



**The Framework Programme for Research & Innovation  
Research and Innovation actions (RIA)**

*Project Title:*

**Multimodal Scanning of Cultural Heritage Assets for their multilayered digitization and preventive conservation via spatiotemporal 4D Reconstruction and 3D Printing**



## Scan4Reco

Grant Agreement No: 665091

[H2020-REFLECTIVE-7-2014] Advanced 3D modelling for accessing and understanding European cultural assets

### Deliverable

#### D1.3. Ethical Issues Manual

Deliverable No.		<b>D1.3</b>	
Workpackage No.	<b>WP1</b>	Workpackage Title and task type	<b>Project management</b>
Task No.	<b>T1.3</b>	Task Title	<b>Management of Data, Knowledge and Intellectual Property Rights Issues</b>
Lead beneficiary		<b>OF-ADC</b>	
Dissemination level		<b>PU – Public</b>	
Nature of Deliverable		<b>Report</b>	
Delivery date		<b>29 February 2016</b>	
Status		<b>F: final;</b>	
File Name:		<b>[Scan4Reco] Deliverable 1.3.doc</b>	
Project start date, duration		<b>01 October 2015, 36 Months</b>	



This project has received funding from the European Union's Horizon 2020 Research and innovation programme under Grant Agreement n°665091

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<b>Document history</b>			
<b>Version</b>	<b>Date</b>	<b>Status</b>	<b>Modifications made by</b>
<b>1.0</b>	21/02/2016	Draft	G. Apostolidis
<b>2.0</b>	25/02/2016	Draft	M. Galeoti
<b>3.0</b>	25/02/2016	Draft	A. Drosou
<b>final</b>	29/02/2016	Final	S. Reppou

## List of definitions & abbreviations

Abbreviation	Definition
IPR	Intellectual Property Rights
CH	Cultural Heritage
CHO	Cultural heritage Object
UNESCO	United Nations Educational, Scientific And Cultural Organization

## Executive Summary

This Deliverable defines the Ethical Issues Rules on which SCAN4RECO project will respect related to the treatment of the objects while the actions of the project will take place and the management of the Intellectual Property Rights issues. The deliverable focuses on the legislations and guidelines which govern the protection of the Cultural Heritage Objects and specifically those ruling the digitisation procedures of CHOs for the SCAN4RECO.

The ethical code will be followed by all partners during the project and ensure the ethical dimension of SCAN4RECO according to the international laws and guidelines referred in this document. Cultural Heritage (tangible and intangible) is governed by international cultural law affecting the varied interests of academics, policy-makers, museums' curators and collectors, human rights activists and investment lawyers, artists and economists, just to mention a few. In SCAN4RECO, the digitization of cultural heritage objects is going to meet all the legal criteria and official policies with respect to global rules and international guidelines.

SCAN4RECO will function according to the laws and contracts governed by UNESCO and ICROM related to the safeguard and documentation of movable and immovable cultural heritage objects and monuments through the obligation of each member state for the protection, safeguard, diagnosis, documentation and finally conservation of the cultural heritage objects. This is not only for the safeguard purposes but also for the transfer to the next generations; and through documentation to the reveal of the hidden beauty of the art objects gained through the years and thus the assimilation of its carrying culture and its transfer to the next generations; in other ways creating a new heritage in line to the old one and with the added value of the new achievements.

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## 1. Introduction

The purpose of this deliverable, (D1.3, Ethical Issues Manual) is to describe the ethical issues constraints and Intellectual Property Rights (IPR) which govern the handling of cultural heritage objects and specifically those concerning the digitization and documentation of cultural heritage objects in Scan4Reco.

In particular, the existing legislations and guidelines from public authorities including those participating as users in the Scan4reco project are going to be described as well as the best practices that the project's users should follow to ensure:

- the safety of the objects
- the data suitability for sharing and reuse the extracted knowledge.

European Directives for Cultural Heritage, National and International Acts for the protection of Cultural Heritage and national laws and guidelines are going to be described and projected to the demands of Scan4Reco.

Cultural heritage is defined by UNESCO “as the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations” [2]. It can be divided into tangible heritage which includes buildings, monuments, artifacts, etc and intangible which refers to oral traditions, rituals, festive events and many more.

The tangible cultural heritage, in terms of law and policy, refers mostly to the physical substance of the cultural heritage objects. This is important not only for the object's identification but also for the management of the object and the monitoring of the object when it has to be moved for preservation or digitization and other reasons. The rules that should govern the procedure of digitization are going to be analyzed here as well as the copyright laws for creating highly accurate digital surrogates of Cultural Heritage Objects.

In addition, this deliverable is going to describe the ways that the extracted knowledge should be shared with the research community and the public, taking into account the protection of this knowledge (patents, applications etc.). A short description of the data management is included referring mostly to Deliverable 1.4 which will describe this topic in detail. Finally, the Scan4Reco code of ethics that should be followed by all partners will be formulated and presented.

### 1.1 Scan4Reco ethical issues vision

Since Cultural Heritage is our common memory as human beings, one of our concerns should be the cultivation of the current and next generations which is indeed the meaning of all the referred laws and guidelines in this document, by fostering consciousness of our **culture**. On the other hand, in the era of technological development, our endeavors should also focus to the cultivation of the next generation towards the **cultivated** use of **technology**. The terms “**technology**” and “**culture**” may seem unrelated to each other. However, from a philosophical point of view, this is not the case: It is not by chance that “**Technology**” is a Greek work synthesized by the term “**Τέχνη**”, which has the meaning of “**Art**” but also the “**craft creation**”, and the term “**Λόγος**” (“**Logos**”), which has many deep meanings in Greek, such as the meaning of the “speech”, of the “argument”, of “logic”, of the “background thought” and finally the “wisdom”. So, “**technology**” is “**thinking, talking, arguing about art and finally safeguarding art and culture**”.

Semantically thinking the case of this project which is the analytical NDT documentation of multi-layered cultural heritage structures through the use of a different kind of radiations applied to the art objects (methods) with state of the art prototypes for tomographic,



“depth-resolved” materials identification; non-destructive analysis providing the endoscopic diagnosis of the objects meeting the needs for the deep knowledge of our culture and thus the creation of new cultural richness according to the sense of the laws and guidelines of UNESCO as referred already. So the core ethical rules that can be studied in the referred laws and guidelines of this document also exist in the semantic meaning and approach of this project implementation.

Finally, by using endoscopic actually techniques we are exploring the deepest secrets-of the art object like the self-consciousness (Socrates: «γνώθι σαυτόν») and the beauties of art object like the craft creation and consequently based on these experiences we definitely are creating new ways of art creation for the next generations, according to the Platonic saying (Philosophy means Praxis, «Φιλοσοφία ἐστὶ πράξις»)...) [3], [4].

The practical approach which is actually a philosophical one for this project is implemented according to the above mentioned visions being on track of the core meaning of the ethical issues that our culture (via the international organisations like UNESCO and its member states) have orientated the previous years. Based on the deliverable 1.1 and the decoding of the project’s objectives in this document we can assume that each objective is pervaded from the main afore expressed ethical treatment of cultural heritage objects:

Objectives	Implementation of the international demanding related ethical issues
<p>...to provide an non-destructive, integrated, portable solution based on a modular architecture, for accurate (i.e. via a dedicated motorized mechanical arm) multi-sensorial 3D scanning and efficient automatic digitization of a big variety of cultural/heritage assets even in situ, supporting among others material identification and both surface and volumetric diagnosis.</p>	<p>Creation with art - craft creation – creation with «τέχνη» (techne) respecting the non-destructiveness of the objects. (Ethical Issue: Preserving, Safeguarding our cultural heritage)</p> <p>Endoscopic analysis revealing the hidden beauty of the art objects and the technology used for their creation (ethical issue: Safeguarding our cultural heritage)</p>
<p>...to apply a hierarchical approach for 3D reconstruction of the object via the successive collection and utilization of the multi-sensorial data in an order of increasing resolution and infiltration factor, making thus, possible, to render the object in a multi-layered way, so as to facilitate its deployment in analysis and 3D printing procedures ...to create high precision and realistic digital surrogates of the cultural assets by also providing detailed insight regarding both the surface but also the volumetric structure, material composition and shape and structure of the underlying materials, so as to render them visible to the unaided eye either via occlusion capable visualization techniques or via transparent multi-material 3D printing.</p>	<p><i>Creating new ways to assimilate our cultural heritage hidden reserve ...</i></p> <p>(ethical issue: Safeguarding our cultural heritage, Revealing the old technologies, revealing the common memory of our civilization...)</p>
<p>...to spatiotemporally (4D) simulate uni-material models individually based on certain environmental phenomenon modeling (i.e. context-dependent), so as to collectively render imminent</p>	<p>Creating new ways to assimilate our cultural heritage hidden self-consciousness ...</p> <p>(ethical issue: Creating new cultural heritage reserve for</p>

<p>degradation effects on the multi-material cultural objects in an attempt to predict and to recreate the appearance of the cultural object in specific times in the future or even to perform reverse engineering so as to achieve the automatic restoration, reaching even back to its original shape.</p> <p>...to indicate, the invisible to an unaided eye, spots/segments of the cultural object that are in eminent conservation need and require special care, while to simultaneously provide suggestions by a dedicated Decision Support System (DSS), regarding the most appropriate conservation method that should be followed, in the most comprehensive and analytic way to the conservator via enhanced interactive visualization methods, for both gaining from human intelligence and allowing metadata collection/updating</p>	<p>the next generations)</p> <p>Simulation of the degradation effects and thus optimally conserve – restore the cultural heritage objects ...</p> <p>(Ethical issue: Restoring in an optimal way the art objects and monuments...)</p>
<p>...to validate the aforementioned actions on real case scenarios involving heterogeneous objects of various sizes and materials, as well as to identify probable research challenges for the future</p>	<p>Cultural heritage – Philosophy means Praxis</p> <p>Ethical issue: Live presentation of the assimilated knowledge as every day praxis ... this is the modern approach for the Museum’s collections ...)</p>
<p>...to enhance the accessibility of the digitized cultural objects (along with the outcomes of the project) to both the scientific community, the field experts and the general public via the development of a virtual model of a museum where all scanned artifacts will be virtually exposed</p>	<p>Reflect to the society and the next generations the achievements of the past (heritage) and create new cultural richness not only as replicas and as a living knowledge assimilated through the philosophical approach expressed in our research actions...</p> <p>Ethical issue: Transfer the heritage to the next generations ...)</p>

## 1.2 Cultural Heritage and Cultural Heritage Object Digitization

*“The Community shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore.” Treaty of European Union [5].*

According to the Treaty of European Union (Article 128), culture is one of the priority aims for the European Union, encouraging Member States:

- to improve the knowledge and dissemination of their culture and history
- conserve and safeguard cultural heritage
- Proceed to non-commercial cultural exchanges
- Advance artistic and literary creation, including in the audiovisual sector

During the last decades, internet and digitisation make it simple for the communities to reach Cultural Heritage Objects online, in a comprehensive and easy to use format. Many institutions around the world present their collection to the public in a virtual online mode. By presenting online their collections they enable community to acquire a view of their collections and in some cases intrigue them to visit in situ.

European Commission urged its Member States to proceed to an updated set of measures for digitising and bringing cultural heritage online (**Commission Recommendation, 2011/711/EU, ANNEX I**). Through digitisation and digital preservation, Europe projects its cultural heritage and maintains its place as a leading international player in the field of culture and creative content. [6]

## 2. Intellectual Property Issues for Cultural Heritage Objects

Intellectual Property Rights (IPR) stands for the collection of creative and innovative ideas or products produced by people. The most relevant to digital content rights are the copyright, trademarks, patents, database Rights and Performance Rights.

Internet and digitization, as well as the globally access of any material has put IPR under question. National legislation and guidelines did not necessarily provide satisfactory protection. Instead, a need for developing global IPR standards was inevitable and obvious.

The most important international treaties for IPR include:

- **The Berne Convention**, administered by the World Intellectual Property Organization (WIPO) that deals with the protection of works and the rights of their authors [7].
- **The Universal Copyright Convention (UCC)**, developed by UNESCO as an alternative to the Berne Convention for those states wishing to participate in copyright protection policies but disagree with aspects of the Berne Convention [8].
- **The TRIPS Agreement** (Trade Related Intellectual Property Rights) which is Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, Morocco on 15 April 1994 [9].

Regarding the Cultural Heritage digitization and the global access to these materials and information, many concerns for the lack of adequate legal protection have raised and led to a number of, legislations, policies and guidelines that are shortly described below:

### The Maastricht Treaty of European Union (Article 128)

*Article 128 was first introduced by the Treaty on the European Union, Official Journal C 191, 29 July 1992. Article 128 became article 151 after the Amsterdam Treaty (1997) due to re-numbering, and article 167 after the Lisbon Treaty (2007).*

The Maastricht Treaty was the first legal document to establish clear competences in the field of culture through the inclusion of article 128. Article 128, considered as the first genuine attempt for cultural policy in European level, emphasises on culture and the priority given by European Union to its preservation and dissemination.

### The Directive 93/7/EEC

Council Directive 93/7/EEC of 15 March 1993 on the return of cultural objects unlawfully removed from the territory of a Member State OJ L 74, 27.3.1993, p. 74–79.

The Directive 93/7/EEC states that any object categorised as a part of the national treasures with artistic, historical and archaeological value, is a “cultural object” dependable to the national legislations. Moreover, as a cultural object can be perceived any object listed in the

inventories of museums, archives or libraries' conservation collections as well as the inventories of ecclesiastical institutions [10], [11].

### **Council Regulation (EC) No 116/2009**

**Council Regulation (EC) No 116/2009** of 18 December 2008 on the export of cultural goods, entered into force 2 March 2009, OJ L 39 of 10.2.2009 of 18 December 2008 on the export of cultural goods, entered into force 2 March 2009, OJ L 39 of 10.2.2009, that repeals **Council Regulation (EEC) No 3911/92 of 9 December 1992 on the export of cultural goods:**

In order to ensure that exports of cultural goods are subject to uniform checks, this Regulation makes the presentation of an export licence compulsory for their export outside the customs territory of the Community.

### **CETS No.018 / European Cultural Convention**

Treaty open for signature by the member States and for accession by European States which are not member States (<http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/018>)

The purpose of this Convention is to develop mutual understanding among the peoples of Europe and reciprocal appreciation of their cultural diversity, to safeguard European culture, to promote national contributions to Europe's common cultural heritage respecting the same fundamental values and to encourage in particular the study of the languages, history and civilisation of the Parties to the Convention. The Convention contributes to concerted action by encouraging cultural activities of European interest.

### **CETS No.019 / European Convention on Offences relating to Cultural Property, (Delphi, 23/06/1985 - Treaty open for signature by the member States and for accession by non-member States)**

(<http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/119>)

Based on the concept of common responsibility and solidarity in the protection of European cultural heritage, the Convention aims to protect cultural property against criminal activities. To achieve this objective the Parties undertake to enhance public awareness of the need for protection, to co-operate in the prevention of offences against cultural property, to acknowledge the seriousness of such offences and to provide for adequate sanctions or measures with a view to co-operating in the prevention of offences relating to cultural property and in the discovery of cultural property removed.

### **CETS No.121 / Convention for the Protection of the Architectural Heritage of Europe (London, 1969, revised in Valetta 1992)**

(<http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/121>)

The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties. It establishes the principles of "European co-ordination of conservation policies" including consultations regarding the thrust of the policies to be implemented.

### **CETS No.199 / Council of Europe Framework Convention on the Value of Cultural Heritage for Society (Faro, 2005)**

(<http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/199>)

This Convention is based on the idea that knowledge and use of heritage form part of the citizen's right to participate in cultural life as defined in the Universal Declaration of Human Rights. The text of the Convention presents heritage both as a resource for human development, the enhancement of cultural diversity and the promotion of intercultural dialogue, and as part of an economic development model based on the principles of sustainable resource use.

### **The Code of conduct (Revised edition, October 2013)\_by-laws of the Institute for Archaeologists (ClfA).**

The Code of conduct was formally ratified and adopted as a by-law of the Institute at the Annual General Meeting held on 3 June 1985. This revised edition incorporates amendments to the by-law approved at Annual General Meetings of the Institute held on 12 September 1988, 17 September 1993, 14 October 1994, 22 September 1995, 11 September 1996, 10 September 1997, 7 September 2000, 5 September 2002, 2 October 2006, 1 October 2007, 15 October 2008, 12 October 2009, 14 April 2010 (EGM), 8 October 2012 and 7 October 2013).

"The object of the Code is to promote those standards of conduct and self-discipline required of a member in the interests of the public and in the pursuit of the study and care of the physical evidence of the human past... The fuller understanding of our past provided by archaeology is part of society's common heritage and it should be available to everyone".

### **Standard and guidance for the collection, documentation, conservation and research of archaeological materials**

*"Collection, documentation, conservation and research of archaeological materials (hereafter finds work) will result in an ordered, stable, accessible archive using appropriate methods and practices. Finds work will result in report(s) intended for dissemination. The methods and practices employed must satisfy the stated aims of any project of which finds work comprises all or part, and comply with the Code of conduct, and other relevant regulations of Chartered Institute for Archeologists (ClfA)"<sup>1</sup>*

### **Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives.**

Standard and Guidance for the collection, documentation, conservation and research of archaeological materials. Such materials include all archaeologically recovered artifacts, building materials, industrial residues, environmental material, and decay products.

**The orphan works Directive**, adopted in 2012, will help in digitising and bringing cultural content online, particularly important for certain types of old in-copyright works such as film or audio visual heritage. Its effects will however only be felt after the transposition deadline in October 2014. Legal backing of licensing solutions for the large-scale digitisation and cross-border accessibility of out-of-commerce works, called upon by the Recommendation, remains an exception rather than the rule. However, encouraging progress was noticed in a number of countries, such as the legally-backed collective licensing solutions for wide-scale digitization of out-of-commerce books launched in France and Germany.

## **2.1 Intellectual Property Rights impact on CH digitation**

**Intellectual Property Rights** impact on CH digitation projects at two key points:

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<sup>1</sup> <http://www.archaeologists.net/codes/ifa>

- Permission from right-holders to acquire data, digitise and publish must be obtained. This permission rule is referred to as rights clearance.
- The rights of right-holders and of the data holders must be secured during the process of publication of the achieved results and the digital material.

The players in any CH digitation project are the institutions which hold the cultural material (in this case museums and churches), digitise it and publish it (in this case, the Scan4Reco partnership).

The key points are the following:

- digitisation is a form of reproduction that is subject to copyright restrictions;
- online and traditional publication entails a reproduction and subsequent diffusion of digitised copyrighted content that copyright law reserves to the copyright owner;
- The permission of the rights owner must be secured before such material is digitised or made available by publication.

The third player is the end user, who accesses the published material over the internet. Once in possession of the digital material, the user can re-use in a large number of ways. The manner in which it may be legally re-used must be clearly stated by the SCAN4RECO consortium who must have agreed this use policy in advance with the rights owner.

SCAN4RECO consortium will look primarily at the national legal codes to find out the copyright rules applicable to acts that they intend to perform with copyrighted works.

### **3. Intellectual Property Issues for SCAN4RECO**

A fundamental first step for SCAN4RECO is to ensure that the museum or collection or church where the heritage object is kept gives authorisation to measure, duplicate (digitise) items and to publish and distribute the achievements either online and in traditional journals. If items are expected to be free of copyright restrictions, this must be verified. The rights status of items will be an important factor in the selection of which items to digitise and publish online.

In order to gain permission, the consortium will state the purpose of the project, the manner in which the item will be used, the duration of use and the intended target. This information will enable the rights holder to assess the commercial or other impact of granting permission. The project should have the rights holder sign a licence agreement for the use of the item by the project. This should state any restrictions over the manner of use of the item, so that there is no potential for subsequent conflict.

It is likely that the rights holder will place constraints on the manner of publication of the item, so that it has minimal impact on the commercial or other potential of the item. For example, it may be necessary to restrict the resolution of images, or to place a large watermark on the image. The rights holder may also wish to review the terms of use of the project website, so that the rules governing the end users are clear. Projects may offer several technology options to rights holders, in order to gain permission for the most beneficial end product for the users. For example, if high resolution images are not to be published, a 'zooming' version of the images may be allowed, which enables users to view portions of the image in high resolution, without any access to a high-resolution image. All agreements must be carefully preserved.

Results achieved within the project by measuring CH objects are owned by the consortium's partner that generates them. In case of joint ownership of results in this project, partners' shares of ownership shall be proportional to the intellectual contribution invested in generating that specific result. Each of the results owners shall be entitled to use their results for non-commercial purposes, including research or educational activities on a royalty-free basis, with the prior information to the rights-owner.

### **3.1 Digitisation according to the Recommendation 2011/711/EU**

SCAN4RECO will develop a novel portable, integrated and modular solution for customised and cost-effective, automatic digitization and analysis of cultural heritage objects. To validate the above, two (2) real world pilots are planned. One will take place in Italy and one in Greece.

The current digitization status in these two countries can be found in <https://ec.europa.eu/digital-agenda/en/digitisation-digital-preservation> and summarised below:

- 1 **Italy:** The digitisation activities of the Italian libraries depending on the Ministry of Cultural Heritage, Activities and Tourism (MiBACT) plan the digitisation activities on the basis of the yearly budget and special funding.
- 2 **Greece:** Digitisation of cultural material was planned under the National Programme for Digital Convergence 2007-2013 (financed with Structural Funds). Many projects for digitisation and annotation of the cultural heritage have been implemented by small, medium or larger cultural organisations, museums, archives, institutions, all over Greece.

### **3.2 Legislations and guidelines for SCAN4RECO**

SCAN4RECO will work in accordance with all the aforementioned legislation and guidelines described in chapter 2 (Intellectual Property Issues for Cultural Heritage Objects). Additionally to the above, SCAN4RECO is going to elaborate all available ethical formulations including art. 95 and 151 of the EU treaty:

**Art. 95:** Cultural considerations are recognised in the EU Treaty and in the practice of the EU-Court as legitimate reasons for trade restrictive measures in areas not regulated by directives. Article 95 opens for member states to have other rules than those that follow from a directive, where this is necessary to preserve for example national treasures of (amongst others) historic values. This article states the right of member states to have other rules for the cultural heritage area that the rules governing the (policy) areas in which the EU has competencies.

SCAN4RECO is going to collaborate with museums and ecclesiastical organizations for testing the portable, integrated and modular tool which is going to be developed for the automatic digitization and analysis of cultural heritage objects. These institutions run under the European and national laws for the protection of CH but still there are some rules deriving from their organizational structure. For example in the case of byzantine icons there are strong views by the stakeholders (orthodox institutions) on the intervention procedures; there are religious and ecclesiastical rules with emphasis to the “sacred nature” of the icon that govern the handling of these icons with respect regarding their safety and conservation.

**Art. 151:** The art. 151 of the EU Treaty calls for the “flowering” of cultures and encourages member states to collaborate on improving the knowledge and dissemination of the CH focusing on its conservation and protection. This article gives the EU the right to initiate supportive measures to cultural heritage. It does not grant the EU the considerations or provisions for cultural heritage in any EU directive.

SCAN4RECO is aiming towards this direction of promoting the CH of European people by facilitating the conservation and protection of CH objects via the prediction and recreation of their future appearance and the indication of spots/segments that need immediate care.

**Directive 95/46/EC** of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. **The Draft General Data Protection Regulation of the European**

**Parliament and of the Council** (currently under consideration and likely to be introduced during the lifetime of the project) which will enrich the Directive 95/46/EC.

SCAN4RECO is about CH objects and is not directly connected with personal data. However, a number of scientists and researchers are going to collaborate in a direct or indirect way under this project and the protection of their personal data will be strict and in accordance with the European Directive 95/46/EC

Because of the nature of this project – engaging persons from different background like archaeologists, conservators/restorers, IT researchers, engineers etc, a personnel policy is going to be followed for equal opportunities and health and safety issues. The corresponding EU directives are:

**Directive 2004/113/EC** on gender equality in the access to and supply of goods and services and **Directive 2006/54/EC** on gender equality in employment and occupation require Member States to designate and make the necessary arrangements for a body or bodies for the promotion, analysis, monitoring and support of equal treatment of all persons without discrimination.

SCAN4RECO consortium applies no direct or indirect discrimination regarding the sex of the involved scientists and researchers. Gender equality in employment and occupation are fully respected.

### **3.3 National legislation and policies in the pilot countries**

The European Cultural Heritage is protected and maintained under the regulations and guidelines of European Union. These regulations are approved and incorporated into the national regulations of member states and national policies taking into account the national particularities. Both Italy and Greece, the two countries involved in the SCAN4RECO use cases, have a rich cultural heritage and became party of European and International agreements for the protection of their history.

In the following chapters of 3.3.1 and 3.3.2 you can find the various agreements on CH protection that Italy and Greece have signed as a list of National laws which in accordance and deriving from European Directives aim to ensure the safety and maintenance of the national treasures and history.

#### **Italy**

Italy became state party to the following international instruments:

<b>1954 Hague Convention</b>	<b>9 May 1958</b>
<b>1954 Hague Protocol</b>	<b>9 May 1958</b>
<b>1999 Hague Protocol</b>	<b>10 July 2009</b>
1970 Unesco Convention	2 October 1978
1995 UNIDROIT Convention	11 October 1999
1972 World Heritage Convention	23 June 1978
2001 Underwater Heritage Convention	8 January 2010
2003 Intangible Heritage Convention	30 October 2007
2005 Diversity of Cultural Expressions Convention	19 February 2007

**Table 1: Italy as a state party of international instruments**

Italy became state party to the following regional instruments:

<b>European Cultural Convention</b>	<b>16 May 1957</b>
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European Convention for the Protection of the Architectural Heritage	31 May 1989
European Convention on Offences Relating to Cultural Property	Signed on 30 July 1985
European Convention for the Protection of the Archaeological Heritage (revised)	Signed on 16 January 1992
European Charter for Regional or Minority Languages	Signed on 27 June 2000
Framework Convention for the Protection of National Minorities	3 November 1997
European Landscape Convention	4 May 2006
European Convention for the Protection of the Audiovisual Heritage	-
Framework Convention on the Value of Cultural Heritage for Society	-

**Table 2: Italy as a state party of regional instruments**

A number of legislation rules functioning in accordance with the European regulations and principles are the following:

- Heritage and Landscape Code (Leg Decree 42/2004) ([amended up to 2008](#)), Leg. Decrees [156/2006](#), [157/2006](#), [62/2008](#) and [63/2008](#) (with [original 2004 version](#), also [English translation of the 2004 original](#)): the international and heritage law approved by the Italian Government aims to protect and enhance the cultural heritage in order to preserve the memory of the national community and promote the development of culture.
- [Presidential Decree 233/2007](#) (original language)
- [Law 778/1922 on natural beauty and historic monuments](#) (original language)
- [Regulation 1357/1940 on protection of the natural heritage](#) (original language)
- [Regulation 1369/1942 on the protection of the authors](#) (original language)
- [Law 717/1949 on art on public edifices](#) (original language)
- [Leg. Decree 156/2006 on cultural heritage](#) (original language)
- [Leg. Decree 62/2008 on cultural heritage](#) (original language)
- [Leg. Decree 112/1998 on Museums](#) (original language)
- [Law 109/2005 on archaeological heritage](#) (original language)
- [Law 77/2006 on special measures for the protection and the fruition of Italian cultural, landscape and natural sites, inscribed on the "World Heritage List", under the protection of UNESCO](#), Source: UNESCO
- [Law 88/1998 on the circulation of cultural goods](#) (original language) Source: UNESCO
- D.L. 31.5.2014, n. 83, "**Disposizioni urgenti per la tutela del patrimonio culturale, lo sviluppo della cultura e il rilancio del turismo**"

### **Greece**

Greece became state party to the following international instruments:

<b>1954 Hague Convention</b>	<b>9 February 1981</b>
<b>1954 Hague Protocol</b>	<b>9 February 1981</b>
<b>1999 Hague Protocol</b>	<b>20 April 2005</b>
1970 Unesco Convention	5 June 1981
1995 UNIDROIT Convention	19 July 2007
1972 World Heritage Convention	17 July 1981

2001 Underwater Heritage Convention	-
2003 Intangible Heritage Convention	3 January 2007
2005 Diversity of Cultural Expressions Convention	3 January 2007

**Table 3: Greece as a state party of international instruments**

Greece became state party to the following international instruments:

<i>European Cultural Convention</i>	<i>10 January 1962</i>
European Convention for the Protection of the Architectural Heritage	27 May 1992
European Convention on Offences Relating to Cultural Property	Signed on 23 June 1985
European Convention for the Protection of the Archaeological Heritage (revised)	10 July 2006
European Charter for Regional or Minority Languages	-
Framework Convention for the Protection of National Minorities	Signed 22 September 1997
European Landscape Convention	17 May 2010
European Convention for the Protection of the Audiovisual Heritage	Signed 8 November 2001
Framework Convention on the Value of Cultural Heritage for Society	-

**Table 4: Greece as a state party of regional instruments**

Towards this same direction with emphasis on the protection of cultural heritage are the legislation rules and standards that can be found hereinafter:

**Law no. 2557/1997, Institutions, Measures and Actions for Cultural Development (not reproduced)**

The above law states that cultural objects are the “testimonies of the existence and the individual and collective creativity of human kind” and cultural heritage shall be protected and at all stages of town and country planning.

- [Law no. 3028/2002, For the Protection of Antiquities and Cultural Heritage in General](#)
- [Presidential Decree no. 3520/2006, Ratification of the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions \(2005\) \(Greek and French\)](#)
- [Law no.3658 of 2008 on Measures for the Protection of Cultural Objects \(original language\)](#) Source : UNESCO
- [Presidential Decree no.3378 of 2005 on Ratification of the European Convention for the protection of the Archaeological Heritage - "Valletta Convention" \(original language\)](#) Source : Hellenic Society for Law and Archaeology
- [Presidential Decree no.3348 of 2005 Ratification of the Unidroit Convention on the international return of stolen or illegally exported cultural objects \(French and Greek\)](#)
- [Presidential Decree No.423 of 1995 on the implementation of EU Regulations 3911/92 and 752/93 on the export of cultural goods \(original language\)](#) Source : Hellenic Society for Law and Archaeology
- [Presidential Decree No.99 of 1992 Study and Execution of Archaeological Works \(as amended with laws nos.2947/01 and 3525/07\) \(original language\)](#) Source : Hellenic Society for Law and Archaeology
- Law no.1127 of 1981 Ratification of the European Convention on the Protection of the Archaeological Heritage

- [Law no.1126 of 1981 Ratification of the Unesco Convention concerning the Protection of the World Cultural and Natural Heritage \(original language\)](#) Source : Hellenic Society for Law and Archaeology
- [Law no.1103 of 1980 Ratification of the UNESCO Convention on the means of prohibiting and preventing the illicit import, export and transfer of ownership of cultural property \(original language\)](#) Source : Hellenic Society for Law and Archaeology

### **3.4 Safety and security of the objects**

Digitization can enable and extend the work of preservation of cultural heritage and enhance the tradition and cultural identity of communities. Handling CH objects should follow the international guidelines (described above) and with respect to the object.

It is likely that objects need to be moved from their usual display site (showcase or wall) for measurements. They will be placed on suitable supports indicated by the object's owner with a particular care for objects with fragile surfaces or structures or with moving or protruding parts.

All ethical actions are to be guided by unswerving respect for the aesthetic and historical value and physical integrity of the object [12], [13].

### **3.5 Responsibility for the integrity of the objects**

The researcher should discuss the preferred treatment with the organisation owing the objects and shall not misuse knowledge available to him in order to mislead the organisation as to the handling or the duration of the object's loaning. Moreover the researcher shall always inform the organisation, when requested by the latter, as to the progress of the work, the condition at that moment and the location of the object.

### **3.6 Persons concerned**

All persons involved in this research should be informed on the ethical rules of the project that they should follow when they work with the given cultural objects.

All project members shall:

- adhere to high standards of ethical and responsible behaviour in the conduct of culture heritage affairs
- have a responsibility for the conservation of the historic environment
- conduct their work in such a way that reliable information about the past may be acquired, and ensure that the results be properly recorded.
- have responsibility for making available the results of this research with reasonable dispatch.
- act with integrity, within the law of the land, and in accordance with their Institute's Code of conduct at all times, and encourage others, whether individuals or organisations, to do likewise.
- safeguard the cultural heritage object and seek preservation in situ as the first option.
- shall not put at risk any cultural heritage object purely for commercial reward.

### **Protection of Personal Data**

Scan4Reco plans to engage persons from different background like archaeologists, conservators/restorers, conservation scientists, IT researchers, engineers etc., following a personnel policy of equal opportunities and health and safety issues. However, no plan to expose, use

or analyze any (sensitive) personal data for any purpose is foreseen within the project's vision or the consortium's intentions. Moreover, no ethical issues related to personal data will be raised by the technologies to be employed in the use cases, since the input planned to be received by the enrolled experts will be first anonymized and then stored, while any processing, if any, will only relate to statistical analysis.

It should be noted that only technical information will be stored and processed by the modules of the Scan4Reco system. Raw personal data that may be revealed during the process of validating the expert's capacity, expertise and background experience by the HR associates will not be stored or processed.

In any case, Scan4Reco is committed to perform all activities in compliance with all relevant legal and ethical rules. **Ethical Committees** of the involved, to this project, institutions should provide and present to the project their ethical approval stating that they were informed about the scope and the objectives of this research. Where Ethical Committees are not available (do not exist), **Research Committees** can ensure the monitoring of the project and the compliance to the ethical demands of the project. Ethical or Research Committees are usually consisted by the professionals of each institution and representatives from other public entities. Among their goals is to ensure the development of rigorous research as well as to the ethical quality of the investigations in general and the results in particular. Moreover, they are also concerned for spreading the knowledge linked to publications, reports or any other method of scientific or academic dissemination.

In particular **OF-ADC**, which is one of the sites handling the use cases of the project, is an active research institution supervised and supported by the institution's Ethical Committee. The aim of this committee is to assist the conduct of various researches within the standardized national and European legislations and ethical rules. To achieve this, advice and guidance on research planning is provided to researchers.

The basic purpose of the Ethics Committee is to approve or reject proposals for research in various fields of science such as in the protection of cultural heritage or other research protocols to be carried out at the premises of OF-ADC with the consent of the Committee. Not any research proposal will be approved if a member state of the Committee disagrees or is unable to support it.

OF-ADC's Ethical Committee is subjected to collaboration with other Research and Ethical Committees, in cases that this collaboration is needed, while preserving their independence and responsibilities regarding the specific areas of specialized research in which it operates.

In the case of SCAN4RECO and use cases that will be realized in OF and OPD, the ethical committee of OF is going to approve the whole procedure in collaboration with the OPD fellow partners.

**The issue of personal data protection** is well covered by the European Directive 95/46/EC for the protection of individuals with regard to the processing of personal data and on the free movement of such data.

All countries involved in this project have legislations and policies that derive and/or comply with the above European Directive:

**Italy** : The Italian Personal Data Protection Code/Legislative Decree no. 196 of 30 June 2003. Italy's consolidated data protection code came into force on 1 January 2004. The Code brings together all the various laws, codes and regulations relating to data protection since 1996. In particular, it supersedes the Data Protection Act 1996 (no. 675/1996), which had come into effect in May 1997.

**Greece:** Protection of Individuals with regard to the Processing of Personal Data Act [2472/1997]. Data protection in Greece is basically provided for by Law 2472/1997 which harmonized the Greek legislation with Directive 95/46/EC. This Law institutes a set of obligations for those ones who process personal data and respective rights of the people to whom the data processed relate. The same Law does also provide for the establishment of the Hellenic Data Protection Authority (HDPa).

**Germany:** In Germany, data protection is primarily regulated by the Federal Data Protection Act (*Bundesdatenschutzgesetz*) (BDSG), which implements the Directive 95/46/EC on data protection (Data Protection Directive). There are also state data protection laws providing legal requirements for data processing carried out by state-level public authorities or public bodies.

**UK:** Data Protection Act 1998/ CHAPTER 29. An Act to make new provision for the regulation of the processing of information relating to individuals, including the obtaining, holding, use or disclosure of such information [16th July 1998].

**Switzerland:** Federal Act on Data Protection (FADP) of 19 June 1992 (Status as of 1 January 2014).

In order for an external expert/end-user/partner/researcher to participate in the project's activities, a detailed consent form (per referenced pilot-case) will be composed and provided according to strict Human Resources (HR) standards, local and European legislation. In particular, each participant will be informed about the about the project's scopes, the legal restrictions and the ethical issues covering the carrying out of the trial (e.g. restrictions in digitization or analysis of certain archaeological areas or cultural objects, Intellectual Property Restrictions of certain paintings or documents, etc.), as well as his/her rights and responsibilities.

Finally, the participants will be informed that any of their (sensitive) personal data will be neither exposed nor stored/preserved and that gender/age/etc. data may be only processed for statistical reasons. Moreover, at each trial site a person will be nominated as the responsible to verify that the followed procedures will be strictly in line with the project's recommendations and the National and European legislations. Of course, each potential participant will be asked to carefully read the consent form and sign it only if (s)he is in agreement with its content. Otherwise (s)he will be dismissed from participation.

### **3.7 Data Management and safety**

The data that will be managed within the Scan4Reco project mainly regard the collected data from the various sensors; the respective metadata and of course the generated outcomes of the Scan4Reco algorithms. Human data will only be partially involved during the enrolment of expert end-users that will contribute to the evaluation of the end product. Although Intellectual Property Rights (IPRs), ethics and legislations are of increased importance in the case of processing, analyzing, distributing and sharing the data related to cultural objects, such restrictions do not apply in the case of (sensitive) personal data, because of the simple reason that their data will never be recorded, stored, preserved, etc., as being out of scope and of no interest for the current project.

In order to handle the Data Collection procedures within the Scan4Reco project, Task 1.3 has been dedicated to the development of a detailed Data Management Plan (Deliverable 1.2). However, some preliminary basic guidelines and principles that will be followed throughout the project's lifetime are briefly reported herein:

- The collected data will be related to the structure, chemical composition, location, metadata and other properties of the cultural objects.
- The collection of data will be mainly realized both by external probes and optical sensors that will scan the object all over its surface, and by semantic annotations. More details about the procedure and the kind of data that will be collected can be found in the Deliverable 1.4 (M6).
- In any case all data that will be considered confidential from the trials will be cancelled at the project completion, whereas only the public models and respective datasets that will be described in details in the Data Management Plan will be kept open. In this plan, the open research data retention and destruction strategy will be also reported along with the limits on their secondary use and their disclosure to third parties.
- A number of critical factors that are relevant for data retention will be taken into account, namely:
  - i. Purpose of retaining data
  - ii. Type of open data collected
  - iii. Policy access to the open data
  - iv. Data storage, security and protection measures
  - v. Confidentiality and anonymity of data.
- Regarding data destruction, as computerized data (hard disk drives) will be used for data storage, existing methods for permanent and irreversible destruction of the data will be utilized (i.e. full disk overwriting and reformatting tools).

Moreover, the pilot sites will comply with occupational health and safety management standards.

## **4. Knowledge sharing**

The current deals with issues related to the importance of knowledge sharing and the definition of the framework into which the knowledge sharing within Scan4Reco will occur. In particular, the ethics and the restrictions that concern the spread of old and new information of Cultural Heritage are discussed, while the communication channels for knowledge transfer among the consortium partners and between the latter to the outer world (e.g. public, scientific community, etc.) is analyzed.

### ***4.1 Introduction to knowledge sharing***

Knowledge sharing is an activity through which information, skills or expertise is exchanged among people, friends, families, communities or organizations [13], [15]. The term actually represents the process of making the right knowledge or the right knowledge sources (including people) available to the right people at the right time. It is promoted by many organisations because it encourages the exchange of ideas and gives motivation for new researches. In many cases, it endorses trust and cooperation between colleagues. Many knowledge management systems support activities for knowledge sharing in order to make the best use of knowledge gained.

Knowledge sharing is generally occurring between people with similar interests and occupancies. Employees and employers exchange knowledge, as well as project teams and its cultural antecedents. Especially in organizations where there are a lot of people with different cultures, knowledge sharing takes place intensively even though it is not required from the top-management. Team leaders as well as members, share knowledge with other project teams by transferring boundary objects and interchanging team members. Conservators

responsible for maintaining painting, sculptures or any kind of art are exchanging techniques. Conservators share their knowledge with museums and museums can collaborate with IT organisations in order to combine expertise and proceed to innovative products that facilitate exhibitions.

In the context of cultural heritage, however, the term 'knowledge sharing' may be extended to a slightly broader sense. For instance, there are quite a few cultural traditions are preserved through time, as 'trade secrets', due to limiting the knowledge sharing between closed societies/groups members (e.g. families, geographical areas, etc.). The goal is to safeguard the form of intangible cultural heritage and to ensure that knowledge and skills will be passed on to future generations.

#### **4.2 Significance of knowledge sharing**

The importance of knowledge sharing lays on the fact that it has significant results in the evolution of many organisations [15]:

- Intangible products, software applications implemented with the most recent trend of technology.
- Innovation in many areas, the application of new knowledge where ideas travel by word of mouth.
- Staff's experience and knowledge because nowadays people don't stay permanently to a job and many times their expertise walks away with them.
- Easier adaptation in fast changing world of technology. As things change, so does our knowledge base erode – in some businesses, as much of 50% of what you knew 5 years ago is probably obsolete today.

Especially for museums, in this electronic era, knowledge sharing plays a significant role because it helps them to widely spread their resources in the globe for access, navigation and contribution while sharing knowledge among museum professionals [16].

#### **4.3 Rationale in Cultural Heritage knowledge sharing**

Ethics of sharing knowledge of Cultural Heritage is a subject that has been studied since 1930. These days, organisations like International Council of Museum (ICOM) in Europe and the American Institute for Conservation of Historic and Artistic Works (AIC) are dealing with it and many codes exist, some of them detailed and some of them more general. In addition, archaeological organisations for cultural heritage include WAC, EAA (transactional), AAA, ACCAI, AIMA (Australia) and RPA, AIA, SAA, SHA (USA) and IfA (UK). These organisations emphasise on different aspects of practice and espouse values that may be openly stated or only implied through wording and emphasis. Most codes state that professional archaeologists have special rights to access, excavate, record, study and interpret material remains that are significant to the public for scientific, historical, cultural or social reasons [19].

Meanwhile, there are ethical issues like how much information/knowledge can be shared in order to maintain quality of knowledge. Sharing should be done extensively to those who have the required skills and education to optimize it, while a more careful share is required for the rest [19].

Moreover, as far as conservation of cultural heritage is concerned, there are limits on how much one can interfere and change the age value of the exhibition and generally influence the concept of truth. Within the current status, conservators should think themselves as advocates for the object with an aim to preserve and not alter, to secure but not to change, to maintain rather than recreate, and this is how 'the conservator-restorer's activities are distinct from those of the artistic or crafts profession'. A basic criterion of this distinction is that by their activities, conservator-restorers do not create new cultural objects [20]. Conserva-

tion though, is both ethical and scientific issue as it expresses knowledge from the past which is going to be transmitted to the future.

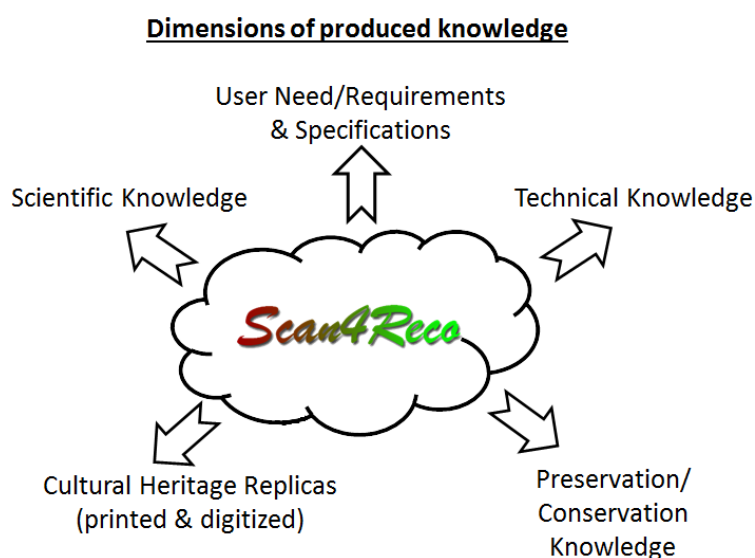
#### 4.4 Knowledge sharing within Scan4Reco

*In this project the knowledge produced will be the property of the participant carrying out the work leading to that knowledge. If several parties have carried out the work leading to the production of knowledge, they shall respectively have joint ownership on the knowledge produced. The knowledge owner will be required to provide adequate and effective protection for knowledge that is capable of industrial or commercial application.*

*In order to be able to prove ownership (as well as the date of generation) of knowledge, participants are encouraged to maintain documents showing the development of the generation of knowledge or results, e.g. source code, in accordance with proper standards and practices.*

Within Scan4Reco several types of knowledge will be produced, as shown in Figure 1. **Scientific Knowledge** will be produced in the form of peer-reviewed publications, or through the participation in (inter-)national conferences, in which the projects approaches will be described in detail.

1. The tools and its technical specifications referred as **Technical Knowledge** will be released at the end of the project in order to guide future researches.
2. **Preservation/Conservation Knowledge** will be provided for the best possible chance of the object's survival over the time. This knowledge will be referred to the environmental conditions (temperature, humidity, light, pollution-free environment, etc.) and will also propose the most indicative techniques for the exhibition's conservation.
3. Furthermore, the project aims to produce digitized and printed **Culture Heritage Replicas**. The digitized objects will be constituting exhibitions of a virtual museum being available to the public, while the printed objects will be used to test the conservation methods before applied to the original exhibitions.
4. The cooperation between the consortium and the participating museums will lead to gather a collection with the museums real-world significant Needs/Requirements and Specifications.



**Figure 1: Categorization of the envisioned knowledge to be produced**

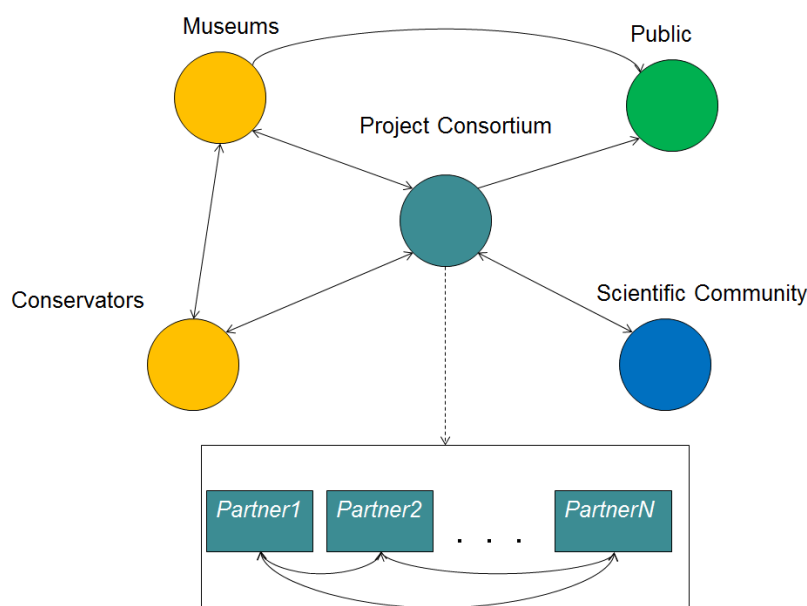
The envisioned paths for knowledge transfer are illustrated in Figure 2. They can be split into main categories, i.e. (i) the inter-consortium knowledge sharing (see top of Figure 2), which



describes the communication of the consortium as a whole to the outer world, and (ii) the intra-consortium knowledge sharing (see bottom of Figure 2).

As also demanded by the European Commission (EC), quite a big percentage of *the inter-consortium's will be supported by open access of scientific publications* as it collectively believes that open access can provide greater visibility to their work, thereby potentially leading to more citations and greater research impact, but can also reduce the likelihood of wasting time and public resources on duplicative research. Other communication paths will include workshops, newsletters, leaflets and brochures, demonstration in networking events, always with respect to the exploitation agreements and intra-consortium Non-Disclosure Agreements, as they will be described later in the project.

Specifically, existing knowledge from the participating **museums** is expected to be transferred to the **project's consortium** so as to guide the research of the latter towards more real-world significant use cases and practical needs. The **project's consortium** will develop their analysis and observation methods considering the expert's knowledge provided by the **conservators**. Moreover, the **consortium** will take advantage of similar approaches implemented by **the scientific community** and will try not only to improve these methods but also to produce innovative methods.



**Figure 2: Communication paths for inter- and intra- consortium knowledge sharing**

Knowledge produced during the research activities of the **consortium** will be offered to the wider **scientific community** in the form of peer-reviewed publications, or through the participation in (inter-)national conferences. Additionally, the derived knowledge will be available to the **museums** and to the **conservators**, so to be able to improve the preservation's conditions and the existing methods of conservation. Furthermore, the produced knowledge at the form of the virtual museum will facilitate the **public** that will be able to watch from everywhere and at any time, with low cost, unique exhibitions from different museums gathered in one big virtual collection.

Finally, **intra-consortium** knowledge exchange will be promoted and is expected to occur within the consortium's partners through internal reports and meetings in order to achieve the best possible results.

#### **4.5 Knowledge Transfer**

Transfers of ownership of knowledge are allowed, though the obligations regarding that knowledge must be passed on to the transferee. In principle, as long as the participant concerned is required to grant access rights, notification must be given to the other participants, during which time they have the right to object. Transfers of ownership will not be allowed when important knowledge would create a major competitive disadvantage for European companies, or when it would be inconsistent with ethical rules and principles recognised at European and international level.

Regarding possible need for transferring some highly classified Intellectual Property from one partner to the other, special NDAs may be required to be composed and signed between the involved parties/partners. Similarly, knowledge that undergoes the restrictions of future exploitation agreements is allowed to be transferred only when all the rules of the agreement are respected.

Overall the main principles applied to the management of knowledge under Scan4Reco are presented below:

- All partners acknowledge their common interest in publishing the knowledge to obtain recognition and to advance the state of knowledge in the field. The partners also recognise their common interest in obtaining valid intellectual property protection and in protecting business interests.
- All partners will make reasonable endeavours to protect the knowledge arising out of the project, or permit its protection by another party, according to their own policy and legitimate interests.
- Each partner will be entitled to protect its own knowledge under its own name and at its sole expense unless specifically agreed otherwise between the partners concerned. Such partner shall inform the other partners in a timely fashion and, where necessary, under appropriate non-disclosure agreement of any patent filing and other intellectual property rights.
- Knowledge developed through the project's activities will be made available using a variety of media, mainly the following: a) The Scan4Reco website will provide wide, rapid electronic access to a substantial proportion of the project's outputs and expertise. b) All publicly available deliverables will also be made available without restriction via the website. c) Scientific results will be published in peer-reviewed journals. Wherever possible, these will be co-authored by scientists from more than one partner.

In this respect, Scan4Reco partners will take all necessary action to ensure free access to peer-reviewed articles resulting from the project. Such action may include to deposit an electronic copy of the published version or the final manuscript accepted for publication in a scientific publication relating to the project's foreground in an institutional or subject-based repository at the moment of publication, in line with the special clause 39 on the 'Open access pilot in FP7'196.

The beneficiaries will make their best efforts to ensure that this electronic copy becomes freely and electronically available to anyone through this repository within 6 months of publication. The exact selection of the repository, the terms under which access will be granted, and all other relevant details (such as time and version to deposit the electronic copy of the publication, availability and costs of open access options) will be discussed and decided with the cooperation and guidance of the European Commission.

Individual questions about the IPR regime will be resolved in accordance with the guidelines on knowledge and intellectual property right laid down for Horizon 2020 and with the Consortium agreement.

The SCAN4RECO project contributes to the European goals (EU 2020 strategy) of preserving and promoting our heritage and helps the heritage sector “move with the times, make it more 'people-centred' and turn it into a driver of economic activity”.

Complementary details regarding the management of the data and the knowledge that will be produced within the Scan4Reco project will be covered within the corresponding deliverable D1.2 – Data Management Plan.

## 5. Conclusions

Regarding the access and the manipulation of a cultural heritage object aiming its study, preservation or restoration, is crucial to follow specific ethical guidelines and take into account international IP rights. International and National legislation should be explored and respected. Policies concerning data management and protection should be attended and complied to. The derived knowledge from the occupation and handling of the CH object should be distributed in the community although in accordance with the initial agreement within a consortium or organization.

In SCAN4RECO, we aim to enhance the accessibility of the digitized cultural objects to the scientific community, field experts and the general public, making sure that all the legislations and policies, described in this deliverable, are followed and respected.

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## **Annex I: 2011/711/EU**

### COMMISSION RECOMMENDATION

of 27 October 2011

on the digitisation and online accessibility of cultural material and digital preservation

(2011/711/EU)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 thereof,

Whereas:

- (1) The Digital Agenda for Europe seeks to optimise the benefits of information technologies for economic growth, job creation and the quality of life of European citizens, as part of the Europe 2020 strategy. The digitisation and preservation of Europe's cultural memory which includes print (books, journals and newspapers), photographs, museum objects, archival documents, sound and audiovisual material, monuments and archaeological sites (hereinafter 'cultural material') is one of the key areas tackled by the Digital Agenda.
- (2) The EU's strategy for digitisation and preservation builds on the work done over the last few years in the digital libraries initiative. The European actions in this area, including the development of Europeana, Europe's digital library archive and museum, were supported by the European Parliament and the Council, most recently in a Parliament resolution of 5 May 2010 and the Council Conclusions of 10 May 2010. The Workplan for Culture 2011-14, established by the Council at its meeting of 18 and 19 November 2010, highlights the need for a coordinated effort in the area of digitisation.
- (3) On 28 August 2006, the Commission issued a Recommendation to the Member States with a view to optimising, by means of the Internet, the economic and cultural potential of Europe's cultural heritage. The Member States' reports on the implementation of the Recommendation of 2008 and 2010 show that progress has been made. However, progress is not consistent across the Member States and is uneven for the different points of the Recommendation.
- (4) Moreover the context for digitisation efforts and for collaboration at European level has changed considerably over the last few years. New elements include the launch of Europeana in November 2008, the publication of the report 'The New Renaissance' by the 'Comité des Sages on bringing Europe's cultural heritage online' of 10 January 2011 and the Commission's proposal for an Orphan Works Directive of 24 May 2011.
- (5) Therefore, an updated set of measures for digitising and bringing cultural heritage online and for digital preservation should be recommended to the Member States. In that context, the development of digitised material from libraries, archives and museums should be further encouraged in order to ensure that Europe maintains its place as a leading international player in the field of culture and creative content and uses its wealth of cultural material in the best possible way. As underlined by the 'Comité des Sages on bringing Europe's cultural heritage online', Europe needs to act now to reap the benefits of digitisation and digital preservation. If Member States do not step up

- their investments in this area, there is a risk that the cultural and economic benefits of the digital shift will materialise in other continents and not in Europe.
- (6) The online accessibility of cultural material will make it possible for citizens throughout Europe to access and use it for leisure, studies or work. It will give Europe's diverse and multilingual heritage a clear profile on the Internet, and the digitisation of their assets will help Europe's cultural institutions to continue carrying out their mission of giving access to and preserving our heritage in the digital environment.
  - (7) Moreover, the digitised material can be reused – for both commercial and non-commercial purposes – for uses such as developing learning and educational content, documentaries, tourism applications, games, animations and design tools, provided that this is done with full respect for copyright and related rights. This will give an important input to the creative industries, which account for 3,3 % of EU GDP and 3 % of employment. These industries are faced with a digital transition that is shaking up traditional models, transforming value chains and calling for new business models. Digitising and providing wider access to cultural resources offers enormous economic opportunities and is an essential condition for the further development of Europe's cultural and creative capacities and of its industrial presence in this field.
  - (8) Digitisation is an important means for ensuring greater access to and use of cultural material. Concerted action by the Member States to digitise their cultural heritage would lend greater coherence to the selection of material and would avoid overlap in digitisation. It would also lead to a more secure climate for companies investing in digitisation technologies. Overviews of current and planned digitisation activities and quantitative targets for digitisation would contribute to achieving those objectives.
  - (9) The cost of digitising the whole of Europe's cultural heritage is high and cannot be covered by public funding alone. Private sector sponsoring of digitisation or partnerships between the public and private sectors can involve private entities in digitisation efforts and should be further encouraged. In order to be fair and balanced, these partnerships should comply with a number of key principles. In particular it is necessary to set time limits for the preferential use of the digitised material. The 'Comité des Sages on bringing Europe's cultural heritage online' indicated that the maximum time for preferential use of the material digitised in public-private partnerships should not be longer than 7 years.
  - (10) The EU Structural Funds can be and are being used to co-fund digitisation activities as part of projects having an impact on the regional economy. However, such use could be more widespread and systematic. Mass digitisation processes can gain in efficiency due to scale. Therefore, the efficient use of digitisation capacity and, where possible, the sharing of digitisation equipment between cultural institutions and countries should be encouraged.
  - (11) Only part of the material held by libraries, archives and museums is in the public domain, in the sense that it is not or is no longer covered by intellectual property rights, while the rest is protected by intellectual property rights. Since intellectual property rights are a key tool to stimulate creativity, Europe's cultural material should be digitised, made available and preserved in full respect of copyright and related rights.
  - (12) On 24 May 2011 the Commission made a proposal for a Directive for orphan works. In order to have its full effect it should be rapidly adopted and implemented to ensure a harmonised approach to the issue of orphan works throughout the EU. For the large-scale digitisation of out-of-commerce works, legislative backing for licensing solutions voluntarily developed by stakeholders may be needed in the Member States, taking into account the need to ensure a cross-border effect. In this context, the approach followed in the stakeholders' dialogue, sponsored by the Commission, on out-of-commerce books and learned journals, which resulted in a Memorandum of Under-

standing signed in Brussels on 20 September 2011, should be seen as a model for further dialogues to facilitate agreements for the digitisation of as much of the out-of-commerce material as possible. Rights information databases connected at European level can bring down transaction costs for rights clearance. Such mechanisms should therefore be encouraged in close cooperation with all stakeholders.

- (13) In order to allow wide access to and use of public domain content, it is necessary to ensure that public domain content remains in the public domain once digitised. The use of intrusive watermarks or other visual protection measures on copies of public domain material as a sign of ownership or provenance should be avoided.
- (14) Europeana, Europe's digital library, archive and museum, was launched on 20 November 2008. The further development of the Europeana platform will depend to a large extent on the way the Member States and their cultural institutions feed it with content, and make it visible to citizens. Measures to achieve this effect should be encouraged.
- (15) Currently, Europeana gives direct access to more than 19 million digitised objects. Only 2 % of these objects are sound or audiovisual material. Increasing the content accessible through Europeana, including types of material that are currently underrepresented, will make the site more interesting for the users, and should therefore be encouraged. The overall target of 30 million objects by 2015 is in line with Europeana's strategic plan, and a stepping stone for getting Europe's entire cultural heritage digitised by 2025. The availability of all public domain masterpieces (key cultural or historical works and objects, as determined and selected by the Member States) through Europeana will enrich the content of the site, in line with the expectations of the users. Provisions in the Member States ensuring that all material digitised with public funding is made available through Europeana would boost the development of the platform and create a clear framework for the content contribution by cultural institutions, and the introduction of such provisions should therefore be encouraged.
- (16) Digital material has to be managed and maintained, otherwise files may be unreadable when the hardware and software used to store them becomes obsolete, material may be lost when storage devices deteriorate over time, and storage devices could be overwhelmed by the sheer volume of new and changing content. In spite of progress made across the EU on the preservation of digital material, in several Member States no clear and comprehensive policies are in place on the preservation of digital content. The absence of such policies poses a threat to the survival of digitised material and may also result in the loss of material produced in digital format (born digital material). The development of effective means of digital preservation has far-reaching implications that go beyond cultural institutions. Questions of digital preservation are relevant for any private or public organisation, which is obliged or which wishes to preserve digital material.
- (17) Digital preservation poses challenges of a financial, organisational, and technical nature and sometimes requires an update of legislative provisions. Several Member States have introduced or are considering legal obligations requiring producers of digital material to make one or more copies of their material available to a mandated deposit body. Efficient provisions and practices for legal deposit can minimise the administrative burden on content holders and deposit institutions alike, and should therefore be recommended. Effective collaboration between Member States is necessary to avoid a wide variation in the rules governing the deposit of digital material and should be encouraged. Web-harvesting is a new technique for collecting material from the Internet for preservation purposes. It involves mandated institutions actively collecting material instead of waiting for it to be deposited, thus minimising the administrative burden on

producers of digital material, and national legislation should therefore make provision for it.

- (18) In as far as cinematographic works are concerned the present Recommendation complements the Parliament and Council Recommendation of 16 November 2005 on film heritage and the competitiveness of related industrial activities (1) on a number of aspects,

HEREBY RECOMMENDS THAT MEMBER STATES:

#### **Digitisation: organisation and funding**

1. further develop their planning and monitoring of the digitisation of books, journals, newspapers, photographs, museum objects, archival documents, sound and audiovisual material, monuments and archaeological sites (hereinafter ‘cultural material’) by:
  - (a) setting clear quantitative targets for the digitisation of cultural material, in line with the overall targets mentioned under point 7, indicating the expected increase in digitised material which could form part of Europeana, and the budgets allocated by public authorities;
  - (b) creating overviews of digitised cultural material and contributing to collaborative efforts to establish an overview at European level with comparable figures;
2. encourage partnerships between cultural institutions and the private sector in order to create new ways of funding digitisation of cultural material and to stimulate innovative uses of the material, while ensuring that public private partnerships for digitisation are fair and balanced, and in line with the conditions indicated in the Annex;
3. make use of the EU’s Structural Funds, where possible, to co-finance digitisation activities in the framework of regional innovation strategies for smart specialisation;
4. consider ways to optimise the use of digitisation capacity and achieve economies of scale, which may imply the pooling of digitisation efforts by cultural institutions and cross-border collaboration, building on competence centres for digitisation in Europe;

#### **Digitisation and online accessibility of public domain material**

5. improve access to and use of digitised cultural material that is in the public domain by:
  - (a) ensuring that material in the public domain remains in the public domain after digitisation;
  - (b) promoting the widest possible access to digitised public domain material as well as the widest possible reuse of the material for non-commercial and commercial purposes;
  - (c) taking measures to limit the use of intrusive watermarks or other visual protection measures that reduce the usability of the digitised public domain material;

#### **Digitisation and online accessibility of in-copyright material**

6. improve conditions for the digitisation and online accessibility of in-copyright material by:
  - (a) rapid and correct transposition and implementation of the provisions of the Directive on orphan works, once it is adopted, with consultation of interested parties ahead of adoption in order to facilitate a rapid implementation; a close monitoring of the Directive’s application once it is adopted;



- (b) creating the legal framework conditions to underpin licensing mechanisms identified and agreed by stakeholders for the large-scale digitisation and cross-border accessibility of works that are out-of-commerce;
- (c) contributing to and promoting the availability of databases with rights information, connected at the European level, such as ARROW;

## **Europeana**

- 7. contribute to the further development of Europeana by:
  - (a) encouraging cultural institutions as well as publishers and other rightholders to make their digitised material accessible through Europeana, thus helping the platform to give direct access to 30 million digitised objects by 2015, including two million sound or audiovisual objects;
  - (b) making all public funding for future digitisation projects conditional on the accessibility of the digitised material through Europeana;
  - (c) ensuring that all their public domain masterpieces will be accessible through Europeana by 2015;
  - (d) setting up or reinforcing national aggregators bringing content from different domains into Europeana, and contributing to cross-border aggregators in specific domains or for specific topics, which may bring about economies of scale;
  - (e) ensuring the use of common digitisation standards defined by Europeana in collaboration with the cultural institutions in order to achieve interoperability of the digitised material at European level, as well as the systematic use of permanent identifiers;
  - (f) ensuring the wide and free availability of existing metadata (descriptions of digital objects) produced by cultural institutions, for reuse through services such as Europeana and for innovative applications;
  - (g) establishing a communication plan to raise awareness of Europeana among the general public and notably in schools, in collaboration with the cultural institutions contributing content to the site;

## **Digital preservation**

- 8. reinforce national strategies for the long-term preservation of digital material, update action plans implementing the strategies, and exchange information with each other on the strategies and action plans;
- 9. make explicit and clear provision in their legislation so as to allow multiple copying and migration of digital cultural material by public institutions for preservation purposes, in full respect of European Union and international legislation on intellectual property rights;
- 10. make the necessary arrangements for the deposit of material created in digital format in order to guarantee its long-term preservation, and improve the efficiency of existing deposit arrangements for material created in digital format by:
  - (a) ensuring that rightholders deliver works to legal deposit libraries without technical protection measures, or that, alternatively, they make available to legal deposit libraries the means to ensure that the technical protection measures do not impede the acts that libraries have to undertake for preservation purposes, in full respect of European Union and international legislation on intellectual property rights;
  - (b) where relevant, making legal provision to allow the transfer of digital legal deposit works from one legal deposit library to other deposit libraries that also have the right to these works;

- (c) allowing the preservation of web-content by mandated institutions using techniques for collecting material from the Internet such as web-harvesting, in full respect of European Union and international legislation on intellectual property rights;
11. taking into account developments in other Member States, when establishing or updating policies and procedures for the deposit of material originally created in digital format, in order to prevent a wide variation in depositing arrangements;

**Follow-up to this Recommendation**

12. inform the Commission 24 months from the publication of this Recommendation in the Official Journal of the European Union, and every 2 years thereafter, of action taken in response to this Recommendation.

Done at Brussels, 27 October 2011.

For the Commission

Neelie KROES

Vice-President

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[\(1\) OJ L 323, 9.12.2005, p. 57.](#)

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## Annex II: Public-Private Partnerships for Digitization

In order to make rapid progress on the digitisation of our cultural heritage, public funding for digitisation needs to be complemented by private investment. Therefore, the Commission encourages public-private partnerships for the digitisation of cultural material.

It calls on the Member States to stimulate such partnerships, which should comply with the following key principles:

1. Respect for intellectual property rights

Public-private partnerships for the digitisation of collections in cultural institutions should fully respect the European Union and international legislation on intellectual property rights.

2. Non-exclusivity

The agreements for digitising public domain material should be non-exclusive in the sense that any other private partner should have the possibility to digitise the same material under comparable conditions.

A period of preferential commercial use or preferential commercial exploitation may be necessary in order to give the private partner the possibility to recoup its investment. This period should be limited in time and as short as possible, in order to respect the principle that public domain material should stay in the public domain once it is digitised. The period of preferential use should not be longer than 7 years.

Agreements should be fully compliant with EU competition rules.

3. Transparency of the process

Agreements for the digitisation of collections held by cultural institutions should be awarded after an open competition between potential private partners.

4. Transparency of agreements

The content of agreements between cultural institutions and private partners for the digitisation of cultural collections should be made public.

5. Accessibility through Europeana

The conclusion of a public-private partnership should be conditional on the accessibility of the digitised material through Europeana.

6. Key criteria

The key criteria for assessing proposals for a public-private partnership are the following:

- The total investment to be made by the private partner, taking into account the effort required by the public partner.

- The accessibility of the digitised material for the general public, including through Europeana. Partnerships models where the end-user has free access to the digitised material should be encouraged over models where the end-user has to pay for accessing the material.
- Cross-border access. Partnership agreements must result in cross-border access for all.
- The length of any period of preferential commercial use of the digitised material by the private partner. This period should be as short as possible.
- The envisaged digitisation quality and the quality of the files that will be given to the cultural institutions. The private partner should provide cultural institutions with digitised files of the same quality as the ones it uses itself.
- The use that the cultural institutions can make of the digitised material in non-commercial contexts. This use should be as wide as possible, and not limited by technical or contractual restrictions.
- The time-scale of the digitisation project.