The Digitization Age: Mass Culture is Quality Culture. Challenges for cultural heritage and society.

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Abstract. The amount of digitized cultural heritage in Europe continues to grow: the digitization activities have a positive impact on the society, by making the cultural heritage more accessible for the citizens, and by generating benefits to the content owners. Several questions arise about digitized cultural heritage: how can digital cultural data be re-used at best, what is the impact on society and how to preserve it in the long term? This paper offers an overview of EU projects that try to provide answers: EuropeanaPhotography, Europeana Space, RICHES, PREFORMA, Civic Epistemologies. The common key-words in order to guarantee the best results are in any case knowledge-sharing and networking.

Keywords: digitization, EU projects, photography, creativity, re-use, societal changes, archival standards, preservation, knowledge sharing, networking, digitalmeetsculture.net.

1 Introduction

The Digital Age is also the Digitization Age. Due to the support provided by national and international programs, in the past years almost everywhere in Europe big efforts were put in place by public institutions and private bodies for converting the "physical cultural heritage" into "digital". This happened not only for documents and images, but also for audio/video resources, for the performing arts, for sport and folkloristic customs and for the monuments and landscapes. Also intangible cultural heritage such as oral memories, food and drink, local traditions went digital, so that no aspect misses to be present in the digital world. After digitizing, the content is also made available on the Web, thus over-flooding internet with zillions of digital objects of cultural, artistic, scientific value. Besides that, we also see a growing impact of user-generated content that is converging on the Web and that represents a new frontier of our "global" culture.

What to do with this enormous amount of files? First need is to collect them and organize them in a sensed way, to facilitate search and retrieval: a file that cannot be retrieved by a user, simply doesn't exist for that user. The attempt to collect in a single container all the European cultural heritage is probably utopian, although the enormous amount of digital resources should be managed and collected somehow, for

possible re-use and enjoyment by the whole community. Europeana, the great European digital library, contains over 30 million objects and these are estimated to be a 10% of the available digital cultural heritage in Europe. Moreover, the digital cultural heritage in Europe itself (estimated to be around 300 million objects) represents only a 10% of the existing European cultural heritage - a very long way to go. The push is to go on digitizing, in order to ferry our cultural heritage, and therefore our culture, to the new digital age, to the future.

It is impressive to see, however, that digitization activities do not serve only the purpose to trail culture to the digital age for the benefit of the whole community: digitizing a collection of items with cultural/artistic value has a positive impact on the content provider, be it a museum or a private body. For example, photographs that laid unseen for decades are now safe and alive in digital format, available for selling, re-use and enjoyment. Small collections present in little museums of minor cities can become more visible than before, thanks to virtual exhibitions and Apps. Niche, highly specialized areas of cultural heritage, such as epigraphy for example¹, become more user-friendly and accessible to the common people, rather than being "reserved" to few professionals in the field. Having their own content digitized allows content owners to make a wider use and re-use of their collections, to reach new segments of market/visitors, to achieve a more evident presence in the cyberspace – and consequently to gain a bigger visibility also in the "real" world.

Digitization, therefore, exponentially increased the spread of cultural heritage, fostering the participatory side of culture and its business potential. In the Digital Era, cultural heritage is less and less elitist, less and less for-professors-only, less and less locked away. It less and less looks like a monument (be it physical or literary) to be admired for its unreachable greatness and respected for its authority: through digitization, Cultural Heritage becomes something to be told with an ever new story, to be shared, capitalized, promoted, re-created. Through digitization, Cultural Heritage belongs to the mass.

In opening to the mass, we deem Cultural Heritage can not only keep its quality, but also add value to its original value: because the digitization process, if performed right, respects the cultural object's quality and contributes to enrich the object's contextual background (we refer, for instance, to the metadata: context and descriptive information associated to the file); because by participating to culture, people can renew and co-create the culture; because becoming a mass good, Cultural Heritage can play a pivotal role for the social and economic development of the community.

Mass culture is therefore quality culture: this is what we believe and expect, and what the projects described in this paper aim to demonstrate through their research activities.

Given that we believe in digitization, there are important challenges to face with:

Quality of digitized/digital objects: it is important, in the light of archiving and mostly of re-use, that the result of digitization activity is a quality result, in terms of

¹ A good example of epigraphic digital content is the project EAGLE – Europeana Network for Ancient Greek and Latin Epigraphy <u>www.eagle-network.eu</u>

quality of the image and of richness of the associated metadata (i.e. associated descriptive information), which have to be highly descriptive, normalized and multilingual. Digitization is a complex activity, sometimes underestimated by the content owner. It requires skills and experience of the operator, and compliance with international quality standards is of course recommended.

Dissemination and re-use of the results of digitization actions: it is important to raise awareness of the availability of these digital objects, and to stimulate their creative re-use by the whole community and by the industry sector. In the light of unlocking the business potential of digital cultural heritage, it is crucial that cultural institutions and creative industry find a dialogue. Moreover, a framework support for the re-use is needed, both on the technological side (developing tools and technologies to stimulate creativity) and on the copyright side (indeed the Intellectual Property Rights issue is a very delicate and still open debate).

Impact of the digital age on the society: how is our society changing, due to the advent of the digital age? And, vice versa, how should an increasingly diverse society like ours use digital cultural heritage? How can digital cultural heritage be a force in the new European economy? These are a few of the questions which are arising in the new era, and these issues require study and analysis for being understood and managed at best.

Preservation: how to preserve this amount of data in the future, taking into account the very swift progress of information technology? How to guarantee interoperability and openness of the digital archives?

Participation of the citizens: there is a growing attention to the role of the citizens in scientific research development, and in the Digital Cultural Heritage and Humanities (DCHH). Important values such as openness, collaboration and wide participation in research will support the goal to expanding the range and scope of a common set of civic values and understandings related to this field.

The research on Digital Cultural Heritage and Humanities in facts can play an important role in the development of the European Research Area, and can be leader in the discovery of new directions of cross-disciplinary research, especially if it is empowered by the use of e-infrastructures, which can be used to support the participation of citizens in the research processes and the participation of creative industries in the exploitation of digital cultural content.

There are important EU projects that try to provide answers and solutions; a selection of them is presented in the following sections.

2 EuropeanaPhotography: high quality digitization standards for early photography

EuropeanaPhotography is a 3 year EU-funded digitization project that provides Europeana with over 430.000 new digitized items: these are masterpieces of early photography, belonging to the period 1839-1939, and with historical, artistic and cultural value. EuropeanaPhotography is coordinated by KU Leuven (Belgium) with technical coordination by Promoter Srl (Italy: it collects 19 partners from 13 European countries, plus Ukraine, Cyprus and Israel as associated partners, and the consortium is indeed a unique mix of public and private organizations, thus representing an innovative model of cooperation in the European landscape.

Being the project focused on "images", the digitization result must be up to the expectations as for the visual quality of the image itself, not only to respect the original photograph, but also to possibly enhance the original, in terms of quality and in the light of re-use and historical/artistic/scientific investigation. Important recommendations about the set-up of the digitization laboratories, equipment to be used, digitization activity, workflow were developed, and of course applied, by the project's partners, in order to guarantee the best digitized images, available for re-use.

Next to the quality of the digital image, it is of the utmost importance for EuropeanaPhotography to allow easy, rich and multilingual retrieval on these images in Europeana and, more in general, in the digital archives. This is necessary first in order to detect/select a certain image or group of images that might be of interest for the user, and secondly for enlarging the possibilities of re-use of those images: an image that cannot be (easily) retrieved in the digital archive cannot be considered truly "available", and even in the case that the image is retrieved, it must be accompanied by full description order to guarantee creative, educational or scientific re-use. Another aspect that is taken in high consideration for the indexing activities of EuropeanaPhotography project is the multilingualism: the metadata associated to each photograph are automatically translated in 17 languages thanks to a multilingual Vocabulary, especially developed for the project and specifically focused on photography.



Fig. 1. From the Europeana Photography collection: Frinton Tennis Tournament - Miss. J.E. Stevens and Mrs. Craddock, July 15th 1929, © TopFoto/Alfieri.

EuropeanaPhotography also presented one successful example of creative re-use of these photographs: the exhibition *All Our Yesterdays – Life Through the Lens of Europe's First Photographers (1839 – 1939)*, launched in Pisa in April 2014 (over 5.200 visitors enjoyed the exhibition) and then travelling to Europe to show to the European citizens how life was in the period before the First World War, as witnessed by the pioneers of the art of photography. In this period, a life of horses and agriculture briefly co-existed with a new, modern reality of machines and industry, but people's everyday life, joys and sorrows, stories and dreams turn out to have been strikingly similar to ours... To re-build these stories through a kaleidoscope of early photographic masterpieces, All Our Yesterdays presents the most exquisite - often unseen - images of a world in change, showcasing the mastery and art of the very first photographers, also available in a virtual exhibition and as a App: www.earlyphotography.eu

Digitizing these photographs, making them available and visible, disseminating the historical and social value they have as a witness of past times permit to foster a participative process for the collection of other, new or similar images, held by citizens in their family albums and by private collectors and smaller archives. An example of this participation was observed during the All Our Yesterdays exhibition in Pisa, where a digitization station operated by professionals allowed the visitors to digitize their own family photos, in order to contribute to the digital preservation of the memory and local cultural heritage. The digitized items were approximately 900,

mostly related to family portraits and everyday life of Italian people in between the two World Wars, including themes as war, soldiers, schoolmates, the fascism and the Italian colonies, and day-trips. The fragmented picture of local photographic heritage, therefore, had the possibility to get together, next to the masterpieces showcased in the main exhibition; and the best selection of these images will converge in another exhibition, to be held again in Pisa by the end of 2014.

All Our Yesterdays, with its extraordinary success of visitors, aims to double such success in other location, as it is conceived as a travelling exhibition: next appointment is in Leuven on February 2015.

The EuropeanaPhotography partners, although the project is near to its end, are willing and planning to stay together in the form of an open association which will build on the legacy of the project to go ahead in the field of photographic heritage.



Fig. 2. Visitors crowding the rooms of Palazzo Lanfranchi in Pisa, where All Our Yesterdays was on show 11th April - 2nd June 2014



Fig. 3. All Our Yesterdays is also a virtual exhibition available on-line and in AppStore: www.earlyphotography.eu

3 Europeana Space: spaces of possibility for the re-use of Europeana's content

Europeana Space is a Best Practice Network where the possibilities of creative reuse of digital collections are investigated, tested and boosted. It will provide an open environment for the development of applications and services based on digital cultural content. The use of this environment will be fostered by a vigorous, wide-ranging and sustainable program of promotion, dissemination and replication of the Best Practices developed within the project. The project is led by Coventry University and includes 29 partners representing institutions, public organizations, research bodies, creative SMEs and technology providers. The project will develop 3 "spaces", the Innovation, the Technical and the Content Space: they will contain online guidelines and tools, a technical framework; a platform for Intellectual Property Rights management; Hackathons and Workshops to inspire and support content providers, technology partners, creators and industry bodies to develop new content-based services and applications; and incubation/mentoring activities by business experts to stimulate and support creative entrepreneurship.



Fig. 4. Europeana Space Website: www.europeana-space.eu

A wide series of experimental activities is planned in order to develop concrete examples of creative reuse of digital collections, in different areas and themes. 6 themed pilots will cover the most important sectors of interest in the market of new digital services and web applications: museums, television, games, publishing, photography, performing arts (dance in particular). The prototypes deriving from the 6 pilots will be boosted thanks to Hackathons and workshops that will put the whole community, intended both as final users and creative industry sector, in the loop of experimenting and evaluation. This iterative and interactive process, fostered by the creative environment that the project is developing, will generate as a final output new real products and services ready and tested to be distributed on the market, thus capitalizing the business potential of digital cultural heritage and creating new jobs and business opportunities.

Moreover, four demonstrators will present innovative models of content use for cultural heritage: Cavafy literature library, Irish poetry and folk tales, 'Closer to Van Eyck – Rediscovering the Ghent Altarpiece' and Archaeological, built and 3dimensional heritage based on Cyprus digital collections. They will identify current best practices for environments/applications intending to facilitate re-use of digital cultural heritage content in an educational context, with a dual impact on students, teachers and other professionals across the wider education sector, who will acquire creative and technical skills and access the vast and diverse repositories of digital cultural heritage content as a basis for teaching and learning materials, to be used or autonomously developed.

The achievements of the project, in the form of the three spaces and the pilot applications are aiming at unlocking the immense potential of European cultural heritage. Europeana Space concretely will allow the creative re-use of digital cultural heritage to generate new applications and products for different sectors, such as education, cultural tourism, cultural entertainment, research: the digital cultural content will therefore be more accessible, empowered and disseminated; it will be studied, annotated, shared by multiple, different users thus being enriched and renewed, constantly.

Europeana Space is a Best Practice Network and therefore is open to new members: everybody can join the Stakeholder Group and participate to the big challenge. Information is available at <u>www.europana-space.eu</u>



Fig. 4. Amsterdam, 15 May 2014: Europeana Space partners during a creative brainstorming meeting

3 RICHES

RICHES (Renewal, Innovation and Change: Heritage and European Society) is a "Social Sciences and the Humanities" EU-funded project, aimed at investigating the change digital technologies are bringing to the European society and to demonstrate how, within that context of change, Cultural Heritage can be decentred away from cultural institutions towards and to advantage of the citizens and become a force for the European social and economic development. The project's main objective is therefore reducing the distance between people and culture, recalibrating the relationship between heritage professionals and heritage users: such recalibration process will maximise cultural creativity and ensure that the whole European community can benefit from the social and economic potential of Cultural Heritage.



Fig. 5. RICHES Website: www.riches-project.eu

RICHES' areas of investigation are many and covering a wide range of aspects: its consortium aims to understand how digital practices are transforming the traditional cultural heritage practices of cultural institutions; to define the context of change in which performance-based Cultural Heritage (especially dance and body-based performance practices) is made; investigate how traditional hand-making skills and knowledge can be transferred into advanced manufacturing sectors; understand how digital technologies are impacting on the territorial cohesion and on the citizens' sense of identity and belonging; discover new ways for the promotion and commodification of historic places and Cultural Heritage resources; explore how people can become producer - as well as users - of cultural contents, by playing an active co-creative role within the cultural institutions; individuate the new possible forms of Intellectual Property emerging from the move from analogue to digital; provide an economic analysis of the impact of taxation and public-private support on Cultural Heritage and explore how Public-Private-Partnerships can support the exploitation of Cultural Heritage.

RICHES research work shall be grounded on the so-called Project's Taxonomy: a theoretical framework of interrelated terms and definitions, referring to the new emerging meanings of the digital era (such as that of "preservation", "digital library", "virtual performance", "co-creation...), aimed at outlining the conceptual field of digital technologies applied to cultural heritage. The project consortium will work at establishing the Taxonomy's definitions, which shall therefore constitute the foundations of the project's research.



Fig. 6. 13 May 2014, Barcelona: Workshop on the RICHES Taxonomy

RICHES draws together 10 partners from six European countries and Turkey, experts from cultural institutions, public and national administrations, SMEs, the humanities and social sciences. Its interdisciplinary team will research the context of change in which European Cultural Heritage is transmitted, its implications for future Cultural Heritage practices, and the frameworks - cultural, legal, financial, educational, technical - to be put in place for the benefit of all audiences and communities in the digital age.

Through comparative researches and pilot experiments, this project is demonstrating how a new balance in the relationship between culture and users (students, teachers, researchers and citizens at large) enables Cultural Heritage to play a new role in our ever-changing society. Cultural institutions able to renew themselves, for facing the societal changes, will keep on counting and representing aggregation centres. Hence, they will be also able to attract the investments they need and address such investments to the improvement of their services. This allows to hypothesize a virtuous circle, where shortening the distance between Cultural Heritage and users increases the user number and attracts funds towards Cultural Heritage, which grows in turn, getting a more significant role within the society.

4 PREFORMA

PREFORMA – PREservation FORMAts for culture information/e-archives – is a Pre-Commercial Procurement (PCP) project co-funded by the European Commission under its FP7-ICT Program. The main objective of the project is the development and deployment of an open source, software licensed, reference implementation for file format standards aimed at any memory institution (or other organisation with a preservation task) wishing to check conformance with a specific standard.

Memory institutions are facing increasing transfers of electronic documents and other media content for long-term preservation. Data is normally stored in specific file formats for documents, images, sound, video etc. that are produced by software from different vendors. Even if the transferred files are in standard formats, the implementation of standards cannot be guaranteed. The software implementing standards for the production of the electronic files is not controlled either by the institutions that produces them or by the memory institutions. Conformance tests of transfers are done, but are not totally reliable. This poses problems in long-term preservation. Data objects meant for preservation, passing through an uncontrolled generative process, can jeopardize the entire preservation exercise.



Fig. 7. PREFORMA Website - www.preforma-project.eu

The overall intention of PREFORMA is to research critical factors in the quality of a standard implementation in order to establish a long-term sustainable ecosystem around the developed tools with a variety of stakeholder groups (developers controlling the production of preservation files, digital preservationists controlling the acceptance and management of preservation files in digital repositories, standardization bodies maintaining the formal specifications of file formats in standards, etc.).

The tools should be innovative, provide a reference implementation for the most common file format standards and a mechanism for the assessment of the collections to be archived and for the correction of the errors. In order to demonstrate effectiveness (and refine) these tools, they will be developed in an iterative process with multiple releases and they will be tested with 'real' data sets from memory institutions during each iteration.

The open source tools developed by PREFORMA are expected to enable big and small cultural institutions to tackle the quality issue of their digital archives.

The network of common interest of PREFORMA will be set up with representatives from memory institutions, researchers and developers who are interested in contributing to the definition of requirements and taking part in the assessment and exploitation of the results produced by the suppliers. To obtain more information about the project and to join the PREFORMA open source community visit www.preforma-project.eu.



Fig. 8. PREFORMA presented all around Europe

5 Civic Epistemologies: development of a Roadmap for Citizen Researchers in the age of Digital Culture

CIVIC EPISTEMOLOGIES is a brand new project launched in August 2014 which will develop and validate a Roadmap for e-infrastructures development to support the participation of Europe's citizens in scientific research, focusing on Digital Cultural Heritage and digital Humanities (DCHH). The partners are committed to the values of open data, open source and open innovation. Information and digital technologies are powerful drivers of creativity, but parts of the creative and cultural sectors lack technical know-how. Humanities scholarship, too, is not yet taking full advantage of Information and digital technologies to engage with wider audiences. New skills are needed in our changing society, to enable us to grasp employment and commercial opportunities.

In empowering the existing e-Infrastructures, adapting them to the users' (cultural institutions, industry and people) needs and strengthening the users' technical knowhow, CIVIC EPISTEMOLOGIES aims to maximize the added value and quality which cultural heritage is given by digital technologies and consequently the participatory potential of cultural heritage, with the positive social and economic implications resulting from that.

CIVIC EPISTEMOLOGIES indicates practical ways to overcome obstacles, unlock opportunities and lead to economic and social benefits. The project will undertake an analysis of the needs of researchers, citizens and research/cultural institutions, on which it will base a new Roadmap for use by policy-makers; a Pilot and case studies will validate its proposals; a strong communication and dissemination program will ensure widespread impact for the project findings. A durable network of common interest will connect cultural institutions, research bodies, creative industries, e-infrastructures and citizens' associations. The education sector will be encouraged to create research-rich services within the curriculum and through informal learning, lifelong learning and Continuing Professional Development. Research institutions will be encouraged to establish clear protocols for citizens' engagement and shared research goals where achievable.

The project will support Horizon2020, in which cultural heritage and social sciences and humanities are embedded across the programme, the Digital Agenda for Europe and the European Agenda for Skills and Jobs. Critically, the Roadmap will offer support for improved social cohesion arising from the sharing by Europe's citizens of their knowledge and understanding of their common and individual cultures.



On the first two days of September, the premises of the Ministero dello Sviluppo Economico will host the CIVIC EPISTEMOLOGIES* Kick-off Meeting, which brought...

Fig. 10. Civic Epistemologies Website www.civic-epistemologies.eu

6 Conclusions: to address the challenges we need knowledge sharing

The big challenge of approaching the new digital era in a way that allows ameliorating the lives of people includes the task of unlocking the potential of digital cultural heritage. Such potential seems to be double: on one hand, we'll need to foster more and more a shared knowledge and a growing, easier and free access by all the citizens to the available information resources; on the other hand, it is certainly possible to derive economic growth and welfare for the whole community from the European rich and unique Cultural Heritage.

To do so it is important that governments continue to support programmes for digitization and research, thus allowing institutions, academies, research centers, private enterprises and final users to cooperate and develop a collective intelligence for understanding the impact of the digital technologies in every aspect of our lives. At the same time, it is necessary to develop common shared methodologies and objectives to foster dialogue among the different actors and stakeholders. The key word seems to be, and this is not a surprise, networking: networking is indispensable for the dissemination of ideas, projects and outputs, so as anyone is aware of what the others do and can provide inputs and different point of views. Only if the community, intended in its broadest sense, is able to permit ideas to circulate, it is possible to achieve a real progress for the common benefit.

Digital technology once again helps with the circulation of information, thanks to the internet. In the context of global growing access to Internet and over-flooding of on-line information about any topic, however, it is sometimes hard, for users, to collect materials and news about their specific interests. A very valuable tool is the on-line magazine *digitalmeetsculture.net*, now an important landmark for collecting and sharing information about digital culture, digital cultural heritage projects and initiatives, and digital art.

Launched at the end of 2011, the portal run by Promoter already reached over 15,000 monthly visits and an average of more than 600 unique visitors per month. This number, which is constantly growing, demonstrates not only the increasing popularity of the portal, but also the great and widespread need of information in our society.

digitalmeetsculture.net's challenge is to enlarge more and more its network by establishing new relationships, cooperation and synergies. In an ever-changing digital world like ours, what is often missing is the effective relationship among the persons. digitalmeetsculture.net aims to foster this dialogue and exchange of knowledge and information, which contributes to the enrichment of the common heritage.



Fig. 9. www.digitalmeetsculture.net

What is really important to this aim is allowing communication between different communities with different knowledge and languages, such as the cultural heritage sector, the education sector, cultural and creative enterprises, humanities researchers, artists, digital infrastructure providers, etc. By supporting different attitudes and cross-disciplinary practices, this portal helps to disseminate and raise awareness of what different communities and actors do. The relevant impact of such wide circulation of information brings new opportunities and a positive progress of the different professional communities.