Digital Preservation in the ICT Work Programme 2011-2012
Background notes

This document describes four drivers for research that were translated into work programme outcomes. It is intended as background information and not part of the official Call documents package. All examples are purely illustrative, non-binding and non-exhaustive. In any event, the only authoritative source is the text of the work programme: ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/ict-wp-2011-12_en.pdf

1) The increasing dependency on digital resources

Digital resources are an essential asset in a large range of businesses and organisations, representing knowledge, investments and sources for future revenues. With the increasing dependency on digital resources also **the risks of losing digital resources** become more pressing. This can take on the form of financial risks (value of content or systems endangered), legal risks (compliance to preserve, e.g. financial records) or risks of losing knowledge and resources needed to create new knowledge.
Moreover, with the shift to paper-less work places (e.g. electronic signatures), the quantity of digital content with a legal obligation to preserve it, is rising rapidly. But many organisations, required to comply with regulations on ethics, accountability, transparency, might be reluctant to discontinue their paper archives as long as they cannot fully trust their digital records and processes. It is today a common experience that digital resources can easily get lost and that files or applications can become unusable, due to technology change, technical problems or human errors. This means, the adoption of an efficient digital knowledge society is being slowed by the lack of **trusted and dependable solutions that guarantee authenticity and integrity of our digital records over time**.

The first target outcome in the work programme is therefore "**more reliable and secure preservation technologies and methods**".

2) Long-term usability

The escalating amount of digital resources, not least due to the increase of machine-generated content and user-generated content, requires efficient approaches to the selection of what to store and preserve and for which (re-)use contexts.
Today, **new technologies for describing information** are available which go far beyond metadata in the traditional sense: data mining, semantic annotation, tools for automatic summarising, filtering, authentication, tracking re-use in various contexts etc.. Preservation strategies don't yet fully benefit from these possibilities **"to make content intelligent".** This would open new opportunities for more efficient selection and for preserving information that is not only accessible, but also meaningful – shifting the concept of long-term storage to **long-term usability**. Aiming at information that is understandable and usable over time would include dealing with **evolving semantics, use contexts and interpretations**.

This has led us to the second target outcome in the work programme, "**Technologies and systems for intelligent management of preservation**".

3) Restructuring of the digital preservation research landscape: multidisciplinary research

Digital preservation is an IT-created problem and **requires IT solutions**. However, the challenge is a complex one, **with multiple dimensions.** Therefore, the development and deployment of novel IT solutions have to be situated in the context of many other issues and questions, for example:

- Historical and social: Not least the “Internet Revolution” in the Middle East has made it clear that history is no longer written in policy speeches and newspapers. What defines the societal memory today? Is it more than the sum of millions of individual text messages? How can it be preserved for future generations? Who should be responsible for this and bear the costs?

- Legal and ethical issues: Is it allowed to preserve confidential information from businesses or private persons? Under which conditions?
- ...

These or similar questions emerge as (side-)topics in research projects and in the scientific discussion. The digital preservation research community is well aware of the need to deal also with the many non-technical issues. A means to support this, could be to reshape or reorganise the research landscape by building **new cross-disciplinary teams,** combining expertise in technology development and **information sciences in a broad sense.** Over the years, the core competency in digital preservation has been built up within archival and library research, but knowledge and approaches stemming from other domains might provide valuable contributions and open new perspectives.

Some disciplines that could provide input are:

- *Computer science*
- *Humanities* (cultural, historical, social dimensions of understanding information over time): We need to ensure that future technology solutions for preservation are grounded in the understanding which past and present knowledge we need to keep for the future. What strategies could be used for preserving individual and/or collective memories?
- *Cognitive science, memory research*: What and how do we memorise and how do we retrieve it? Could human memory research provide models for digital preservation?
- ...

Another aspect of the multidisciplinarity issue is to address the **needs of end users.** In this context, besides technical expertise, input from domains such as the following would be useful:

- *Economics* (business models, cost & benefits analysis): What does digital preservation cost, or how much effort should reasonably be spent on it to make it economically sustainable?
- Expertise in *legal and ethical issues and digital rights management*: How can we assure that preservation actions do not get into conflict with copyright provisions or access limitations? How can privacy or access restrictions be preserved?

This summarises the reasoning behind target outcome 3, "**Interdisciplinary research networks** bridging technological domains and scientific disciplines concerned with information, and expertise in end-user needs".

4) Uptake of digital preservation research outcomes

From a problem faced by archives and libraries, digital preservation has become an issue in all domains relying digital data – administrations, industry, research... As the awareness of the value of digital resources and of their fragility is growing, digital preservation technologies and services have an **increasing market potential**.
The wider adoption of research results by the supply-industry and by end-users is primarily hampered by **organisational barriers combined with technological gaps**. Problem areas in this context are preservation policies and strategies in organisations; the suitability of solutions for the specific needs of an organisation and its particular digital content; the affordability, scalability and interoperability of systems and tools.

These issues build the rationale for the last target outcome of the work programme: "**Promotion schemes for the uptake of digital preservation research outcomes**".

Finally, we also call for road mapping activities, in order to generate input from digital preservation stakeholders for the **future research and innovation agenda.**