planning digitisation projects and/or collection projects that include 3D information. The increase of 3D data is partly problematic, since routines and processes to preserve this type of CHI are not yet developed and/or standardised.

Query #1b: How does your institution manage your cultural heritage information (in general)?

Most commonly, metadata is gathered into one or several separate collection information systems, while digital CHI is stored in folders on one or several in-house servers or personal computers. The interviewees see a need for a more centralised management, but only one institution has actual plans for moving their digital CHI to a cloud solution. Most of the institutions have less than 10 Terabyte of data.

The systems for collection information do not always support international standards for metadata, and this is regarded as a problem.

Query #2: Are there different priorities for what types of cultural heritage information that should be stored/preserved?

Four of the interviewees answer "no" to this question. However, in practise there is material that get a higher priority for digitisation: CHI that is regulated by law, and CHI that runs a high risk of being destroyed due to bad quality, old age, et c.

Those who answered "yes" added that they do not make a distinction between storage and preservation.

Query #3: Do you have a documented strategy for preservation of cultural heritage information (short-term, medium-term, long-term)?

One interviewee had a documented strategy for short-term and medium-term preservation. None of the interviewees had currently a documented strategy for long-term preservation.

Query #4: Do you have routines/procedures for digital storage/preservation of cultural heritage information?

Two of the institutions have implemented routines for digital storage and/or long-term digital preservation (examples: appraisal). However, some CHI previously digitised and stored on CDs, are not included in these routines and thus risk to be overlooked/forgotten.

Query #5: Do you have systems for digital storage/preservation of cultural heritage information?

All of the six institutions have systems for digital storage. However, it was a bit unclear what exactly comprises a “system”, but it was agreed that it should be some type of well-structured storage solution.

Only two of the institutions have systems for long-term digital preservation. In both cases, the collection information system also serves as a long-term preservation system. As for the rest of the interviewees, they expressed hopes that the manufacturer of the collection information system also would solve the problem with long-term preservation.

Query #6: Are your systems adequate for your current needs, with respect to digital storage/preservation of cultural heritage information?

Only one of the institutions answered that their current needs were covered, with the reservation that their future needs would *not* be.

Query #7: What types of metadata standards do you use to describe digital cultural heritage information that will be stored/preserved?

Except for within the archival and library sectors, the metadata standards that are used differs widely. Within the museum sector, standards are often developed in-house and/or are built on old traditions. International, established standards are used less often. However, when a new system for collection information is implemented, this is taken as an opportunity to change metadata standard.

Query #8: Do you use classification for any of the stored/preserved information (with respect to confidentiality, availability, traceability, consistency et c)?

All of the six institutions had information that needed classification. Some of this is processed at least partly automatically (for example, availability for different types of users). Sometimes the processing is altogether manual (for example, ethical considerations whether to publish or not).

Query #9: Are there different levels of authorisation for the digital cultural heritage information (especially for access)?

Five of the six institutions had different levels of authorisation for access/usage.

Query #10: Are there different requirements for the quality of the digital cultural heritage information, depending on the type of material?

One institution had different requirements for quality. This is mostly for digital objects. There seems to be no such different requirements for metadata.

Query #11: Are you using cloud services for storage and/or long-term preservation?

None of the interviewees are currently using cloud solutions for storage and/or long-term preservation of digital CHI. One institution aims to store high-resolution images in a central (internal) cloud, connected to the collection information system.

Query #12: What tools, services and automated processes are used today? What would be needed in the future?

Currently, at least five of the institutions use tools, services and/or automated processes for the following:

- Storage
- To supplement metadata
- To search CHI (both data and metadata)
- Administration of events
- Authorisation

There was no consensus regarding what tools, services and automated processes that would be mostly needed in the future. However, the following four was most often mentioned (written in order “most needed” first):

- Solutions for storage (preferably common/centralised solutions, or at least solutions shared with others)
- Standards (including the previously mentioned FGS's).
- Routines and automated processes for mass conversion/mass migration
- Guides and “toolkits”

Others that were mentioned were the following six:

- Extraction of information
- Classification of information

- Format identification
- Packaging
- Validation
- Appraisal

Query #13: Do you think that a common (shared) solution for storage/long-term preservation is needed for cultural heritage information?

Five of the interviewees answered that this is needed. One of the interviewees answered that before such a solution is implemented, official standards must be established.

The institutions were sceptical to cloud solutions, especially when the information is controlled by commercial parties, or is stored abroad. Instead, a solution controlled by the government is preferred.

Query #14: Do you think that a common (shared) support function is needed for cultural heritage information?

All interviewees answered that such a function is needed for storage and long-term preservation. The function should include general support, advice, et c. It was also pointed out that advices and recommendations are not sufficient: regulations are also needed.

Query #15: What other means for supporting storage/long-term preservation of cultural heritage information would be needed in future?

Strategies for conversion/migration was mentioned as an important support function.

4. Co-operation within the Cultural Heritage sector

As seen in the answers to queries #13 and #14 (and partly also from answers to queries # 12 and #15), there is a great need for common solutions, including storage and (international) standards, and co-operation in general.

Some institutions/projects in Sweden and Europe that participate in co-operation within the CH sector are enumerated below.

Sweden:

- LDB-centrum (Centre for Long-term Digital Preservation, <http://www.ltu.se/centres/Centrum-for-langsiktigt-digitalt-bevarande-LDB?l=en>)
- eARD (the e-archive and e-diarium project, http://riksarkivet.se/Media/pdf-filer/Projekt/eARD_informationstext_eng.pdf)

Europe:

- Digital Preservation Europe (DPE, <http://www.digitalpreservationeurope.eu>)

- Open Planets Foundation (<http://www.openplanetsfoundation.org>)
- APARSEN (<http://www.alliancepermanentaccess.org>)
- ENUMERATE (<http://www.enumerate.eu>)
- DCH-RP (<http://www.dch-rp.eu>)
- EUDAT (<http://www.eudat.eu>)

5. Conclusions

The amount of information that should be stored/preserved is rapidly growing within the CH sector. The institutions are not well prepared for this accumulation of data (however, the archive institutions seem to be somewhat better prepared than the museums). In the European perspective, the Swedish institutions are also somewhat less prepared than their European counterparts (again, this especially pertains to the museums).

A conclusion is that a roadmap for preservation (like the one that DCH-RP is developing) is of utmost importance for the Swedish CH sector: for defining what institutions should include in the preservation work, for deciding what measures that should be taken for a successful long-term preservation, and for how to proceed in general. Furthermore, common, shared, and preferably centralised resources are needed, both for cost-efficiency and for a higher quality of the information that is stored and preserved.

When common resources are implemented, they can be used to test the roadmap for preservation. However, it should not be forgotten that preservation is not the final objective; the real success of the roadmap is fulfilled when citizens, companies, government agencies, scientists and researchers, schools, and developers can easily access and use the digital CHI.

ANNEX 3

DCH-RP STAKEHOLDERS COMMUNITY

DCH-RP Community members

Organisation	Country
Academia Sinica Grid Computing Centre	TAIWAN
Agence Nationale de la Recherche (ANR)	France
Arab States Research and Education Network (ASREN)	Arabian countries
Arkitekturmuseet (AM)	Sweden
Austrian Institute Of Technology (AIT)	Austria
Austrian State Archives	Austria
Beihang University (BUAA)	China
Biblioteca Nazionale Centrale Firenze (BNCF)	Italy
Biblioteca Nazionale Centrale Roma (BNCR)	Italy
Biblioteca Nazionale Marciana (BNM)	Italy
Bibliothèque Nationale de France (BNF)	France
Bibliothèque royale de Belgique (KBR)	Belgium
Biblioteca Apostolica Vaticana (BAV)	Italy
Computer Network Information Center, Chinese Academy of Science (CNIC)	China
CENIEH	Spain
Centre for Development of Advanced Computing (CDAC)	India
Central Library of the Bulgarian Academy of Sciences (CL-BAS)	Bulgaria
Centre National de la Recherche Scientifique (CNRS)	France
Conseil Européen pour la Recherche Nucléaire (CERN)	Switzerland
Conservation Centre KANUT (KANUT)	Estonia
Cooperación Latino Americana de Redes Avanzadas (RedCLARA)	Latin America
CSC-IT Centre for Science	Filand
Data Archiving and Networked Services (DANS)	The Netherlands
DEN foundation (DEN)	The Netherlands
Digitaal Erfgoed Nederland (DEN)	The Netherlands
EGI Federated Clouds Task Force	European
Engineering Spa (ENG)	Italy
European Space Agency (ESA)	France

Estonian Educational and Research Network (EENET)	Estonia
Factum Foundation	Spain
Fédération Wallonie-Bruxelles (CFWB)	Belgium
Fondazione Sistema Toscana (FST)	Italy
Forschungsinstitut für Telekommunikation und Kooperation e.V. (FKT)	Germany
Hallwylska Museet (HM)	Sweden
Hellenic Ministry of Culture and Sports (HMC)	Greece
Higher Education Authority (HEA)	Ireland
IRI – Centre Pompidou (IRI)	France
Institut des Grilles du CNRS (IdGrilles)	France
Institut National de Recherche en Informatique et en Automatique (INRIA)	France
Institut national d'histoire de l'art (INHA)	France
Institute for the Protection of Cultural Heritage of Slovenia (IPCHS)	Slovenia
Institute of High Energy Physics (IHEP) –	China
Jawaharlal Nehru University (JNU)	India
Koninklijke Bibliotheek (KL)	The Netherlands
Generalitat de Catalunya (GENCAT)	Spain
Le Muséum National d'Histoire Naturelle (MNHN)	France
Magyar Nemzeti Digitális Archívum (MaNDA)	Hungary
Magyar Országos Levéltár (MOL)	Hungary
Max Communications	UK
Max Planck Institute for Psycholinguistics (MPI)	Germany
Mexican Research & Education Network (CUDI)	Mexico
National Informatics Centre (NIC)	India
National Library and Information System (NALIS)	Bulgaria
National Széchényi Library (OSZK)	Hungary
Naturhistoriska Riksmuseet (NRM)	Sweden
Meraka Institute (MERAKA)	sub-Saharan Africa
Ministry of National Resources of Hungary	Hungary
National Archives of Malawi	Malawi
National Institute for Nuclear Physics and High Energy Physics (NICKHEF)	The Netherlands
Orange SA	France
Open Planets Foundation (OPF)	USA
Packed vzw (PACKED)	Belgium

Peking University (PKU)	China
Petőfi Irodalmi Múzeum (PIM)	Hungary
Red Nacional Académica de Tecnología Avanzada (RENATA)	Colombia
The Library Council	Ireland
Royal Institute for Cultural Heritage (KIK/IRPA)	Belgium
Royal Irish Academy (RIA)	Ireland
Royal Museums of Art and History (KMKG-MRAH)	Belgium
Russian committee for UNESCO	Russia
Science Museum (SM)	UK
Science and Technology Facilities Council (STFC)	UK
Secure Business Austria (SBA)	Austria
Spanish National Grid Initiative (ES-NGI)	Spain
Spanish National Research Council (CSIC)	Spain
State Agency Culture Information Systems (KIS)	Latvia
Stiftung Preubischer Kuitubesitz (SPK)	Germany
Swedish Institute for Social Research (SOFI)	Sweden
Statens Maritima Museer (SMM)	Sweden
Szépművészeti Múzeum (SM)	Hungary
Tekniska Museet (TM)	Sweden
TGE-ADONIS – CNRS	France
TownsWeb Archiving Ltd (TWA)	UK
Ubuntunet Alliance-	sub-Saharan Africa
Universidad de Alicante (UA)	Spain
University of Malaya	Malaya
Université Paris Ouest Nanterre La Défense (UPARIS10)	France
University of Stuttgart	Germany
Victoria and Albert Museum (V&A)	UK
Vlaanderen.be – Cultuur, Jeugd, Sport en Media	Belgium
Världskulturmuseerna (SMVK)	Sweden
World Digital Library – Library of Congress (WDL)	USA
Wordsworth Trust (WT)	UK

Participants in the survey on the intermediate version of the Roadmap

Organisation	Website	Country
Agenzia ICE	http://www.ice.gov.it/	Italy
Archaeology Data Service	http://archaeologydataservice.ac.uk/	United Kingdom
Aristotle University of Thessaloniki	http://www.auth.gr/en	Greece
ASREN	http://asrenorg.net/	International
Athena: Research & Innovation Center in Information, Communication & Knowledge Technologies		Greece
Biblioteca Provinciale Italiana Claudia Augusta	http://www.bpi.claudiaugusta.it/	Italy
Bildarchiv Foto Marburg	http://www.fotomarburg.de/	Germany
Carcavallo		
CENIEH	http://www.cenieh.es/	Spain
CSAC (Center for Study and Archive of Communications) Università di Parma	http://www.unipr.it/ugov/organization/unit/22536	Italy
DANS	http://www.dans.knaw.nl/en	Netherlands
DCU, ATHENA RC	http://www.dcu.gr/	Greece
Dédale	http://www.dedale.info/	France
DEN Foundation	http://www.den.nl	Netherlands
Deutsche Nationalbibliothek	http://www.dnb.de/DE/Home/home_node.html	Germany
DigiLab - Sapienza Università di Roma	http://digilab.uniroma1.it/	Italy
DigiLab - Sapienza Università di Roma	http://digilab.uniroma1.it/	Italy
EAJC		United Kingdom
Erfgoedplus.be - PCCE - Provincie Limburg	http://www.limburg.be/	Belgium
euroCRIS	http://www.ru.nl/	Netherlands
Fondazione Casa Oriani	http://www.fondazionecasadioriani.it/	Italy
Fondazione di ricerca "Giuseppe Siotto"		Italy
Fondazione Gramsci Emilia-Romagna	http://www.iger.org/	Italy
FORTH	http://www.forth.gr/	Greece
Fundação Calouste	http://www.gulbenkian.pt/Institucional	Portugal

Gulbenkian	/pt/Homepage	
Hellenic Ministry of Culture and Sports	http://www.culture.gr/culture/eindex.jsp	Greece
ISPRA Library	http://www.isprambiente.gov.it/	Italy
Istituto italiano per gli studi storici	http://www.iiss.it/	Italy
KIK-IRPA	http://www.kikirpa.be/	Belgium
KOST	http://www.vsa-aas.org/	Switzerland
KU Leuven	http://www.kuleuven.be/	Belgium
Livrstkammaren och Skoklosters slott med stiftelsen Hallwylska museet	http://lsh.se/en	Sweden
Michael Culture Association (MCA)	http://www.michael-culture.eu/	European
MIBACT - Archivio di Stato di Napoli	http://www.archiviodistatonapoli.it/asnaCMS/	Italy
MIBACT - Biblioteca Casanatense	http://www.casanatense.it/	Italy
MIBACT - Direzione Regionale per i Beni Culturali e Paesaggistici della Calabria	http://www.calabria.beniculturali.it/	Italy
MIBACT - Istituto Centrale per gli Archivi (ICAR)	http://www.icar.beniculturali.it/	Italy
MIBACT - Istituto Centrale per i Beni Sonori ed Audiovisivi (ICBSA)	http://www.icbsa.it/	Italy
MIBACT - Istituto Centrale per il Catalogo e la Documentazione (ICCD)	http://www.iccd.beniculturali.it/	Italy
MIBACT - Istituto Centrale per il Catalogo Unico delle biblioteche italiane e per le informazioni bibliografiche (ICCU)	http://www.iccu.sbn.it	Italy
MIBACT - Soprintendenza Speciale per i Beni Archeologici di Roma	http://archeoroma.beniculturali.it/	Italy
Museo Centrale del Risorgimento - Istituto per la storia del Risorgimento italiano	http://www.risorgimento.it/php/index.php	Italy
Museo Nazionale del Cinema	http://www.museocinema.it/	Italy

Museum of Slovak National Uprising	http://www.bunkermuzeum.hu/Bunkermuzeum/utazasok/2006/2006-01_en.htm	Slovak Republic
NALIS	http://www.nalis.bg/	Bulgaria
Nationaal Archief Nederland	http://www.nationaalarchief.nl/	Netherlands
National and University Library	http://www.nuk.uni-lj.si/	Slovenia
National Archives of Hungary	http://mnl.gov.hu/	Hungary
National Heritage Institute	http://www.cimec.ro/	Romania
National Museum, Prague	http://www.nm.cz/	Czech Republic
National Records of Scotland	http://www.nas.gov.uk/	United Kingdom
ONLUS ICT Ad Duae Lauros	http://www.duaslauros.it/index.php/ad-duas-lauros-onlus.html	Italy
Pio Monte della Misericordia	http://www.piomontedellamisericordia.it/	Italy
Regione Abruzzo	http://www.regione.abruzzo.it/portale/index.asp	Italy
Regione del Veneto - Dipartimento Cultura - Sezione Beni Culturali	http://www.regione.veneto.it/web/cultura/beni-culturali	Italy
Regione Lazio	http://www.regione.lazio.it/rl_cultura/	Italy
Regione Liguria - Programmi Culturali e spettacolo	http://www.regione.liguria.it/uffici.html?controller=contenutiufficio&id_ufficio=68&view=contenutiufficio&id_dipartimento=9	Italy
Regione Lombardia Direzione generale Culture, Identità e Autonomie	http://www.cultura.regione.lombardia.it/cs/Satellite?childpagename=DG_Cultura%2FDGHomeLayout&c=Page&pagename=DG_CAIWrapper&cid=1213277054451	Italy
Regione Puglia	http://www.regione.puglia.it/	Italy
Riksantikvarieämbetet	http://www.raa.se/	Sweden
Scuola Normale Superiore	http://www.sns.it/	Italy
Società Filologica Friulana	http://www.filologicafriulana.it/	Italy
Società Geografica Italiana	http://www.societageografica.it/	Italy
Stichting European Grid Infrastructure (EGI.eu)	http://www.egi.eu/	
The European Library	http://www.kb.nl/	Netherlands
The Foundation of Estonian Open Air Museum, Conservation Centre Kanut	http://kanut.ee/	Estonia
TownsWeb Archiving	http://www.townswearchiving.com/	United Kingdom

Università degli Studi di Roma Tre	http://www.uniroma3.it/	Italy
Universitätsbibliothek der Universität Wien	http://www.univie.ac.at/	Austria
University library "Svetozar Marković"	http://unilib.bg.ac.rs/eng/index2.php	Serbia
University of Padova	http://www.unipd.it/	Italy
University of Padova - University Library Center	http://www.unipd.it/	Italy
University of Skövde	http://www.his.se/en/	Sweden
University of Trento	http://www.unitn.it/	Italy
Västernorrland County Museum, Sweden	http://www.murberget.se/english.aspx	Sweden

ANNEX 4

DCH-RP SUSTAINABILITY SURVEY

NAME OF THE PARTNER:

AWARENESS of all aspects of Digital Preservation

1. Level of awareness of DP in your organization and in your country

1.1 Awareness of the real definition of DP

	excellent	good	satisfactory	bad
Management				
Staff				
Government				

1.2 Awareness of the need for DP

	excellent	good	satisfactory	bad
Management				
Staff				
Government				

1.3 Will your organization raise awareness of the Roadmap?

Yes	No	Maybe

If "Yes" explain how

If “No” or “Maybe” what are the reasons?

COOPERATION

2. Level of willingness to cooperate

2.1 Is your organization willing to cooperate with other DCH organisations for the maintenance of the Roadmap

	Yes	No	Maybe
At the national level?			
At the European level?			

If “No” what are the objections?

If “Maybe” what are the conditions for cooperation?

2.2 Is your organization willing to cooperate with other DCH organization for the realization of a federated preservation infrastructure?

	Yes	No	Maybe
At the national level?			
At the European level?			

If “No” what are the objections?

If “Maybe” what are the conditions for cooperation?

2.3 Is your organization willing to cooperate with existing and future e-infrastructures

	Yes	No	Maybe

At the national level?			
At the European level?			

If “No” what are the objections?

If “Maybe” what are the conditions for cooperation?

FUNDING DP IN YOUR ORGANIZATION

3.1 How are DP activities funded within your organization – what are the funding sources?

	Yes	No
At the national level?		
At the European level?		

If “Yes” specify the type of funding (structural funds, projects, ...) and give a short description

If “No” what are the reasons?

3.2 Will you need external funding to participate in DP activities at national and international level?

Yes	No	Maybe

Give some more explanations for your answer above

3.3 Do you think that the partnership with e-Infrastructure providers will ensure the public funding of your DP activities?

	Yes	No	Maybe
At the national level?			
At the European level?			

If “Yes” explain how

If “No” or “maybe” explain why

REGISTRY OF SERVICES

4. Implementation and maintenance of the Registry

4.1 Is your organization willing to contribute to the maintenance of the Registry?

Yes	No	Maybe

If “Yes” explain how

If “No” or “Maybe” what are the objections?

FEASIBILITY AND RISK

5. Please give us a list of risks or gaps that in your view could delay the implementation of the Roadmap.

ADDITIONAL CONSIDERATION

**6 Do you have additional considerations or ideas for the sustainability of the Roadmap?
Please give us your suggestions! (free text)**