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Table of Contents

1	Executive summary	4
2	Introduction.....	5
3	The table of content of the handbook	8
4	Conclusions.....	11
5	Annexes.....	15

1 Executive summary

The *Handbook on virtual exhibitions and virtual performances*, edited in the framework of the INDICATE project, represents the synthesis of all the results achieved by the project in this field.

It is targeted to the cultural sector. The section dedicated to virtual exhibitions is specially targeted to cultural heritage professionals (curators, archaeologists, art historians, archivists, librarians, designers and web designers, information scientists, communication managers, etc.) working in the valorization and dissemination of knowledge also through exhibitions made available online. The section on virtual performances has a wider audience, and it's also targeted to performing arts professionals (theaters, auditoriums, artists, etc.) to stimulate the integration of virtual experiences on their activities.

The text of the handbook, which has been made available online in the project website¹ and printed in 500 copies, is included in **Annex 1** of the present deliverable, while the other chapters are composed of:

- an **introduction**, illustrating the steps undergone to produce the handbook as well as the strategy for future dissemination,
- the **table of content** of the handbook,
- the **conclusions**, summarising the general considerations arisen from the INDICATE work on virtual exhibitions and virtual performances, its possible impact in the European scenario and the first expectations at short term.

¹ <http://www.indicate-project.org/getFile.php?id=412>

2 Introduction

This handbook intends to provide a useful conceptual tool for the digital transition process regarding cultural heritage, which must be tackled with the right infrastructure and adequate conceptual, theoretical, organizational, and management tools, along with an awareness of the deep changes in prospects arising out of the chance to separate the governance of culture preservation from the strategies to promote cultural heritage, which strategies are often aimed at local tourism marketing and the exploration of new forms of cultural tourism.

In this light, new methods and tools to describe and depict cultural heritage have been developed; communication and information access modalities have been overhauled; and the traditional functions and roles played respectively by the guardians and consumers/users of cultural goods have been reconsidered.

The construction of exhibitions, thematic routes, and annotated galleries with digital content and resources related to the various categories – and thus to the various peculiarities – of cultural heritage represents the emergence of a countertrend aiming to overcome the limits caused by the fragmentation of our cultural heritage, and to reconsider the procedures and methods used in the intellectual production and the communication and dissemination of knowledge.

Moreover, the e-infrastructure technologies behind the realisation of virtual performances open new scenarios, not yet fully explored. The experiences on virtual performances offer new possibilities for cultural institutions. The handbook provides an overview of some technical aspects to take in account and the necessary basic requirements (network and equipment) to show what is needed to carry out this kind of events and stimulate the institutions to include these experiences on their activities. The integration of virtual performances on this use case has enriched the global overview on virtual experiences. For example, the Cultural Ring represents a starting point for the intensive use of the e-Infrastructures for culture. The infrastructure already available let us think on new uses and approaches, integrating not only performing arts, but also Digital Cultural Heritage.

The drafting of this handbook on online virtual exhibitions represents an additional tool in this scenario. Indeed, in spite of the many difficulties they face, cultural institutions – archives, libraries, and museums – are digitizing their

cultural contents to improve their access and conservation. However, in order to be valorised, the digitized items must be able to “tell a story” through virtual exhibitions and interactive, hypertextual, and hypermedia thematic routes, which attract the attention of either a generic or more specialized audience by offering informative, didactic, and in-depth material that can capture the interest of an increasingly “digital” audience, while enhancing the visibility of the patrimony of cultural institutions of all kinds.

The present handbook is the result of a long-term work on this field.

In 2010, the Italian Ministry of Cultural Heritage, out of the desire to cooperate between archives, libraries and museums for sharing best practices, descriptive norms, instruments, and standards, set up at national level a working group of experts, chaired by ICCU, with the objective of drafting guidelines for online virtual exhibitions. This work, ended in the publication of *Mostre virtuali online: linee guida per la realizzazione (versione 1.0, settembre 2011²)*, which was proposed as the Italian contribution to the European project INDICATE (International Network for a Digital Cultural Heritage e-Infrastructure).

Starting from this first work, the INDICATE working group on Virtual Exhibitions edited a first deliverable³, the main objective of which was to review the current situation of virtual exhibitions and virtual performances processes, the state of the art of the technology used and the relation between cultural institutions and e-Infrastructures.

This first document included the results of a survey on virtual exhibitions where all partners were invited to participate, as well as those collected during the thematic workshop on virtual exhibitions held in Amman (Jordan) last 11 December 2011⁴.

Moreover, the INDICATE work in progress on virtual exhibitions was presented several times in the framework of workshops held at European level.

² <http://www.otebac.it/index.php?it/320/mostre-virtuali-online-linee-guida-per-la-realizzazione>. This publication was downloaded more than 3500 times from the website of the Italian Technological Observatory for Cultural Heritage and Activities in 18 months.

³ <http://www.indicate-project.org/getFile.php?id=359>.

⁴ Proceedings: <http://www.indicate-project.org/getFile.php?id=371>.

- Barcelona (Spain), INDICATE Workshop on "Digital Cultural Heritage e-Infrastructure. *New opportunities for the Cultural Heritage*", 14th June 2011⁵
- Sibiu (Romania), International Conference CIDOC 2011 - Knowledge management and museums, 4-9 September 2011⁶
- Florence (Italy), EVA Florence 2012, 11 May 2012, Europeana Awareness⁷,
- Stockholm (Sweden), MICHAEL Culture workshop on virtual exhibitions, 23 May 2012⁸

Every time, during these workshops there was a big interest from the audience in the topics connected to virtual exhibitions and virtual performances and these workshops gave us the opportunity to collect other best practices in the field.

All these results stimulated the INDICATE working group dealing on virtual exhibitions to edit a handbook including practical tools and recommendations targeted to cultural institutions interested in creating virtual exhibitions and performances.

Therefore, this handbook includes the most relevant results described in the first deliverable (D5.2), improved and enriched with recommendations, a practical kit and a list of references, which take also into consideration the results achieved by all INDICATE partners at national level and in the framework of other European and international projects.

We underline that the experience gained in other European projects was fundamental to edit this handbook, mainly:

- MINERVA⁹ which produced several publications and tools connected with the quality of cultural web applications;
- ATHENA¹⁰ and LinkedHeritage¹¹, which, besides their main role to aggregate cultural content for Europeana, investigate the current standards in digitization in order to increase interoperability within the cultural heritage sectors;

⁵ <http://www.indicate-project.org/index.php?en/22/events-archive/54/barcelona-workshop-digital-cultural-heritage-e-infrastructure>.

<http://www.i2cat.net/en/multimedia/201106/digital-cultural-heritage-e-infrastructure-0>

⁶ <http://www.brukenthalmuseum.eu/cidoc/uk/file/abstracts.pdf>

⁷ <http://www.otebac.it/index.php?it/22/archivio-eventi/227/florence-europeana-awareness>

⁸ <http://www.linkedheritage.org/index.php?en/146/events/66/stockholm-michael-culture-workshop-virtual-exhibitions>

⁹ <http://www.minervaeurope.org>

¹⁰ <http://www.athenaeurope.org>

¹¹ <http://www.linkedheritage.org>

- DC-NET¹², the main aim of which was to develop and to strengthen the co-ordination of the public research programs among the European countries, in the sector of the digital cultural heritage.

A big effort on dissemination will be made by all the partners in order to advertise this handbook. In fact, it has already been:

- Published on the INDICATE project website;
- Printed in 1500 copies to be distributed during the events organised by the partners, also after the end of the project;
- Publicly presented in the occasion of the INDICATE Final Conference in Ankara which took place in October 2012.

A big communication campaign will be carried out through national and European mailing lists, portals, blogs, exploiting also the INDICATE network of experts.

ICCU, which is charge on the maintenance of the INDICATE project website, will take care of monitoring the number of downloads of the handbook also after the end of the project.

3 The table of content of the handbook

Foreword (*Rossella Caffo*)
Introduction

1 Concepts and definitions

- 1.1 Exposition, exhibition
- 1.2 Online virtual exhibition
 - 1.2.1 Virtual thematic route
 - 1.2.2 Virtual museum
 - 1.2.3 Digital object
 - 1.2.4 Hypertext, hypermedia, multimediality, interactivity
 - 1.2.5 Information architecture
 - 1.2.6 Users
- 1.3 Virtual performances

VIRTUAL EXHIBITIONS

¹² <http://www.dc-net.org>

2 The production process of a virtual exhibition

2.1 Conception

- 2.1.1 Brainstorming
- 2.1.2 Thematic relations

2.2 From planning to creation

- 2.2.1 The project team
- 2.2.2 Selection of digital resources
- 2.2.3 Definition of the architecture: contents, information, and services
 - 2.2.3.1 *Content area*
 - 2.2.3.2 *Information area*
 - 2.2.3.3 *Services area*

2.2.4 The technology to be used

- 2.2.4.1 *Mobile technology*
- 2.2.4.2 *Augmented reality*
- 2.2.4.3 *Mixed reality*
- 2.2.4.4 *Geographic information*

2.2.5 The budget

2.2.6 Definition of operating phases and timeline

2.3 Testing, publication, communication, and dissemination

- 2.3.1 Testing and publication
- 2.3.2 Communication and dissemination
 - 2.3.2.1 *Traditional communication tools*
 - 2.3.2.2 *Social media marketing*

2.4 Updating, maintenance, and preservation

3 Tool kit

3.1 Graphic design

3.2 Text style

3.3 Multi-media resources

- 3.3.1 Still Images
 - 3.3.1.1 *OCR: text conversion*
- 3.3.2 Sound
- 3.3.3 Video
- 3.3.4 3D (Computer graphics, immersive photographs, anaglyphs)
 - 3.3.4.1 *Computer graphics*
 - 3.3.4.2 *Immersive photography*
 - 3.3.4.3 *Anaglyphs*

3.5 Virtual reality

3.6 Intellectual Property Rights

3.4 e-infrastructures

- 3.4.1 Bandwidth
- 3.4.2 Hosting and storage capacities
- 3.4.3 Authorization and authentication infrastructures

VIRTUAL PERFORMANCES

4 Technical aspects

4.1 Image

- 4.1.1 Video resolution
- 4.1.2 Colour coding
- 4.1.3 Video compression
- 4.1.4 Projection

4.2 Audio

4.2.1 Microphones and speakers

5 e-infrastructures and technologies

5.1 Network Infrastructure

5.2 Adaptive and scalable multimedia technologies

5.2.1 Coding: video coding

5.2.2 Transmission

5.2.2.1 *Protocols*

5.2.3 Quality of Service and Experience

5.2.4 Distribution schemes

5.3 Tools and services

5.3.1 HD Streaming tools

5.3.2 Physical modelling synthesis

5.3.3 Data sonification

5.4 Virtual performances. Basic requirements

5.4.1 Network requirements

5.4.2 Equipment requirements

6 References

6.1 Virtual exhibitions

6.2 Virtual performances and cooperation projects

6.2.1 Virtual exhibitions using e-infrastructures

6.2.2 Education: music and drama

4 Conclusions

In presenting the first version of this handbook – which should be considered a working draft to be enriched over time with the addition of new experiences and best practices that could provide inspiration to cultural institutions – we hope that in the near future many experts will contribute to the debate with their comments, suggestions, and proposals, also after the end of the INDICATE project.

Considering virtual exhibitions from a general point of view:

- Virtual exhibitions are important tools to represent the identity of the cultural institutions and valorise cultural heritage. They permit to go beyond their physical limits and provide their users with complementary experiences, out of the traditional museum circuit.
- Through virtual exhibitions, cultural content can be disseminated to ensure different degrees of learning, from the simplest to the highly complex. Technology allows cultural institutions to design personalized exhibitions, centered on the single user experience, working on the proximity to the cultural consumer.
- Educational aspects are important criteria to define content, instruments, and services.
- Whenever possible, multilingual virtual exhibitions should be encouraged, in order to reach a large number of users.
- User interaction through hypertext and hypermedia is strategic, and the user's possible involvement as a supplier of content must be taken into consideration. Anyway, cultural institutions are still reluctant to UGC.
- Copyright rules must be respected with regards to individual documents and to the final product, publishing online the copyright regulations and terms of reuse.
- Narration should be lively through effective graphic design and the use of diverse media (text, images, audio, video, 3D, etc.), selected to enrich it.
- Virtual exhibitions and virtual performances can have a significant impact on the touristic and cultural industries and merchandising. By means of these technologies, cultural institutions can attract consumers that are not usually seduced by traditional exhibitions. Digital natives users demand this kind of services.
- It's important to design an easy-to-use product and to ensure maximum accessibility to information and the services offered, in compliance with existing norms and guidelines.

- In design the exhibition it's advisable to use scalable system architectures, which make it possible to enrich online content and services over time.
- Technology should be put at the service of content, and not vice-versa, so that the cultural message can prevail over the use of IT systems as an end in itself.
- Re-usable technology must be used for subsequent projects, as well as IT languages that allow interoperability.

Considering relationships between virtual exhibitions and e-Infrastructures:

- E-infrastructures offer great opportunities to make virtual exhibitions more performing and attractive, since they offer high capacity services that institutions cannot afford in-house.
- E-Infrastructure providers and cultural institutions are not really aware of the potential of their collaboration. Only little collaborations have been detected, so a communication effort is strongly recommended.
- It does not exist a pan-European framework of collaboration between e-Infrastructures providers and cultural institutions. Most of current collaborations have arisen from the requirements of non-traditional cultural institutions.
- Infrastructure providers are more concerned with services oriented to preservation of digital content by means of huge repositories than other services more related to technical requirements on virtual exhibitions. Infrastructure providers are invited to inform about all these creative capacities in order to foster the creation of new virtual projects.
- The provisioning of innovative services from the e-Infrastructures sector can be an inflexion point on the virtual exhibitions area as a high-tech consuming sector.
- e-Infrastructure providers are currently offering what we can consider "traditional" services: computation, storage and connectivity. The cultural sector and, particularly, the virtual exhibitions sector, can be a potential demander of innovative and more complex technologies that can be incorporated into the e-Infrastructure provider portfolio such as 3DRendering on demand, video transcoding, 3D Image reconstruction, and other software modules generally installed in-house, not as software as a service (SaaS).

As regards virtual performances, current analysis show that they are not yet much exploited by cultural institutions, but mostly by universities, academies and research centers for research purposes. Virtual performances normally demand interaction between different actors or actions happening or acting at the same time in different locations, that is, parallel performances in

distributed scenarios. Interaction put on the top of the technical requirements the maximum reduction of latency.

Virtual exhibitions and virtual performances represent big challenges for cultural institutions, also in the framework of the *European Digital Agenda*, the priorities of which include the digital and knowledge divide, digital awareness, the development of high band networks, open data and activities for the realization of smart cities.

Moreover, virtual exhibitions and virtual performances have also a big impact on creative industries, defined at European level, as “activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property”.

We can conclude that there is a high potential in the collaboration between the culture and e-Infrastructure sectors, and this collaboration must be fostered given the impact that will have in the next years the technology here reviewed, especially in the virtual exhibitions area, that appears to be a high-tech consuming sector. Furthermore, e-Infrastructure providers should address their services to specific sectors, given their specific requirements, and offer complex services, a step beyond the current service levels. Finally, one of the major impediments for the explosion of virtual exhibitions as a communication channel between culture institutions and their public are the costs. Efforts should be made to reduce the cost to provide services and hardware dedicated to virtual exhibitions.

Workshops and training sessions should be organized by cultural institutions and e-Infrastructures providers in the near future to present each other experiences and best practices, that could stimulate cooperation actions.

Finally we list two initiatives that will benefit from the results of the INDICATE project in the field of virtual exhibitions:

- The recent constitution of a working group on virtual exhibitions in the framework of the Linked Heritage project, which will investigate how to improve the quality of metadata in virtual exhibitions projects.
- The Italian project MOVIO, an example of public-private partnership (18 months, funded by Fondazione Telecom Italia), which intends to realize a kit to build online virtual exhibitions. Through it, Italian cultural institutions will be able to highlight masterpieces of their collections, as well as less known or “not visible” works of art. The kit will consist of: an open source

MMS for the creation of online virtual exhibitions; the equivalent version for mobiles (iPhone, Android for smartphones and iPad); the version of App for popular mobile platforms (iMovio); online tutorials and training in Italian and English language. This kit will put in practice and validate what declared also in the INDICATE guidelines.

5 Annex

The Annex is composed by the handbook put in page.