



# **Digital Cultural Heritage Roadmap for Preservation (DCH-RP): an Open Science Infrastructure for DCH**

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## Setting the Scene

- Digital preservation is (still) an area where workflows and easily applicable universal toolkits are not widely available, although the toolbox is constantly being topped up.
- Current solutions normally require adaptation
  - to the specific mandate of the individual cultural heritage institution,
  - its existing technological infrastructure, and
  - the competences of its staff.

## Setting the Scene

- The cultural heritage sector is producing a large volume of digital content that needs to be
  - safely stored,
  - permanently accessed, and
  - easily re-used over time by different end-user groups.
- A main challenge is also the complexity of the information itself.
- Today, digital preservation is done mainly in-house or “in-sectoral” (archives, museums, libraries)

# The DCH-RP project - a new approach

- General conclusion: cost could be reduced and interoperability enhanced by shared common procedures and work flows.
- The so-called ‘hard sciences’ are already demonstrating that research can advance its capability by the use of e-Infrastructures:
  - High speed connections
  - Shared computing
  - Storage resources
  - Sophisticated authentication
  - Authorisation mechanisms
  - Etc.

# The DCH-RP project - a new approach

- Basic assumptions:
  - existing e-Infrastructures for research and academia (including NREN, NGI and other data infrastructures) could be efficient channels also for the delivery of advanced digital preservation services to the cultural heritage sector.
  - it will be possible to establish common policies, processes and protocols allowing cultural heritage organisations to use services provided by e-Infrastructures, despite the fact that NRENs and NGIs are national entities, often with different policies and procedures for access and usage.

# The DCH-RP project - a new approach

- This new the approach of DCH-RP was born in the EU financed project DC-NET that identified digital preservation as the first priority service to be deployed on the e-Infrastructures.
- To get an understanding of the magnitude of the situation, an initial survey of existing digital preservation tools and services was commissioned by DC-NET.
- The need to address the situation and to offer concrete and robust support to cultural heritage institutions efforts in digital preservation was also identified by its sister-project the former INDICATE project.
- Therefore, the DCH-RP project can be seen as a logical follow-up of both the INDICATE and DC-NET projects.

# The DCH-RP project - a new approach

- The main concept of DCH-RP is
  - to understand the needs of the DCH sector concerning digital preservation,
  - to study what is available – in terms of services, technologies, policies, programmes, skills, networks,
  - to identify the resources that the e-Infrastructures can make available to serve the DCH sector.

On the basis of these results, develop a roadmap for implementing a preservation infrastructure for digital cultural heritage



# The DCH-RP project - a new approach

- This roadmap has to be coherent and realistic in order to
  - help policy makers and programme owners to plan ahead
  - and also assist managerial teams of cultural heritage institutions to take decisions related to digital preservation.

## The DCH-RP project - a new approach

- Focus of the Roadmap: distributed digital preservation services for digital cultural heritage collections and holdings.
- The roadmap should also define an action plan with a realistic timeframe for the implementation of its stages (short term, medium term and long term)
- DCH-RP project has last for two years, from October 2012 until September 2014

# The Roadmap

- The “map” in the roadmap draws the landscape of digital preservation for the DCH sector based on the current situation, but needs also to take into account how the situation will change in the future.
- Much depends on the maturity of both the preservation process in the DCH sector and the preservation services available from the e-Infrastructures.
- Preservation and access needs to have a dynamic approach.
- It is important that the preservation process does not remain only a post-production task.

# The Roadmap

- Most cultural heritage institutions have in-house solutions for handling their digital objects.
- When comparing in-house digital preservation with distributed e-Infrastructure services, it is inevitable that some discrepancies will appear, such as incompatibility of purposes or scope, lack of technical or semantic interoperability, reliance on different standards, and jurisdictional and legal barriers, etc.
- Therefore, the DCH-RP roadmap has a focus on what to do and on the usability of services and technologies.

# The Roadmap

- The “road” in the roadmap points to an action plan, and actions are needed in a number of areas:
    - tools, services, authentication, trust, governance models, user requirements, funding models and business models, skills / training / awareness.
- It goes without saying, that many of these areas are relevant not only for digital preservation but exist also in other domains.
- DCH data is also research data and many challenges are shared with the research sector.

# The Roadmap

## Supporting actions

In DCH-RP best practices have been surveyed and studied in three main areas:

- Trust building, as a pre-requisite for any change in the existing organisation of digital preservation at memory institutions.
- Authentication and authorization, as tools contributing to the trust building process.
- Engagement with the private sector, as a 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.

# The Roadmap

## Supporting actions

- Building a network of common interest towards a durable cooperation
- Identify services that already exist, to map them against the most used standards in the DCH sector and to develop a Registry of Services to be offered to the DCH community as a practical resource. The Registry of Service is conceived as a living resource, where users are encouraged to contribute with comments, remarks and suggestions for improvement.
- Conduct practical experiments (proofs of concept) in the project partners' countries
- Broad dissemination of the topic
- International cooperation

# The Roadmap

First result: The Intermediate Roadmap





# The Roadmap

## The intermediate roadmap

- Main objective: provide a first description of what the roadmap could look like.
- Targets primarily two main communities: cultural heritage institutions and e-Infrastructure already including digital archiving functions in their preservation programmes
- Enormous feed back (meetings, workshops, surveys etc)

# The Roadmap

## Some lessons learned from the Intermediate Roadmap

- When summarising the work on the DCH-RP projects road map, so far, the use of e-Infrastructure in meeting the demands on digital preservation looked promising (and still does)!
- A ground breaking part of the concept is the possibilities to customise the services provided by e-Infrastructure, i.e. tailoring the service portfolio and characteristics to the actual preservation tasks and requirements. The general conclusion must be that the market for distributed digital preservation services is still in its infancy.
- Important is the level of maturity in the DCH sector to handle distributed digital preservation solutions. E-Infrastructures can reach their maximum potential in serving the DCH preservation practice only if the DCH sector is prepared to exploit the opportunities of the e-Infrastructure.

This is obviously not the case today.

# The Roadmap

Second result: The Final version of the Roadmap



# The Roadmap

The final version of the Roadmap

- sets the scene by describing strategies, models and methods for digital preservation and identifying main challenges
- gives a report of identified **services to address**
- describes the **digital preservation landscape (“the map”)**, concentrated on how to meet stakeholder needs; this leads in the next stage to the selection of the main components of the roadmap;
- identify an **action plan (“the road”)** with challenges and advantages to target (establishing a value chain) and practical actions to take up short-, mid-, and long-term
- summarises the results in condensed versions

# Short term (2014 – 2015)

## Step 1: Where are we now and where do we want to get to?

Before starting planning for the use of distributed digital preservation solutions, there are some basic considerations:

→ Agree on a vision - what will distributed digital preservation look like?

→ Decide about challenges to target

→ Have a clear understanding of advantages to explore

## Step 2: Take actions in identified major areas of the roadmap

### Harmonise data storage and preservation

- Define critical system requirements (general and specific) – understand and articulate your requirements
- Choose a suitable AA control system
- Look into IaaS

### Improve interoperability

- Review best practice and how-to guides (avoid inventing the wheel again)
- Consider aspects of internal interoperability to avoid building digital silos within the organisation – set up a mandate

### Establish conditions for cross-sector integration

- Decide about standards to use and look into available tools for guidance
- Use the DCH-RP registry of preservation tools to find what suits your organisation best

### Establish a governance model for infrastructure integration

- Decide about a
- General governance model
  - Trust model
  - Business model

## Step 3: Choose services to address

Decide about addressing services according to:

- Functional areas
- Services types and objects
- Type of architecture
- Level of maturity
- License conditions

## Mid term (2016 – 2017)

### Step 1: Where are we in 2 years from now and which is are next steps

Summarise priorities, decisions and considerations made during the short-term stage into a Preservation as a Service (*PraaS*) adjusted to conditions and needs of the institution in mind.

### Step 2: Take further actions in identified major areas of the Roadmap

#### Harmonise data storage and preservation

- Transform the *PraaS* into solid technical solutions
- Test these technical solutions in DCH environment with focus on the following parameters:
  - Long-term storage, bit-level preservation
  - Multiple entry points
  - Operational benefits
  - VRE development
  - Support framework
  - Middleware services
  - Authentication and authorisation infrastructure
- Investigate possibilities for sharing technical solutions with other services.

#### Improve interoperability

- Develop and test tools facilitating interoperability addressing the following aspects:
  - Technical
  - Semantic
- Decide about what to preserve.

#### Establish conditions for cross-sector integration

- Fill in gaps in cross-sector integration according to needs identified at the end of the short-term stage.
- Introduce a programme for raising awareness about distributed digital preservation targeting different stakeholders like owners and managers of digital collections and holdings and their staff as well as policymakers

#### Governance models for infrastructure integration

- Make solid analysis of needs for redesign of existing internal infrastructure in order to get I effectively integrated with solutions for distributed digital preservation services
- Define a set of governance principles for digital preservation in DCH aiming at *e-infrastructure* integration

### Step 3: Plan for work during the long-term stage

# Long term (2018 and beyond)

## TAKE FURTHER ACTIONS IN IDENTIFIED MAJOR AREAS OF THE ROADMAP

### Harmonise data storage and preservation

Consolidate mature requirements for preservation in the DCH environment

### Improve interoperability

Implement tools, developed and tested in earlier stages, in selected e-Infrastructures facilitating interoperability aspects in the technical and semantic field.

### Establish conditions for cross-sector integration

Fill in remaining gaps in cross-sector integration according to needs identified in earlier stages.

### Governance models for infrastructure integration

Offer mature business model for preservation services for different types of institutional settings

# The Roadmap

## From an intermediate version to a final version

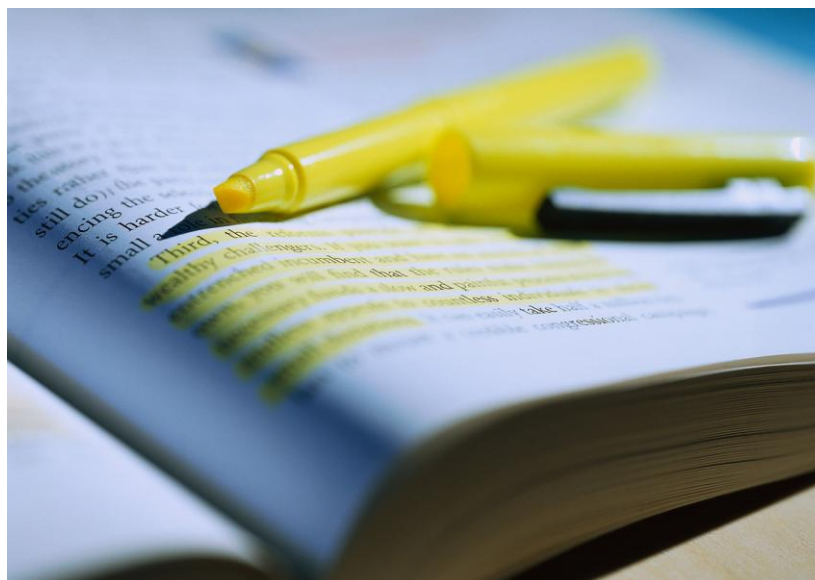
After additional inputs from the rest of the project, and from surveys, conferences, proofs of concept - the Roadmap will be finalised by the end of September 2014.





# The Roadmap

How will it be presented?



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