PUBLISHABLE SUMMARY

Grant Agreement number: 312274

Project acronym: DCH-RP

Project title: Digital Cultural Heritage Roadmap for Preservation -
Open Science Infrastructure for DCH in 2020

Funding scheme: Coordination and support action

Date of latest version of Annex I against which the assessment will be made: 21/05/2013

Periodic report: 1st ☐ 2nd ✗ 3rd ☐ 4th ☐

Period covered: from 01/10/2013 to 30/09/2014

Name, title and organisation of the scientific representative of the project's coordinator: Rosa Caffo - Istituto Centrale per il Catalogo Unico (ICCU)

Tel: +39.06.49210427

Fax: +39.06.4959302

E-mail: rcaffo@beniculturali.it

Project website address: www.dch-rp.eu

DCH-RP Second Periodic Report – Publishable Summary

1. Executive Summary

DCH-RP project is a coordination action supported by the European Commission under the e-Infrastructure Capacities Programme of the Seventh Framework Programme for Research (FP7). The project, lasting for two years, aims to develop harmonised policies, common processes and protocols which will allow DCH organisations across Europe to access e-Infrastructures services for storage and preservation through shared procedures. This has been achieved by:

- **Designing a sound Roadmap** for the implementation of an e-Infrastructure for preservation of DCH content; this task was supported by practical experiments (**proofs of concept**) where cultural institutions and e-Infrastructure providers work together to test the use of distributed computing and storage infrastructures to store, manage and preserve cultural digital resources, starting from the services identified in the Roadmap and from real scenarios and user stories provided by cultural institutions.

- **Creating a Registry of tools and services** for providing a broad overview of the existing solutions and analysing those services and tools that can enable cultural heritage institutions to benefit from the capacities of e-Infrastructures including storage and processing in cloud and grid system.

- **Setting up a network of common interest** for a durable cooperation among its members.

- **Disseminating the results of the project** to the wider cultural heritage and e-Infrastructure communities beyond the consortium, and to other regions outside the EU, to enable them to benefit from the research of the consortium and from the work of the project.

- **Carrying out and analysing relevant case studies** on trust building and on the use of grid and cloud technologies for DCH to extract knowledge and best practice.

- **Planning the sustainability of the infrastructure**, by investigating approaches in DP national programme and developing strategies in EU level.

- **Fostering international cooperation** covering international projects related to digital preservation in the DCH sector and e-Infrastructures based research in the digital preservation field but also to encourage the integration of preservation priorities into the scope of existing international e-Infrastructures.

2. Project context and objectives

The need to offer concrete and robust support to cultural heritage institutions efforts in digital preservation was identified by the former INDICATE project[1]. To get an understanding of the

---

[1] INDICATE International Network for a Digital Cultural Heritage e-Infrastructure. http://www.indicate-project.eu/

magnitude of the situation, an initial survey of existing digital preservation tools and services was commissioned by its sister-project DC-NET[2]. Therefore, the DCH-RP project can be seen as a logical follow-up of both the INDICATE and DC-NET projects.

The project falls within the framework of the digital preservation and the use of e-infrastructures in Digital Cultural Heritage (DCH) sector. The main goal of the project is to elaborate **a Roadmap for the introduction of a shared preservation infrastructure for the digital cultural heritage community**. This is also seen as the main channel for the delivery of advanced preservation services to the DCH sector, as part of a more general vision towards the Open Science Infrastructure for DCH in 2020. In fact a fundamental aspect of the Roadmap for preservation is usage of existing and emerging e-Infrastructures for the purposes of the long-term, reliable data and meta-data preservation.

The project consists of **five Work Packages** which carried on activities involving cultural Institutions, e-Infrastructure providers and other contributors: WP1 Project Management, WP2 Dissemination and Sustainability, WP3 Preservation Roadmap, WP4 Case Studies and Best Practice, WP5 Proofs of Concept.

The roadmap targets primarily two main communities in order to help them plan ahead:

- **Policy makers** on different levels and owners of digital preservation programmes at cultural heritage institutions.

- **Managerial teams of cultural heritage institutions** in taking decisions related to digital preservation.

Along the way, the project has put more and more emphasis on targeting also the providers of e-Infrastructure services.

The Roadmap has been supplemented by practical tools for decision makers like the **Registry of Tools and Services** and it was validated through a range of **proofs of concept** (PoCs), where cultural organisations and e-Infrastructure providers cooperated on concrete experiments. The results obtained by the PoCs were fundamental to validate the concepts established in the Roadmap and deliver further inputs to its development.

Another important objective of the project is to offer to the scientific community and other communities belonging to cultural heritage, research and humanities sectors, as well as to general users, an easy and effective access to the digital assets collected and protected by DCH institutions in collaboration with e-Infrastructure providers. A set of tools and services that could be used for preservation of digital cultural artefacts provided by e-infrastructures tested and evaluated as a proof of concept in WP5, in order to progress in mapping of requirements and use cases described in the roadmap into functional and non-functional capabilities and potential solutions for them in a future version of the roadmap.

3. Work Undertaken and Key Results

All the activities of the project are centred around the Roadmap. Over the course of the DCH-RP project, members discussed and considered a number of alternative visions and goals for a roadmap to preservation. With the experiments conducted in the Proofs of Concept, trust building and community involvement activities, and the roadmap development itself, the concept of Cloud

---

[2] DC-NET Digital Cultural heritage NETwork. http://www.dc-net.org/

services and service oriented infrastructure provisions offer a promising way forward – integrating technology evolution with service provisions without unnecessary dependency on any particular technology beyond what is required for the digitisation process itself.

The provisionally named "**Digital Preservation as a Service** (DPaaS)" platform clearly will have to be a distributed platform delivered by many service providers, as it is clear that digitised (or born digital) data will not be centrally stored on an outsourced storage service for the entirety of CH data produced across Europe – even though the odd exception might prove this assumption.

The DCH-RP Roadmap makes it possible for each cultural heritage institution to define its own **practical action plan** with a realistic timeframe for the implementation of its stages.

A short-term action plan is proposed by the DCH-RP project in order to initiate the development of a preservation services infrastructure on a level that will be self-sustainable and continue to progress on its own. Beyond the duration of the project itself, the Roadmap identifies two further planning periods: medium-term (approximately two years after the end of DCH-RP) and long-term for the logical continuation of the DCH-RP work into the future.
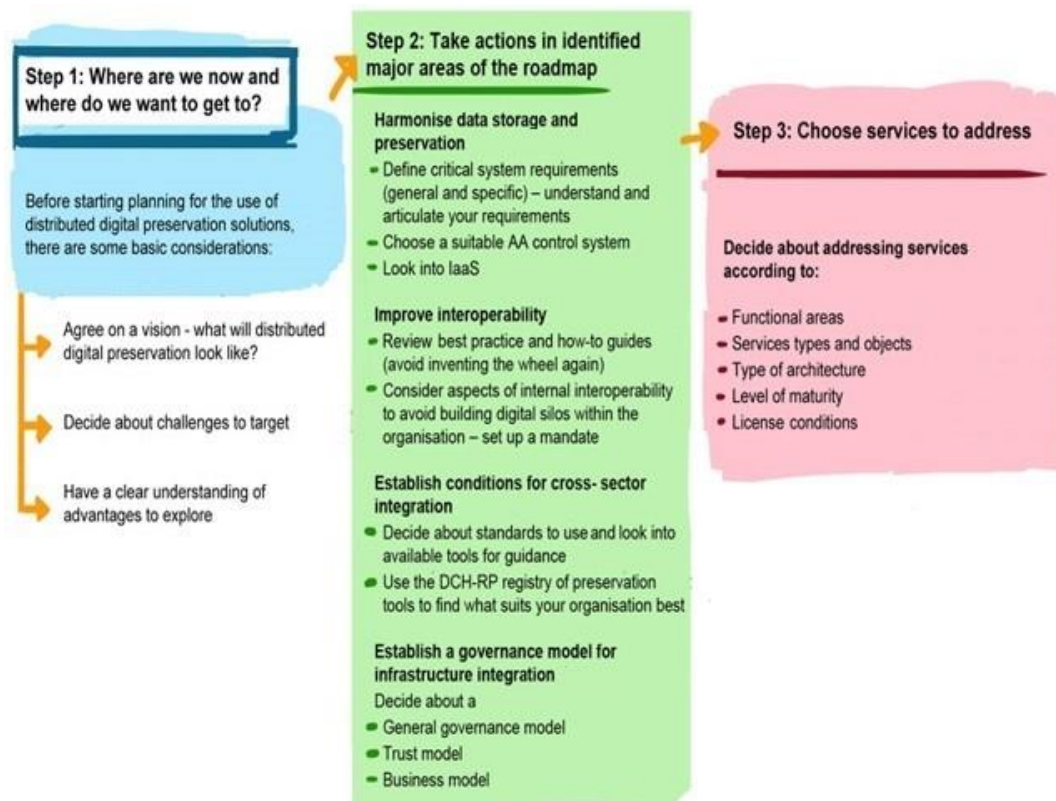
A condensed version of the Roadmap in a short-term perspective (2014-2015)

The roadmap is concentrated on four areas which identify the policy domains that require intervention:

- **Harmonisation of data storage and preservation**: would allow integrating in common environments the curation of research data with other digital objects – two domains which are currently addressed separately.

- **Improved interoperability**: includes better integration of preservation within the overall workflows for digitisation and online access; in a way this is a set of measures to avoid building 'digital silos' within the organisation.

- **Establishment of conditions for cross-sector integration**: a key condition for maximising the efficiency of successful solutions, transferring knowledge and know-how.

- **Governance models for infrastructure integration**: a necessary condition for successful institutional participation in larger e-Infrastructure initiatives, and aggregation and re-use of digital resources.

These four areas were selected in order to help consolidating experience gained in individual institutions and to merge it into useful knowledge for the cultural heritage sector as a whole. For each area a set of prioritised actions are suggested.

The short-term, medium-term and long-term perspectives articulate, within specific further steps, the evolution of the four areas along the time, in order to take into consideration the foreseen expected changes of the framework of digital archiving.
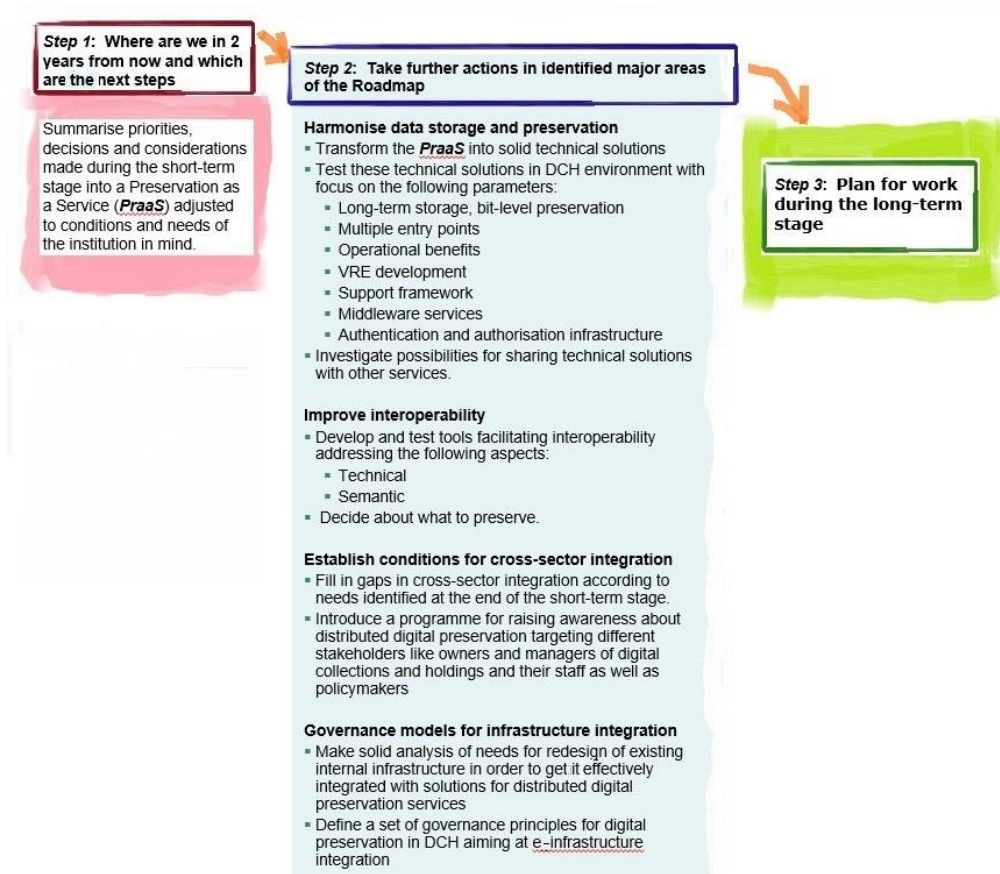
A condensed version of the Roadmap in a medium -term perspective (2016-2017)
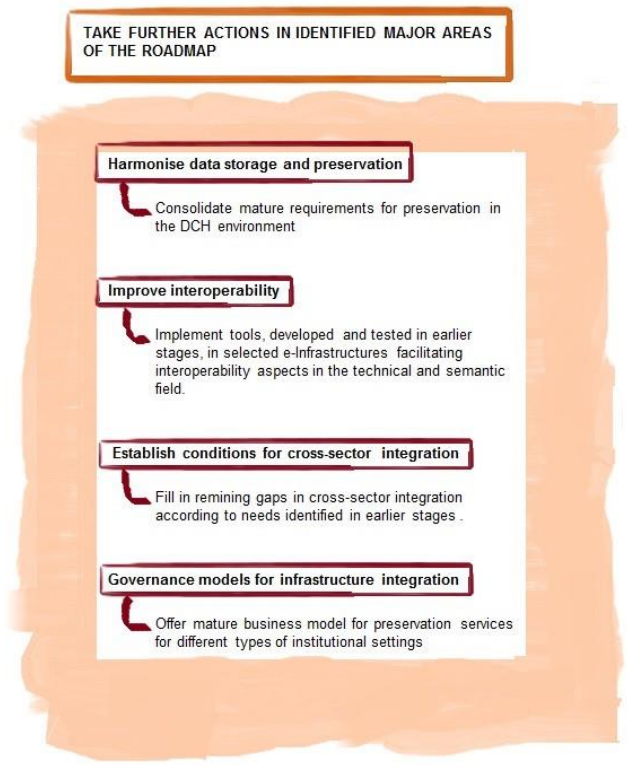
A condensed version of the Roadmap in a medium -term perspective (2018 and beyond)

To ensure a wide dissemination of the Roadmap, which represents the most important and durable result of the project, aiming to become a reference document for the years to come, an **handbook / guide and two flyers** have been prepared: the handbook aims to present the final version of the Roadmap in a simple, compact and effective way, easy to be understood by all the stakeholders of the project, from the memory institutions to the e-infrastructure providers; the two flyers focus respectively on the condensed version of the Roadmap and on the Registry of Tools and Services.

To define the Preservation Roadmap for DCH, **best practices have been surveyed** and studied in three main areas:

- Trust building, as a pre-requisite for any change in the existing organization of data storage of memory institutions.

- Authentication and authorization, as tools contributing to the trust building process.

- Engagement with the private sector, as way to recruit additional economic resources for the sustainability of the infrastructure.

For each of these areas, the project produced focused reports that entered into the process of building the DCH-RP Roadmap.

In parallel, a range of **Proofs of Concept** has been carried out, where cultural institutions and e-Infrastructure providers worked together to experiment with distributed computing and storage infrastructures (NREN, grids, clouds, newer data infrastructures) to store and manage cultural digital resources, starting from the targeted specific services identified in the Roadmap, and from real scenarios and user stories provided by cultural institutions. Organised in two phases of

experimentation, the results of these experiments informed the roadmapping and best practices activities in DCH-RP with their intermediate and final results.

Proofs of concept, best practices and the Roadmap itself (with its successive versions) entered into an agile and iterative process of refinement and improvement, as illustrated in the following figure.
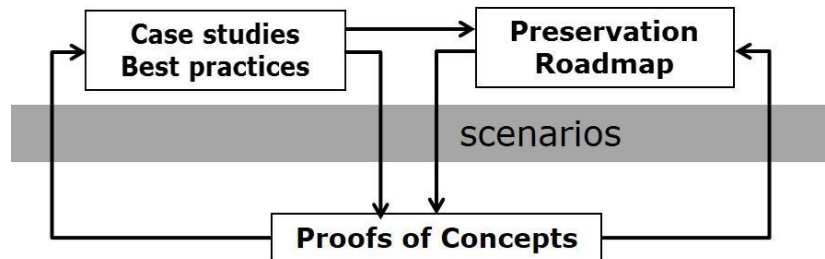
While developing the Roadmap, an important exercise has been to identify services that already exist, to map them against the most used standards in the DCH sector and to **develop a Registry of Tools and Services** to be offered to the DCH community as a practical resource.

The Registry, available on-line at the project's website www.dch-rp.eu and in the DCH-RP showcase on Digital Meets Culture (www.digitalmeetsculture.net/heritage-showcases/dch-rp/dch-rp-registry-of-services-and-tools-final-version/), collects the 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.

The following figure presents a screen-shot of the Registry, conceived as a living resource where users are encouraged to contribute with comments, remarks and suggestions for improvement.
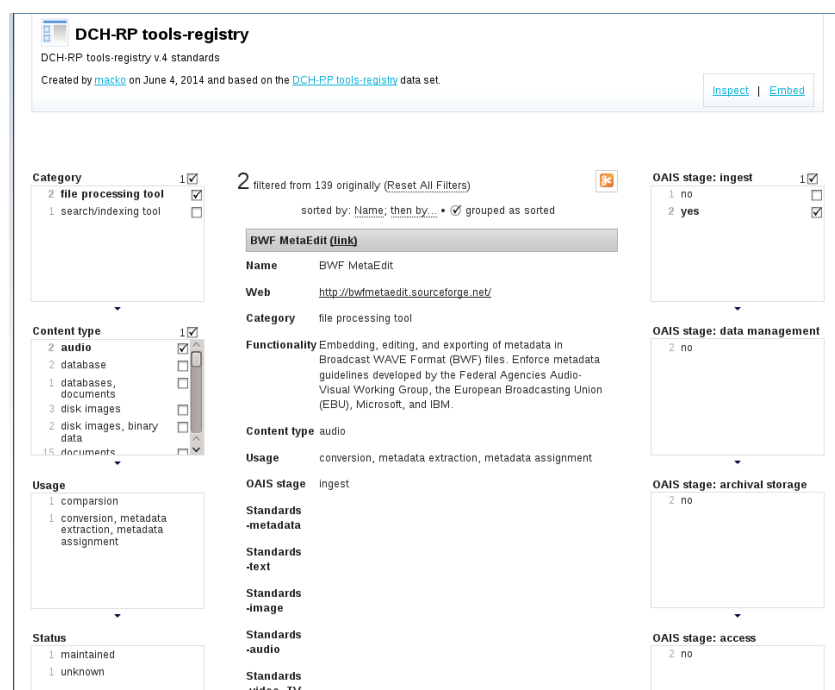
The DCH-RP Registry of Services and Tools

Whilst providing a broad overview of the existing solutions, the main focus is on analysing those services and tools that can enable cultural heritage institutions to benefit from the capacities of e-Infrastructures including storage and processing in cloud and grid systems.

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 assessment of relevance and the popularity (i.e. frequency of usage) of the tools. The concept of the Registry and in particular the assessment mechanism, has been "road tested" in conjunction with DCH-RP Proofs of Concept, drawn within project's work. Collaboration among DCHP-RP and APARSEN project has been established in order to coordinate registry building efforts.

Finally, DCH-RP investigated and analysed **different dimensions of the sustainability** that the roadmap has to tackle: the sustainability of the roadmap itself and the sustainability (political, financial, organisational, and technological) of the preservation infrastructure to which the roadmap leads.

For the sustainability of the roadmap and thus to ensure a clear direction, the roadmap needs an endpoint and should be maintained as long as this endpoint has not been reached.

For the sustainability of the preservation infrastructure, funding and opting for a pan-European solution appears to be a must. Broadly recognised and accepted standards are a basic part of the concept. It seems to be a commonly widespread opinion that digital preservation cannot be realized without funding at national and European level (storage, software, etc.). To get a sustainable preservation infrastructure there must also be willingness in the DCH community to cooperate at national as well as pan-European level. Otherwise the e-Infrastructure will get a too diffuse and shuttered costumer market and the roadmap will run the risk to remain an abstract document.

In the e-journal domain, the governance arrangement developed around e-journal preservation have generally been carefully designed to involve and keep on-board a variety of potentially competing interest, in order to achieve a shared common good that can be sustainable into the future.

In terms of **community building, dissemination and stakeholders consultation** several activities have been planned with a dedicated engagement strategy, using different formats and techniques: physical consultations during the meetings and events organized or participated by DCH-RP, surveys, interviews and discussion groups. The DCH-RP project gathered a large number of stakeholders, representing the different areas that are involved in the achievement of the DCH-RP objectives: e-Infrastructures, CH experts and Institutions, research infrastructures, European and national CH programmes, etc.

Also the private sector with a range of publishers has been engaged with a process of reaching out to organisations directly representing publishers at either a national or international level.

The establishment of a closer link with cluster projects and initiatives active in the same area (e.g. APARSEN, ARIADNE, DARIAH, CLARIN, CHAIN-REDS, EUDAT, SCAPE, SCIDIP-ES, SUCCEED, etc.) and the cooperation among different actors, has contributed to the establishment of a relevant network of multidisciplinary experts belonging to different sectors: the cultural sector, the digital humanities, the e-Infrastructure providers. This collaborative network of organisations, and individuals acts like a Forum, dedicated to the use of e-infrastructure services and facilities for the long-term preservation of digital cultural content. This large community represents the starting point to ensure the sustainability of the Roadmap.

In fact, the DCH-RP Roadmap cannot be considered as a final step. It has on the contrary to be considered as a living document that needs to be continuously maintained, updated and improved as time passes, technology changes, new requirements have to be taken into account, and so on. It is for these reasons that we decided to **create a dedicated web-space where it is possible to download the last version of the Roadmap**, but also where it is possible for everyone to provide feedback and comments. By the end of the project, the web-space is hosted as a section of the DCH-RP showcase in Digital meets Culture (http://www.digitalmeetsculture.net/heritage-showcases/dch-rp/dch-rp-roadmap-for-preservation). The partners are committed to continue the work on the Roadmap even after the end of the project period and in this framework they are discussing about creating a URL dedicated to the Roadmap to be maintained on a longer period.

4. Contacts and project website address

Project Coordinator: Rossella Caffo, Ministero dei beni e delle attività culturali e del turismo , Istituto Centrale per il Catalogo Unico delle Biblioteche italiane (ICCU), Viale Castro Pretorio, 105 – 00185 Roma, Italy. Ph: + 39 06 49210427. Fax: 39 06 4959302

Technical Coordinator: Antonella Fresa, Promoter s.r.l., Via Boccioni, 2 56037 Peccioli, Italy. Ph +39 0587 466881. Fax +39 0587 829666

Partners

1. Central Institute for the Union Catalogue of Italian Libraries and for Bibliographic Information (ICCU) – **Italy** - www.iccu.sbn.it
2. The National Archives (RA) – **Sweden** - www.riksarkivet.se
3. Belgian Federal Science Policy Office (BELSPO) – **Belgium** - www.belspo.be
4. Ministry of Culture, Republic of Estonia (EVKM) – **Estonia** - www.kul.ee
5. Collections Trust (CT) – **United Kingdom** - www.collectionstrust.org.uk
6. Promoter Srl (PROMOTER) – **Italy** – www.promoter.it
7. European Grid Initiative (EGI.eu) – **The Netherlands** - www.egi.eu
8. Italian National Institute of Nuclear and Particle Physics (INFN) – **Italy** - www.infn.it
9. Poznan Supercomputing and Networking Center (PSNC) – **Poland** - www.man.poznan.pl/online/en
10. National Information Infrastructure Development Institute (NIIFI) – **Hungary** - www.niif.hu/en
11. EDItEUR (EDITEUR) – **United Kingdom** - www.editeur.org
12. Trans-European Research and Education Networking Association (TERENA) – **The Netherlands** - www.terena.org
13. MICHAEL Culture Aisbl (MCA) – **Belgium** - www.michael-culture.org

Project website: www.dch-rp.eu

Showcase on Digitalmeetsculture: www.digitalmeetsculture.net/heritage-showcases/dch-rp

Email: info@dch-rp.eu